Contemporary Journal of Education and Social Sciences,
Volume 1, Issue 1, June 2026
ISSN: 2806-4968

IMPACTS OF TECHNOLOGY RESOURCES AWARENESS AND UTILISATION ON ACADEMIC ENGAGEMENT OF ISLAMIC SECONDARY SCHOOL STUDENTS IN KANDAL PROVINCE, CAMBODIA

BY
Sim Linat: Cambodian Islamic Center, Cambodia; E-mail: linatsim1983@gmail.com
&
Muraina Kamilu Olanrewaju: Faculty of Education, Prince Abubakar Audu University Anyigba, Nigeria; E-mail: muraina.olanrewaju@iou.edu.gm

Abstract
To study how technology resources, awareness, and utilization as forecaster of academic engagement among Islamic secondary school students in Kandal province, Cambodia, is the main purpose of this study. A total of three hundred (300) students are selected as the sample of this study. Technology resource awareness and technology utilization are targeted as the independent variables, while academic engagement serves as the dependent variable. Data were collected using validated structured questionnaires, and the reliability coefficients of the instruments were found to be acceptable. Descriptive statistics and Pearson Product-Moment Correlation (PPMC) were used as the mean to analyze the obtained data to be analyzed. Five research questions were raised and answered. The results revealed $r = .542$ and $p < 0.05$, which reflected that there was a significant relationship between technology resource awareness and academic engagement among Islamic secondary school students. It was also found that $r = .572$ and $p < 0.05$, showing a significant relationship between technology utilization and academic engagement of these findings. Based on these findings, one could make a conclusion that technology resource awareness and technology utilization significantly influence academic engagement among Islamic secondary school students. It was therefore recommended that school administrators and policymakers should improve students' awareness of available technological resources and promote the effective utilization of technology to enhance academic engagement in Islamic secondary schools.
Keywords: Technology resources, Academic engagement, Technology awareness, Technology utilization and Secondary school students

Introduction

In the modern educational environment, integration of Information and Communication Technology (ICT) becomes a necessity and a transformation agent. Everywhere in the world, governments, development partners, and schooling institutions have made huge investments in ICT to enhance the quality of teaching, efficiency of learning, and student engagement. As per UNESCO (2021), the enhancement of ICT integration helps expand knowledge access, interactive pedagogy, and lifelong learning. Such shifts in technology are not innovations alone, but also shape equity, inclusion, and relevance of societies, which are driven by digital globalization today. Academic engagement has three aspects namely Behavior, Emotion, and Cognition (Fredricks et al., 2004), and is a major predictor of successful academic performance. The higher the degree of engagement of the individual student, the more likely they are to be motivated, persistent, and successful in school. Technology offers immense potential for encouraging this interaction when used appropriately. Digital platforms like Google Classroom, Moodle, and Khan Academy are successful for encouraging interactive learning, self-directed learning, and collaborative participation (Selwyn, 2016). However, it depends highly on students' awareness of available technologies by learners and their capability to harness them efficiently for learning activities. Rapid economic growth in Southeast Asia has been accompanied by different degrees of ICT adoption in education. According to the World Bank (2022), Singapore and Malaysia have made tremendous achievements in ICT-based education, while less-resourced countries, such as Cambodia, Laos, and Myanmar, are still marred by deep disparities, particularly in their rural communities. In Cambodia, programs aimed at blending ICT into pedagogy have been introduced by its Ministry of Education, Youth, and Sport (MoEYS), some of which are Policy and Strategy on ICT in Education (2004-2008) and successive national strategies (MoEYS, 2021). Gaps, however, remain

between urban and rural schools; even more serious are discrepancies between technology access, awareness, and utilization.

The theoretical framework used for the present study provides a strong foundation for understanding the interrelationships of the different variables investigated. According to the Technology Acceptance Model, perceived usefulness and perceived ease of use are two important factors that influence people's acceptance of technology, and as a result, lead them to use the technology. An additional factor in the technology acceptance process is individuals' awareness of the technology. According to the constructionist learning theory, students learn best when they are actively involved in creating their understanding through their use of ICTs, when they take part in problem-solving activities, and when they explore their environment. Additionally, the Engagement Theory states that attribution to meaningful learning occurs through collaborative, creative, and purposeful activities that are enhanced through the use of technology. Taken together, these three theories suggest that there is a sequential relationship between awareness and use, as well as between use and academic engagement.

Empirical studies have shown the clear positive correlation between technology-based factors and student academic engagement. For instance, researchers have indicated that students with an array of technology tools available to them also have higher rates of engagement in their schoolwork (Schindler et al., 2017; Fredricks et al., 2004). Likewise, students' awareness of technology tools leads to increased feelings of confidence, motivation, and ability to engage in scholarly activities (Warschauer, 2003; Tinio, 2003). In addition, studies have shown that the use of technology tools by students leads to a higher level of participation, motivation, and development of higher-level cognitive skills (OECD, 2015; Kozma, 2005). Despite these positive examples, studies done in developing countries, such as Cambodia, reveal the limited use of ICTs by students, due to infrastructure issues, low levels of knowledge of the use of technology, and poor teacher support (MoEYS, 2021; World Bank, 2022).

There is a large amount of literature regarding ICT in education; however, many gaps still exist within this literature. For example, many studies focus on aspects like technology access, awareness, and utilization in isolation that could be combined into a single explanatory framework for academic engagement. Another example is that no studies have been conducted within the context of Islamic secondary schools, where religious, cultural, and institutional factors could play an important role in students' technology utilization. At last, nearly all of these investigations are conducted in prosperous or high-tech educational environments. Therefore, these studies lack a model for schools in Cambodia. Accordingly, it is necessary to obtain contextually specific empirical evidence investigating the impacts of technology resource awareness and utilization on academic engagement for Islamic secondary school students in Kandal Province.

Kandal province offers a microcosm of such challenges. Islamic secondary schools mixed Cambodia's national curriculum with Islamic studies. On the other hand, their current level of infrastructure is vastly different from one another. Schools in urban areas normally have far better facilities than those in rural areas, which have extremely inadequate infrastructures along with few computers and teachers that are inadequately trained in ICT (Department of Education, Kandal Province, 2023). In most cases, these students don't have much exposure to digital resources and therefore don't get any opportunities for using those resources as they participate in structured academic engagement. This unawareness and utilization can potentially adversely affect how far students are behaviorally, emotionally, and cognitively involved in their process of learning. Drawing on other studies (Selwyn, 2016; UNESCO, 2021), it is insisted that equitable access to ICT is instrumental for encouraging a process of academic engagement and learning accomplishment. However, limited evidence exists about how their relationships are going through the Islamic educational context of Cambodia. As a result, ours attracted to explore how technology awareness and technology utilization have impacts on the academic engagement of students of Islamic secondary schools of Kandal province.

Purpose of the Study

The main purpose of the study is o discover the impact that technology resource awareness and technology utilization have on the academic engagement among Islamic secondary school students in Kandal province, Cambodia. In particular, the research set out to determine:

1. The level of technology resources awareness among Islamic secondary school students
2. The level of technology resource utilization among Islamic secondary school students
3. The level of academic engagement among Islamic secondary school students
4. The relationship between technology resource awareness and academic engagement among Islamic secondary school students
5. The relationship between technology resources utilization and academic engagement among Islamic secondary school students

Research Questions

Based on the purpose of the study, the research questions were raised as follows:

1. What is the level of technology resources awareness among Islamic secondary school students?
2. What is the level of technology resource utilization among Islamic secondary school students?
3. What is the level of academic engagement among Islamic secondary school students?
4. What is the relationship between technology resource awareness and academic engagement among Islamic secondary school students?
5. What is the relationship between technology resources utilization and academic engagement among Islamic secondary school students?

Methodology

This study employed a quantitative survey design of a correlational (ex-post facto) type to examine the relationships between technology resource awareness, technology utilization, and academic engagement among Islamic secondary school students. The design was appropriate as it enabled the investigation of existing variables without manipulation, since students' levels of technology awareness and utilization had already occurred before the study. This approach allowed for the analysis of associations among variables using statistical techniques such as correlation. The participants in this study are 1,450 students enrolled at three Islamic Secondary Schools in Kandal Province, Cambodia, as determined by the total number of students across those three schools that provide both Islamic religious education and Khmer formal education as specified by the output of the Ministry of Education, Youth and Sport (MoEYS). The students from grades 7 through 12 were randomly selected, as they represent students who receive formal educational instruction as well as religious education and, therefore, have an opportunity to learn through the use of technology for learning purposes.

The sampling process for the study utilized a multistage sampling approach. The first stage was to purposively select the three Islamic secondary schools that met the criteria of the study. The second stage was to use stratified random sampling to ensure each grade level was appropriately represented (Grades 7 through 12). The third and final stage of the sampling method was to select respondents also proportionately within each of the sampled strata, using a simple random sampling approach. A total of 300 students were sampled, consisting of 120 students from the Cambodian Islamic Centre (CIC), 122 from the Norol Iman Chroymetrey School (NICS), and 58 students from the An-Nikmah Chroymetry School (ACS). A total of 304 questionnaires were sent out, with 300 valid completed questionnaires returned for analysis. Data was collected through the use of a structured questionnaire of 21 items, divided into three sections: technology resource awareness, technology utilization, and academic engagement. Each section of the instrument contained 7 items measured on a five-point Likert scale from Strongly Disagree to Strongly Agree. The instrument was created based on existing literature regarding digital literacy, ICT competence, computer self-efficacy, technology acceptance, and student engagement.

Contemporary Journal of Education and Social Sciences,
Volume 1, Issue 1, June 2026
ISSN: 2806-4968

To guarantee the content validity of the instrument, specialists in educational research, educational technology, and Islamic education reviewed it. Their feedback contributed to the refinement process of the instrument. The reliability of the instrument was tested for 30 students from a similar Islamic secondary school outside the main sample through a pilot study. The internal consistency of the technology awareness, technology utilization, and academic engagement subscales was shown to have acceptable Cronbach alpha levels of 0.73, 0.79, and 0.80, respectively. The process of data gathering was separated into three steps: preparation, implementation, and verification phases. Before the collection of data, permission was solicited from the school administrators. The researcher directly administered each of the questionnaires to each of the respondents via trained assistants to explain to each participant the study's purpose and maintain confidentiality as well as anonymity for each participant. After each questionnaire was completed, it was collected immediately to minimize data loss and to ensure the accuracy of the collected data. Quantitative analyses of data were conducted with the Statistical Package for Social Sciences (SPSS). Descriptive statistics, including percentages, were used to determine the level of awareness regarding technology resources usage and academic engagement, while Pearson Product-Moment Correlation (PPMC) was used to investigate relationships among variables and test hypotheses at the 0.05 level of significance.

Results

Research Question 1: What is the level of technology resources awareness among Islamic secondary school students?

Table 1: Level of technology resources awareness among Islamic secondary school students

Items	N	Minimum	Maximum	Mean	SD
I know what technology resources are available in my school.	300	1	5	3.53	1.089
I am familiar with how to use computers for learning activities.	300	1	5	3.10	1.128
I know how to access online learning platforms or digital libraries.	300	1	5	3.35	1.045
I am aware of mobile applications that can support my studies.	300	1	5	3.81	1.014
My educators have informed me about the available educational technologies.	300	1	5	3.74	1.060
I understand how technology can help improve my learning performance.	300	1	5	3.67	.954
I can identify the different digital tools I can use for academic tasks.	300	1	5	3.25	1.064
Valid N (listwise)	300				

Source: The Author(s) own work.

The finding in Table 1 shows that the results reveal that students have a moderate level of awareness about technology resources, as measured by a mean score of 3.10 - 3.81. The data indicate an increased awareness of mobile apps (M = 3.81) as well as teacher-supported or guided use of technology (M = 3.74), thereby suggesting student familiarity with commonly used technologies, which receive support from their teachers. By the same token, evidence of an average score of computer use (M = 3.10) and the average identified ability to determine which digital tools were appropriate to the task (M = 3.25) reveals student gaps in both practical technology experience and technology understanding. Therefore, the results of this study indicate that although the average student is aware of technologies, they require more structured training and increased exposure to ICT tools.

Contemporary Journal of Education and Social Sciences,
Volume 1, Issue 1, June 2026
ISSN: 2806-4968

Research Question 2: What is the level of technology resource utilization among Islamic secondary school students?

Table 2: Level of technology resource utilization among Islamic secondary school students

Items	N	Minimum	Maximum	Mean	SD
I use technology (computer, mobile phone, internet) to complete assignments.	300	1	5	3.71	1.138
I use the internet to search for academic information.	300	1	5	3.87	.954
I use technology to collaborate with classmates on schoolwork.	300	1	5	3.76	1.052
I use digital tools to prepare for tests and exams.	300	1	5	3.22	1.114
Technology is integrated into classroom lessons by my educators.	300	1	5	3.61	1.091
I use online learning platforms or educational apps for studying.	300	1	5	3.62	1.042
I regularly use technology to create or submit academic work.	300	1	5	3.34	1.129
Valid N (listwise)	300				

Source: The Author(s) own work.

As shown in Table 2, students' use of technology can be seen to have a moderate level of use (M = 3.22 to 3.87). Utilization of technology primarily consists of searching for course materials (M = 3.87), collaborating with classmates on assignments (M = 3.76), and completing assignments (M = 3.71). In completing these types of academic tasks, students show a dependence on ICT (information and communication technology) to perform basic academic functions. In contrast, it appears that students have much less engagement with the higher-order use of technology than with the lower-order use, as indicated by exam preparation, which was rated at a mean value of 3.22, and the creation or submission of work, with a mean value of 3.34. Therefore, even though they are frequently using technology, students are not as engaged in higher-order learning activities.

Research Question 3: What is the level of academic engagement among Islamic secondary school students?

Table 3: Level of academic engagement among Islamic secondary school students

Items	N	Minimum	Maximum	Mean	SD
I pay attention and participate actively in class activities.	300	1	5	4.10	.758
I feel motivated to learn when technology is used in lessons.	300	1	5	3.93	.951
I feel more connected to my educators and classmates when digital tools are used.	300	1	5	3.79	1.071
I am willing to spend extra time learning with the help of technology.	300	1	5	3.81	.998
I find it easier to understand difficult concepts when technology is used.	300	1	5	3.91	.996
I actively participate in online learning activities or discussions.	300	1	5	3.64	1.087
Technology helps me stay focused and engaged during lessons.	300	1	5	3.77	1.097
Valid N (listwise)	300				

Source: The Author(s) own work.

Table 3 shows that students engage in academics at a moderately high level, with mean scores ranging from 3.61 to 4.10 being among their means for academic performance. The mean score for class participation was remarkably large at (M = 4.10), while technology was reported to be one of the main motivators of class

participation (M = 3.93) and comprehension of hard materials (M = 3.91). Participation in online learning may have been the least engaging form of digital learning for the students (M = 3.64). Overall, students seem to show fairly high amounts of behavioural engagement, moderate amounts of emotional engagement, and moderate levels of cognitive engagement as a result of using ICT.

Research Question 4: What is the relationship between technology resource awareness and academic engagement among Islamic secondary school students?

Table 4: Relationship between technology resource awareness and academic engagement among Islamic secondary school students

Variablea		Technology Awareness	Academic Engagement
Technology Awareness	Pearson Correlation	1	.542**
	Sig. (2-tailed)		.000
	N	300	300
Academic Engagement	Pearson Correlation	.542**	1
	Sig. (2-tailed)	.000	
	N	300	300

Table 4 demonstrates a moderate positive correlation between technology resource awareness and academic engagement ($r = 0.542$, $p < 0.01$); Since the p-value is less than 0.05 thereby rejecting the null hypothesis. Awareness of technology and technological resources in the classroom has a positive impact on student engagement, including participation, motivation, and cognitive engagement. This finding emphasizes the need to improve the students' level of awareness regarding ICT tools in order to increase academic engagement by the students.

Research Question 5: What is the relationship between technology resources utilization and academic engagement among Islamic secondary school students?

Table 5: Relationship between technology resources utilization and academic engagement among Islamic secondary school students

Items		Technology Utilization	Academic Engagement
Technology Utilization	Pearson Correlation	1	.572**
	Sig. (2-tailed)		.000
	N	300	300
Academic Engagement	Pearson Correlation	.572**	1
	Sig. (2-tailed)	.000	
	N	300	300

According to Table 5, technology's use moderate positive relationship to academic involvement ($r = 0.572$, $p < 0.01$). Thus, we rejected the null hypothesis as there was evidence that students who used technology to study (completing assignments, collaborating with classmates, and doing research) were more engaged than students who did not use technology to study. Technology's use to engage students was slightly stronger than technology's awareness to engage students; therefore, the actual use of information and communication technology (ICT) had a

greater, more direct effect on student engagement than simply knowing about ICT. Therefore, we have a strong case for encouraging the continual and intentional use of technology within the classroom

Discussion of the Findings

The first research question indicated that the level of technology resource awareness in Islamic secondary schools was moderate, meaning that students do have a basic understanding of the types of available technology and how to use them for education, but have not developed these fully. Many of these students are aware of the existence of various digital tools and the advantages of using them; however, their understanding of how to use specific technologies for academic reasons is still lacking. According to the research done by Warschauer (2003), having knowledge of ICTs includes not only having access to them but also being able to comprehend and use ICTs in an effective manner for educational purposes. Additionally, the World Bank (2022) stated that moderate levels of student awareness usually have resulted from limited opportunities and/or unequal access to digital learning environments in developing parts of the world. The result of the second research question suggests that there is a moderate-to-high level of technology utilization by Islamic secondary school students in their education. Specifically, the result showed that students have used technology to accomplish academic tasks such as completing homework assignments, researching school materials, and working together with classmates. However, using technology to study for exams and produce sustained schoolwork was not as frequent. Organisation for Economic Co-operation and Development (OECD, 2015) stated that technology is most useful when used with a clear purpose and with appropriate support. Further, Sokchea Un (2017) found that although most students have access to digital devices, the majority of their usage was for basic academic activities rather than pursuing advanced academic activities.

The third research question of the study has shown that the Islamic secondary school students have a high level of academic engagement. That means student are highly engaged in classroom activities, motivated to learn, and emotionally and cognitively engaged when using technology as part of their learning experience. The students have also stated that using technology helps them better understand and learn complicated concepts, and stimulates their interest in learning. Similar to the definition of academic engagement given by Fredricks et al. (2004), our findings support this idea that the construct of academic engagement is made up of three parts: behaviorally, emotionally, and cognitively. Additionally, according to Kuh (2009), Institutions can promote their students' engagement and success by using interactive, technology-enhanced learning environments.

The fourth research question indicated that technology resource awareness has a significant impact on academic engagement among Islamic secondary school students. In addition to influencing students' levels of academic engagement, the degree to which they are aware of available technological resources affects their ability to engage with their learning. This finding is consistent with Davis's (1989) Technology Acceptance Model, which states that both the users' awareness of technology and its perceived usefulness contribute to their degree of participation in technology use. Similarly, Warschauer (2003) identified awareness as a critical component of the successful integration of ICT into the classroom and of stimulating student participation.

The result of the fifth research question of the study, there is a significant association between the utilization of technology and the academic engagement of Islamic Secondary School students; therefore, the use of technology affects how much students engage in their studies. When students use technology to learn, they often have higher levels of motivation, participation, and cognitive engagement. This finding was corroborated by Piaget (1973) and Vygotsky (1978), who both believed that learning can take place through interactive and active engagement with tools and with the environment. In addition, Kearsley and Shneiderman (1998) provided support for this through the Engagement Theory, which states that meaningful learning takes place when students are actively engaged in collaborative activities using technology. The overall results indicate that both awareness of technology resources and how those resources are used have significant impacts on the academic engagement of Islamic secondary school students. However, the use of technology has a more pronounced direct impact on student engagement

than does awareness of technology resources. This suggests that although the availability of technology resource awareness is an important factor, using technology as part of the learning process is the most effective way of increasing student engagement.

Conclusion

Based on the findings, it can be concluded that students' awareness of the technology resources is at a moderate level. Meaning that most students are aware of the various types of ICT tools, such as computers, mobile applications, and online learning platforms, but students are still not fully aware of what these tools are capable of in a way that can be utilized for academic purposes. Similarly, the level of technology utilization is also at a moderate level, indicating that students typically use technology to support basic academic tasks for searching for information and completing assignments, but there are only limited uses of advanced academic technology utilization. The findings further that student exhibited moderate-to-high levels of academic engagement, which means students were active participants in classrooms, and had a desire to learn and were able to utilize technology effectively when integrated into teaching and learning. This indicates that the integration of technology within education positively impacts student participation, motivation, and comprehension of academic subject matter. In addition, the study concluded that there is a significant positive correlation between technology resource awareness and academic engagement which means that students with more awareness of available ICT tools exhibit a greater degree of engagement in their learning; similarly, there is a significant positive correlation between technology use and academic engagement which indicates that students who actively use technology during learning activities, as opposed to just being aware of it, exhibit higher levels of engagement. This research conclusion implies that both technology resource awareness and technology use are associated with increasing students' academic engagement in Islamic secondary schools. It was found that moderate resource awareness and moderate degrees of technology use require additional integration of ICTs, improved training, and increased institutional support to allow students to take full advantage of their educational experience through technology.

Recommendations

The following recommendations were made from the findings of the study:

1. Islamic secondary schools should provide technology resources to all Muslim students regardless of previous access by facilitating classroom demonstrations and regularly scheduled orientation programs to promote ICT awareness and academic engagement
2. School leaders need to incorporate ICT into daily teaching and learning activities so that students will have consistent access to technology for completing projects, doing research, collaborating with others, and completing other educational activities in addition to using it for entertainment and non-educational purposes
3. Teachers require continuous professional development and ICT Integration Training on methods to help them effectively support students when using a digital tool to create meaningful learning experiences that will help to improve behavioral, emotional, and cognitive engagement
4. Schools and other educational institutions should enhance access to information and communication technology (ICT) resources by increasing the number of ICT labs, improving the level of internet connectivity, and providing a variety of digital learning environments in order to enable students to have many opportunities to acquire and improve their skills in using technology
5. Students need to play an active role in increasing their ICT capabilities by using digital tools for academic purposes, participating in online learning, and not misusing ICT for non-academic/service, or recreational purposes

References

Anderson, J. (2010). *ICT transforming education: A regional guide*. UNESCO.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319–340. https://doi.org/10.2307/249008

Department of Education, Kandal Province. (2023). *Annual educational development report*. Author.

Fredricks, J. A., Blumenfeld, P. C., & Paris, A. H. (2004). School engagement: Potential of the concept, state of the evidence. *Review of Educational Research, 74*(1), 59–109. https://doi.org/10.3102/00346543074001059

Kearsley, G., & Shneiderman, B. (1998). Engagement theory: A framework for technology-based teaching and learning. *Educational Technology, 38*(5), 20–23.

Kozma, R. B. (2005). *National policies that connect ICT-based education reform to economic and social development*. UNESCO.

Kuh, G. D. (2009). *What student affairs professionals need to know about student engagement*. National Association of Student Personnel Administrators.

Ministry of Education, Youth and Sport. (2021). *Policy and strategy on information and communication technology in education in Cambodia*. Author.

Organisation for Economic Co-operation and Development. (2015). *Students, computers, and learning: Making the connection*. OECD Publishing. https://doi.org/10.1787/9789264239555-en

Piaget, J. (1973). *To understand is to invent: The future of education*. Grossman Publishers.

Schindler, L. A., Burkholder, G. J., Morad, O. A., & Marsh, C. (2017). Computer-based technology and student engagement: A critical review of the literature. *International Journal of Educational Technology in Higher Education, 14*(1), 1–28. https://doi.org/10.1186/s41239-017-0063-0

Selwyn, N. (2016). *Education and technology: Key issues and debates* (2nd ed.). Bloomsbury Academic.

Sokchea, U. (2017). ICT usage among Cambodian secondary school students. *Cambodian Education Review, 5*(2), 45–58.

Tinio, V. L. (2003). *ICT in education*. United Nations Development Programme.

United Nations Educational, Scientific, and Cultural Organization. (2021). *ICT in education and digital learning*. UNESCO Publishing.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.

Warschauer, M. (2003). *Technology and social inclusion: Rethinking the digital divide*. MIT Press.

World Bank. (2022). *Digital development and education in Southeast Asia*. World Bank Publications