MALAYSIAN JOURNAL OF INNOVATION IN ENGINEERING AND APPLIED SOCIAL SCIENCE (MyJIEAS)
e-ISSN: 2811-3780
VOLUME 04, ISSUE 01

Enhancing Learning for Slow Learners: Teachers' Attitudes and Readiness of the Students Towards Technology

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Article History: Received 03092024; Revised 07102024; Accepted 27102024;

ABSTRACT –Education plays a vital role in the advancement of a country, and instilling a sense of enthusiastic pursuit of information in children is a fundamental goal for parents and educators. Conventional teaching methods frequently do not engage students successfully, leading to decreased motivation and subpar educational achievements. This study examines the preparedness of instructors and students to utilise technology in the context of education. The study includes 28 respondents, including teachers and primary students with sluggish learning skills. These individuals require customised teaching methods because of their unique cognitive abilities. The respondents had experience with the LINUS and Recovery programs, offering valuable insights into teachers' and delayed learners' attitudes and preparedness when it comes to utilizing technology. The findings indicate that providing technological education opportunities can significantly improve the learning experiences and outcomes of individuals with slower learning abilities. The outcomes of the survey to understand the needs of technology users before developing a plan to improve slow learners' learning and the readiness of the students using the technology in their learning are discussed in this article.

KEYWORDS: Slow learners, Educational Technology, Attitude Towards Technology

1.0 INTRODUCTION

Technological advancements have brought significant transformations across various sectors, including education. The integration of technology in educational practices has given rise to innovative tools that aim to enhance student engagement and motivation. According to 21st-century learning, we can refer to children who receive early exposure to technology as "digital kids." Therefore, to effectively educate in the 21st century, educators must utilize and adapt to information and communication technology [1]. Gradually, advancements in digital technology are driving a wave of change within education. Educational technology [2] is a scientific way of specifying the types or kinds and groupings with specific units such as strategies and procedures to meet educational objectives via certain modes of communication.

Hence, to remain pertinent and efficient for researchers, practitioners, instructors, and lifelong learners, it is imperative that we modify the methods by which we study, acquire knowledge, and instruct. Therefore, the utilization of technology by teacher educators plays a crucial role in integrating technology into the wider educational system. Prior research has indicated that conventional instructional approaches frequently require more ability to effectively captivate students, resulting in reduced motivation and inferior educational achievements [3] [4].

Teachers need to learn how to use technology well and keep that skill up to date. They also need to know about and understand how technology affects people's lives in social, moral, and ethical ways. Additionally, teachers should know how to use technology in a way that helps students be more productive, do research, communicate, solve problems, and make decisions.

The objective is to incorporate technology into the classroom and establish it as a fundamental tool for learning in the field of science and scientific education [5].

Education is a critical component of a nation's progress. Parents strongly believe that it is important to foster a sense of joyful learning in their children. A teacher can achieve this by demonstrating high instructional efficacy. However, there are occasions when teachers may fail to achieve this due to various factors, particularly when dealing with different types of learners and the use of technology. There are different types of learners, including fast learners, average learners, and slow learners. This study focuses on slow learners, who do not have exceptional abilities but require specific teaching methods. Their cognitive ability might be slightly different from that of normal students, and they struggle to meet academic demands [1]. Providing technological education opportunities for slow learners can significantly improve their learning experiences and outcomes.

This preliminary study aims to understand the needs of technology users before developing a model to enhance learning for slow learners. This paper discusses the results of the survey to grasp the requirements of technology users prior to creating a strategy to improve slow learners' learning and the readiness of the students using technology in their learning.

2.0 BACKGROUND STUDY

2.1 Slow Learner

Slow learners are one of the most difficult learning challenges to overcome. We consider slow learners to be those who struggle to handle school tasks at the same level as their peers, frequently resulting in poor exam grades. Children who are slow learners have an IQ score ranging from 70 to 85, whereas average children have an IQ score of 90 or above [6], [7], [8]. Most of the slow learners are poor in self-help skills, feel helpless, over-timid, and indecisive with low confidence as learning-disabled children [9]. So, one can conclude that these children show poor concentration and attention during information processing. Slow learners face difficulties in memory retention and difficulty acquiring writing, reading, or math skills [8]. The personal data of slow learners are low cognitive, bad memorization, less focus, and do not operate the ideal way to express an idea. What this does is screw up the attention of people with slower-paced cognition abilities that typically grow to be slightly shorter than average.

Researchers attribute the inability of other kids to articulate ideas like their peers to the act of finding and combining words, emotional immaturity, and embarrassment [10]. Individuals with a slower learning pace want support in finding accessible and enjoyable resources to enhance their learning abilities at a typical rate [1]. So, teachers play an important role in encouraging this slow learner to have fun and enjoy the learning process. The personal data of slow learners includes poor cognitive capability, inadequate memory, reduced concentration, and difficulty conveying ideas. This impacts the focus of individuals with slower cognitive abilities who are comparatively shorter in stature. So, teachers play an important role in encouraging this slow learner to have fun and enjoy the learning process.

However, if educators can identify the faculties and natural inclinations of a student with lower rates of learning, this might give him or her confidence in his/herself to focus on their studies so they can become capable of more recurrent progress. If this does not happen, then their confidence is likely to take a hit and they end up quitting - leaving people thinking of them as illiterate. Hence, teachers should play a role in making teaching and learning (T&L) something enjoyable and meaningful, especially since [11] asserts that a more comprehensive approach is necessary to ensure the effectiveness of a teaching and learning process. Therefore, this study aims to determine the readiness of the slow learner students to use technology in their daily lives.

2.2 Educational Technology

Over time, educational technology has advanced dramatically from simpler tools like slime projectors and abaci to higher-tech inventions including pocket calculators as well is virtual reality then next-gen e-learning. These innovations have provided inspiration to both learners and educators, prompting change in the way individuals perform work, play, and produce or receive information. Inevitably, progress in digital technology is also generating transformative possibilities in education.

According to [12], educational technology is defined as the use of technology to enhance and elevate the teaching and learning process. Educational technology encompasses a diverse array of tools and resources, including computers, software programs, websites, and mobile apps. Educational environments use these resources to enhance learning and boost student achievement. We can utilize educational technology to facilitate various learning modalities and customize them to meet the needs of diverse learners. Additionally, it can facilitate various teaching approaches and present educational material in multiple formats, such as written text, audio, video, and interactive exercises. Educational technology has the potential to revolutionize the methods of instruction and knowledge acquisition, and it has gained significant importance in the field of education in the 21st century.

Technology is giving teachers new opportunities to improve and engage young students' brains. Currently, there is increasing enthusiasm for the possibilities of assistive technology, virtual and augmented reality, advanced collaboration tools, gamification, podcasting, blogging, 3D printing, artificial intelligence, personalized learning, and other similar innovations that we call educational technology. Instructors with the necessary knowledge and abilities to explore the most captivating and efficient methods of utilizing educational technology in physical and virtual classrooms will be the driving force behind future innovation, practically speaking.

This survey study aimed to understand teachers' attitudes towards technology, current teaching techniques, current technology usage, and learners' readiness for technology use in teaching and learning.

3.0 METHODOLOGY

This study employs a quantitative, survey-based methodology that utilized a web-based survey platform, extended a WhatsApp invitation, and a face-to-face survey with the students. Approximately 18 educators instruct LINUS and Recovery classes across six distinct schools participated based on their experience and understanding of slow learners as users. While around 10 students participated in a short survey. Table 1 below displays the data from the research sample.

Table 1: Research sample

School	Number of Respondents
Sekolah Rendah Kebangsaan Proton City, Tanjung Malim, Perak	5 teachers
Sekolah Rendah Jenis Kebangsaan Tamil Ladang Kalumpang, Hulu Bernam, Selangor	2 teachers
Sekolah Rendah Kebangsaan Pekan 1, W.P Labuan	4
teachers Sekolah Rendah kebangsaan Dedaun, W.P. Labuan Density	4
teachers	
Sekolah Rendah Kebangsaan Bebuloh, W.P. Labuan	3 teachers
Sekolah Rendah Kebangsaan Semeling, Merbok, Kedah	10 students
Total	**28**

3.1 Panel Expert

The respondents in this survey are selected based on three specific criteria: i) demonstrating scientific integrity and expertise; ii) being experts in Bahasa Melayu, Matematik, or Inggeris with direct experience teaching children in the LINUS and Recovery programs; and iii) being willing to fully participate in this survey.

The survey should take into account the size of the respondents. According to the established consensus [13], [14] the number of experts can determine the reliability and average of group errors. Table 2 illustrates the correlation between the reduction in error and the size of the panel.

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Table 2: Relationship between error reduction with panel size

Panel Size	Error Reduction	Effective Change
1-5	1.20 to 0.70	0.5
5-9	0.70 to 0.58	0.12
9-13	0.58 to 0.54	0.04
13-17	0.54 to 0.50	0.04
17-21	0.50 to 0.48	0.02
21-25	0.48 to 0.46	0.02
25-29	0.46 to 0.44	0.02

Source: [13] [14]

Table 1: Quadcopter physical and motor parameters

In this study, the panel group of teachers consisted of 18 individuals. This larger group size reduced the error rate from 0.50 to 0.48 (for a panel size of 17–21 persons). Teachers deemed this sum appropriate and feasible due to the limited availability of recovery options for their schools. The panel was composed of instructors from the three schools participating in the LINUS and Recovery program. Whereas students consisted of 10 individuals that have been identified as slow learners in their classes. For student's size reduced the error rate from 0.58 to 0.54 (for a panel size of 9–13 persons). The students are selected based on screening exams for Pemulihan students. The size of respondents for students is quite big because the school area is in rural school and the many factors contribute to the number of students such as environmental, surroundings, family background and etc.

3.2 Instrument

The instrument was a web-based questionnaire. The questionnaire had five sections, as shown in Table 3. Section A, B, C and D involved teachers as respondents whereas for section E involved teachers and students.

Table 3: Types of Questions

Section	Question	Type
A	Demographic	Checkboxes
B	Attitude of teachers to technology	5 Likert Scale
C	Experience of teachers using the Internet	Checkboxes
D	Keeping up with future trends	Tick and comments
E	Readiness of slow learners towards Technology usage	5 Likert Scale

4.0 DATA ANALYSIS AND RESULT

This section discusses the results of the survey. Teachers with experience teaching slow learners, particularly those involved in LINUS and recovery classes, participated in the survey. 28 valid responses were received by the teachers and students who are identified as slow learner by the teachers. The results are explained in the section below.

All respondents in Section A come from backgrounds with experience teaching slow learners, either in LINUS or recovery classes. Out of all the teachers, three have more than 10 years of teaching experience, 12 have 5–10 years of teaching experience, and 3 have less than 5 years of teaching experience. According to the survey, only four teachers have an option in special education. Although the remaining respondents come from diverse backgrounds, they participated in the KPM-organized course, which qualified them to instruct students in LINUS and recovery classes.

Section B is an Instrument about attitudes to technology and the results are presented below in Table 5. Table 4 below serves as the basis for measuring the means.

Table 4: Types of Questions

Category	Mean
Low	1.00 – 2.33
Medium	2.34 – 3.67
High	3.68 – 5.00

Source: [15]

Table 5: Means for Instrument Attitudes to Technology

No	Question	Type
1	I enjoy using technology	4.80
2	I do not avoid using technology when I can	4.67
3	I do not think using technology in class takes up too much time	4.33
4	I know that technology can help me to learn many new things	4.87
5	Technology do not intimidate and threatens me	4.60
6	Students should know how to use technology in class	4.67
7	I would be a better leaner if I knew how to use technology properly	4.80
8	I am very confident when it comes to working with technology at home/work/university	4.53
9	I want to learn more about using technology at home/work/university	4.93
10	I believe that I can improve my language skills using the benefits of the Internet	4.73
11	Using technology in learning languages is necessary	4.73
12	Technology breaks down too often to be of very much use	3.27

From table 5, all respondents showed positive attitudes towards using technology, with high mean on most survey items indicating they find the technology useful and are confident using it. Items 1–11 demonstrate that all of the means are in the high category. Only one item, item 12, falls into the medium category. For item 12, “Technology breaks down too often to be of very much use,” from the quick feedback, most of the teachers said that most of the schools

under Ministry of Education (MoE) do not have much budget to repair or buy new devices for teachers. Most teachers bought the devices with their own money.

For Section C, how much this teacher has experience using the internet is questioned. All respondents can select more than one option for their response. Table 6 below shows the results for Section C.

Table 6: Means for Instrument Attitudes to Technology

Experience using the Internet	Regularly	Infrequently	Never
I use the internet			
• At public		• 1	• 0
• At home		• 6	• 0
• At work	• 17 • 12 • 10	• 8	• 0
I use the internet for the following:			
• To communicate with the people	• 18	• 0	• 0
• To find information	• 18	• 0	• 0
• To read the news	• 16	• 2	• 0
• To watch films	• 8	• 9	• 1
• To prepare home assignments	• 14	• 4	• 0
• To buy/ sell products	• 16	• 2	• 0
• To learn (e.g. online courses, using online dictionaries)	• 12	• 6	• 0
• To have fun (e.g. playing computer games)	• 3 • 12	• 11 • 6	• 4 • 0
• To download software	1. Online banking		
• Anything else (please specify)	2. Social media		

Based on Table 6, all of the respondents frequently used the internet in their daily lives, whether in public, at home, or work. Most of the respondents used the internet for various things, such as communication, finding information, reading the news, assignments, buying or selling online products, learning, downloading software, online banking, and social media.

Table 7: Results for keeping up with future trends

No	Tool/ trend	I know what this is	I'd like to explore this more
1.	e-learning	18	-
2.	m-learning	18	-
3.	Use of VLE (e.g Moodle) or CMS (e.g. Etomite)	15	3
4.	Blogs	18	-
5.	Wikis	17	1
6.	ePortfolio	12	6
7.	Use of MUVE (e.g. Second Life)	4	14
8.	Use a mobile phone texting activity in class	18	-
9.	Podcasts	12	6
10.	Join an online discussion group	18	-
11.	Games	18	-
12.	Others		

Nine of the respondents rarely watch films on the internet, and eleven use the internet to have fun, such as playing computer games. Only a few respondents never use the internet for entertainment, such as watching films or playing games. For Section D, the knowledge of respondents on how they know about future trends and tools for learning with technology and whether they will incorporate this technology into their teaching and learning is questioned. Table 7 below shows the results of keeping up with future trends.

From Table 7, most of the respondents are familiar with future trends and tools for learning with technology, such as e-learning, m-learning, VLE, blogs, wikis, podcasts, online discussions, and games. 7 out of 18 respondents state about virtual reality for others and 3 out of 18 respondents state about augmented reality.

For Section E in Table 8 below, most of the respondents agreed that all slow learners are ready to use technology in their learning. This is because all the students are from Generation Z, who grew up in a digital world where technology is innate and essential to their existence. They grew up in a setting where they always had access to smartphones and tablets, and social media was readily available to them. Most of the respondents from students were also excited when using game learning on a laptop. Table 8 below shows the results from the E section and Figures 1 and 2 show the surveys with the students. For the survey with students, the questions were asked simply so they could understand. The students will choose the icon that represents the Likert scale 1-5. This method was used due to their inability to understand the sentences in a survey.

Table 8: Results for readiness

No	Question	Type
1	Technology facilitates me in learning (Eg. Technology: Gaming, video and Virtual reality)	5.00
2	I am confident using the technology does not burden me	4.67
3	There is no obstacle for me to learn using the technology	4.33
4	I am willing to spend time to learn the technology	4.87
5	I am always open to learning new and different technologies	4.60
6	The use of technology does help me to increase my learning	4.80
7.	I will use technology frequently in my daily life learning	4.80
8.	I will use the technology with my friends/family in class/home	4.80

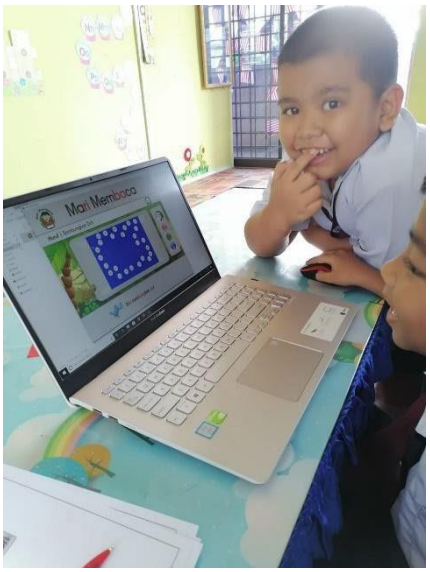

Figure 1: Students playing with a game.

Figure 2: Students answered the questionnaire.

The results above show that respondents have positive attitudes towards technology. Respondents to the survey are teachers and students, who generally have a positive attitude towards using technology in education. They recognize the usefulness of technology in enhancing learning experiences and express confidence in using technological tools. Overall positive attitudes and high Internet use suggest a willingness of teachers to adopt new technologies in their teaching practices. This allows for better innovative experiences to be provided in terms of what the students are taught. Although their outlooks were generally upbeat, technology use posed a range of obstacles to the respondents. The issues surrounding tech failures and funding shortages underscore simply how much additional support, along with resources for schools in need. It is important to solve these problems, as it will determine the fate of technology usage in education.

For their frequent use of the Internet, respondents frequently use the Internet for a variety of purposes, including communication, information seeking, online learning, and social media. This indicates a high level of integration of digital tools in their professional and personal lives. The survey also found that the majority of teachers are familiar with future trends in educational technology such as e-learning, m-learning (mobile learning), virtual learning environments

(VLEs), blogs, wikis and podcasts. There is an interest in exploring these tools more deeply to improve the teaching and learning experience. An interest in the intended future trends suggests an opportunity for ongoing professional development, particularly in relation to aiding educators to keep abreast with new technologies and how best to use them. In the education field, training programs that target current and future technology trends are a good investment by schools or other educational institutions. Also, this helps the teachers to feel self-assured and competent in using several digital tools. In addition to the support from MOE on leveraging technology for teaching and learning, all teachers are required to apply their competencies in utilising various web applications and e-Pedagogy knowledge methods so that face-to-face or online teaching & learning sessions remain current with today's context [16].

5.0 CONCLUSION

This study reveals that while teachers hold a generally positive attitude towards the integration of technology in education, particularly for slow learners, significant challenges remain. These include issues related to technological reliability and financial constraints, which often limit the effective application of these tools in classrooms. Despite these obstacles, there is a clear recognition of the potential benefits that technology offers in enhancing the learning experiences of students with slower cognitive abilities.

The findings suggest a need for greater institutional support and resources to empower educators in the adoption and effective use of educational technology. Furthermore, ongoing professional development is crucial to ensure that teachers are equipped with the skills and knowledge to navigate and implement emerging technological trends. By addressing these challenges, educators can better harness technology to create more inclusive and effective learning environments for all students, particularly those who require additional support.

The paper concludes that teachers generally have a positive outlook towards technology, but they also face significant challenges that require attention to fully reap the benefits of educational technology. There is a clear need for improved support, resources, and professional development to help teachers integrate technology effectively and stay abreast of emerging trends.

This study, while offering valuable insights into the attitudes and needs of teachers regarding the use of technology for slow learners, is not without its limitations. One key limitation is the relatively small sample size of participants, which may not be fully representative of the broader teaching population. This restricts the generalizability of the findings to other educational contexts or larger populations. Additionally, the study primarily relies on self-reported data gathered through surveys, which can introduce biases such as social desirability or inaccuracies in self-assessment. The reliance on this method may limit the depth of understanding regarding teachers' actual experiences and the practical challenges they face in integrating technology for slow learners.

In addition, the cross-sectional nature of our study precludes an understanding of changes over time or long-term educational consequences related to technology use among slow learners. In future work follow-up studies that examine these changes over comparable periods could be beneficial.

ACKNOWLEDGMENTS

The author would like to acknowledge all the teachers from Sekolah Rensah Kebangsaan Proton City, Tanjung Malim, Perak, Sekolah Rendah Jenis Kebangsaan Tamil Ladang Kalumpang, Hulu Bernam, Selangor, Sekolah Rendah Kebangsaan Pekan 1, W.P. Labuan, Sekolah Rendah Kebangsaan Dedaun, W.P. Labuan, Sekolah Rendah Kebangsaan Bebuloh, W.P. Labuan and Sekolah Rendah Kebangsaan Semeling, Merbok, Kedah for helpings answering this survey in completing this research study. My sincere appreciation also extends to all my colleagues and others who have aided me on various occasions. Their views and tips are useful indeed. Unfortunately, it is not possible to list all of them in this limited space. I am grateful to all my family members.

REFERENCES

[1] S. R. Z. Abidin, S. F. M. Noor and N. S. Ashaari. " Guidelines of brain-based learning through the serious game for slow reader students," *6th International Conference on Electrical Engineering and Informatics (ICEEI)*, Langkawi, Malaysia, pp. 1-6, 2017.
[2] Opara, Emmanuel,. *Basics Of Educational Technology,* United States, America, 2023.
[3] H. Alsadoon, "The Impact of Gamification on Student Motivation and Engagement: An Empirical Study." *Dirasat: Educational Sciences,* 50(2), 386–396, 2023.
[4] S. Arora, P. Chaudhary, RK.Singh " Impact of coronavirus and online exam anxiety on self-efficacy: the moderating role of coping strategy", *Interactive Technology and Smart Education,* Feb 4; 18(3):475-92, 2021.
[5] "International Society For Technology In Education." *International Society for Technology in Education ISTE* . United States, 2002, [Web Archive] Retrieved from the Library of Congress, https://www.loc.gov/item/lcwaN0000230/.
[6] G. Baglio,V. Blasi, F. Sangiuliano Intra, I. Castelli, D. Massaro, F. Baglio, A. Valle, M. Zanette, &A. Marchetti, "Social Competence in Children with Borderline Intellectual Functioning: Delayed Development of Theory of Mind Across All Complexity Levels*." Frontiers in Psychology,* 7, 1604.2016.
[7] Peltopuro, Minna and Ahonen, Timo and Kaartinen, Jukka and Seppälä, Heikki and Närhi, Vesa. "Borderline Intellectual Functioning: A Systematic Literature Review." *Intellectual and developmental disabilities, 5*2., 2014.
[8] M. S. Hasibuan, *Manajemen Sumber Daya Manusia* (Edisi Revi), PT Bumi Aksara,2020.
[9] P. Vasudevan, and M. Suri , "A clinical approach to developmental delay and intellectual disability", *Clinical medicine (London, England),* 17(6), 558–561. https://doi.org/10.7861/clinmedicine.17-6-558, 2017.
[10] Lusiana, Devi Pulungan, Anni and Husein, Rahmad. "Factors slow secondary learners' difficulties in learning speaking at homeschooling"*. Linguistik Terapan*, 18. 10, 2021.
[11] S. Saleh, "The Effectiveness of the Brain-Based Teaching Approach in Enhanching Scientific Understanding of Newtonian Physics among Form Four Students," *International Journal of Environmental & Science Education*, vol. 7, no. 1, pp. 107–122. 2012.
[12] Opara Emmanuel Chinonso, Adalikwu Mfon-Ette Theresa, Tolorunleke Caroline Aduke. "ChatGPT for Teaching, Learning and Research: Prospects and Challenges." *Glob Acad J Humanit Soc Sci;* Vol-5, Iss-2 pp- 33-40 , 2023.
[13] Norlidah Alias and Saedah Siraj," Development of Physics Pedagogical Module based on Technology and Learning Style." *The Third Asia Pacific Research Association Conference. Kuala Lumpur*: 2010, Non-ISI/Non-SCOPUS Cited Publication, 2010.
[14] Boonan, Kasem, "The future of teacher education in Thailand: a Delphi application". *Doctoral Dissertation, University of Alabama, Tuscaloosa, Alabama. 1979, Photocopy. Ann Abor, MI: University Microfilms International,*1980.
[15] A. G. Mohd. Najib, *Reka bentuk tinjauan soal selidik pendidikan.* Demographic Research, hlm.Vol. 49. Skudai, Johor Bahru: Penerbit UTM., 2003.
[16] Khalid, Fariza and Abd Samad, Mohd Razali, "The Use Of Mobile Learning In Teaching And Learning Sessions during The Covid-19 Pandemic In Malaysia," *Journal of Contemporary Social Science & Education Studies,* 1. 46-65.2021.