

Perception and Adoption of Digital Technology in Students' Data Management: A Case Study of Tasmik Program

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Abstract

With the emergence of digital technology, inefficiencies of the manual process in managing students' data can be reduced, bringing more possibilities to the teachers to strike a balance between their teaching approach, students' progress and the expected outcomes. Therefore, this paper presented a quantitative study aimed to analyse the readiness level among teachers in the Tasmik program towards the adoption of digital technology for managing student's data. Additionally, this paper also aimed to examine the correlation between the level of readiness to adopt digital technology among Islamic education teachers and the effectiveness of the proposed e-Tasmik digital tool. This study employed a quantitative research design using questionnaire-based survey. The respondents representing Islamic education teachers at four national primary schools in Pahang, Malaysia denote urban, suburban, and rural areas. Data is analysed using SPSS and Spearman Rho correlation test. Further analysis revealed that the respondents hold negative perception on the usefulness of the existing manual method and believe that they are ready to adopt digital technology for data recording, analysis and reporting. There is a weak correlation between the teachers' readiness level and e-Tasmik effectiveness which show that the readiness level among Islamic education teachers does not determine the effectiveness of e-Tasmik in terms of its Perceived Ease of Use (PEoU), Perceived Usefulness (PU) and User Acceptance (UA). This paper helps the stakeholders in Malaysia Islamic education to tailor teachers' needs with available digital technologies such that it will help to improve effective learning and teachers' productivity.

Keywords: Teaching and learning, digital adoption, digital technology, data management.

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Introduction:

Improving the efficiency in managing students progress and eradicating mistakes in the related processes such as data recording, analysis and reporting is an important task to the teachers. With the emergence of digital technology, inefficiencies of the manual process can be reduced, bringing more possibilities to the teachers to strike a balance between their teaching approach, students progress and the expected outcomes. Importantly, managing students progress using digital technology enables teachers to thoroughly analyse various aspects of student weaknesses in a topic that has been studied and see the extent to which the students can achieve the objectives of an academic program. In addition, stakeholders such as school leaders, parents, and the education department require an accurate report that can easily interpret gaps

in student development, and facilitate their instructional as well as curriculum decisions-making (Kannan et al., 2021). At the same time, appropriate decisions from the stakeholders encourages teachers to effectively conduct the intervention and develop a supportive environment encompassing the right knowledge and skills.

In the context of Malaysia Islamic education, student's ability to recite Al-Quran with correct pronunciation and their ability to complete the recitation of 114 chapters of the Al-Quran during national primary school has become prominence as compared to before (Mohd Nizah & Asran, 2015). A dedicated Tasmik program embedded under the J-QAF program launched by the Ministry of Education, Malaysia (MOE) in 2003 aimed to guide, record and assess student's progress in Al-Quran recitation based on the modules in the J-QAF program. After 18 years of implementation and the widespread internet and computer usage in Malaysia, manual data recording using books and papers in Tasmik program still persist among Islamic education teachers. As in the early years of the Tasmik program, Islamic education teachers faced difficulties to analyse students' progress, as well as to identify student's weaknesses and plan necessary approaches for effective teaching. Factors contributing to the problems are still undermined which raised further questions on the readiness level among Islamic education teachers to embrace digital technology in recording, analysing and reporting students progress. The usefulness of the existing method used to record and monitor students progress is also under question particularly on its efficiency to assist Islamic education teachers in data analysis and task planning. Thus, this study intent to seek the answers for three main questions. First, what are the Islamic education teachers' perceptions on the usefulness of the existing method in recording, analysing and reporting student's progress? Second, what is the level of Islamic education teachers' readiness in adopting digital technology? Third, how effective is e-Tasmik as a digital tool for managing students' progress data in the Tasmik program? Lastly, what degree that the Islamic education teachers' readiness coordinate with the effectiveness of e-Tasmik.

This paper presents a quantitative study aimed to analyse perception on the usefulness of the existing method used by Islamic education teachers in recording, analysing and reporting student's progress. Additionally, the researcher also aimed to determine the readiness level among Islamic education teachers in the Tasmik program towards the adoption of a digital technology for managing student's progress. This paper proposed e-Tasmik as a digital tool to replace conventional practice of recording, analysing, and reporting student data in the Tasmik program. The effectiveness of e-Tasmik is determined based on the Perceived Ease of Use (PEoU), Perceived Usefulness (PU) and User Acceptance (UA) derived from the Technology Acceptance Model (TAM). Additionally, a correlation analysis using Spearman Rho correlation test is conducted to determine the relationship between Islamic education teachers' readiness with e-Tasmik effectiveness. This study was conducted at four national primary schools in Pahang, Malaysia representing urban, suburban, and rural areas. The results may help the stakeholders in Islamic education to tailor teachers' needs with available digital technologies such that it will help to improve effective learning and teachers' productivity. Digitalisation of data recording, analysis and reporting using appropriate digital tools would lead to the improving of the quality in teaching and learning.

The remainder of this paper is organized as follows: Section 2 briefly reviews related literature while explaining the concept and definition of Tasmik model, its data recording method and the review of digital technology in learning. Section 3 explains the methodology used in this study including data collection methods, instruments, and methods used to perform data analysis. Section 4 discusses the results. Section 5 includes some concluding remarks and directions for future work.

Literature Review:

This section provides a review of the literature on this study. It describes the J-QAF program, including the Tasmik Model, and its background covering the definition and implementation strategy. Moreover, this section will also review common data collection methods in the Tasmik program and the existing digital technology in learning.

J-Qaf Program

The J-QAF program was inspired by the 5th Prime Minister of Malaysia, Tun Abdullah bin Ahmad Badawi in 2003. Then his speech was expressed a vision of seeing a Muslim primary student is capable of mastering Quranic recitation before the end of their primary years. These concepts have been refined and explored further by the MOE, linked authorities and departments. Because of this, the J-QAF program was approved and sanctioned by the then Prime Minister. The program was carried out in stages starting from the year of the academic session of 2005 (Mohd Nizah & Asran, 2015).

The J-QAF program is a platform designed to improve Islamic education through a particular emphasis on the importance of effective teaching and learning method mainly on subject such as reading and writing in Jawi, Al-Quran, Arabic Language and Fardhu 'Ain (Mohd Izzuddin et al., 2015). The program shall be applied using approved modules and models that are specially developed by instructors, professionals, educators and experts in Islamic education. Under this program, young graduates will be hired as instructors and then specially trained on the J-QAF courses aimed at offering direction, development, skills, strengthening, enriching, and understanding of national primary school students (Sabariah et al., 2014). Essentially, this program does not alter any of the requirements in the current Islamic education timeframe, but enhances the academic curriculum according to the student's development and capabilities.

Tasmik Model

The Tasmik model is implemented by the MOE under the J-QAF program and provides guidance in recording, assessing and analysing student's progress in Al-Quran recitation. This model is used by the Islamic education teachers during teaching and learning session and targeted to all Muslim students from year one to year six of national primary school (Mohd Izzuddin et al., 2015). In this context, each teaching and learning session is an opportunity for teachers to evaluate and record the level of student development in Al-Quran recitation. Selection of teaching approach and suitable method for each session are the most important factors that determine the learning effectiveness. Appropriate and effective methods will speed up the learning process and eventually help students to master Al-Quran recitation (Sabilan et al., 2018). As shown in Table 1, the Islamic Education Sector of the Pahang State Education

Department in their annual report claimed that there are still 32,504 (28.12%) students in national primary schools across Pahang state that are still at level 1, 2 and 3 in Al-Quran recitation. The students ranged from year one until year six students. This reflects the inability of the existing Tasmik model in achieving its own goal.

Table 1. Students' achievement in the Tasmik program for the year 2019.

Level	Percentage of students (%)					
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Level 1	29.48	7.54	2.77	0.95	0.63	0.53
Level 2	26.10	14.96	7.6	3.61	1.97	1.05
Level 3	20.78	17.72	12.97	7.74	4.89	2.60
Level 4	12.03	17.52	15.38	11.55	7.43	4.69
Level 5	5.45	11.52	10.92	9.52	7.10	4.70
Level 6	2.31	5.84	5.94	5.85	4.61	4.08
Level 7	3.79	24.5	42.71	55.33	59.36	53.70
Completed 114 Chapters in Al Quran	0.07	0.4	1.71	5.45	14.01	28.65

Existing Data Recording Method in the Tasmik Program

Records have important meaning for the organization. Contents of each record give meaning to various critical events that occur in an organization, such as business strategies, policies and decisions, job descriptions, work plans and mechanisms, as well as production targets. Additionally, records are also documents that contain recorded information that is generated or received as part of business activity (Ricks et al., 1992). Without a proper record, an action cannot be proven and an organization cannot make decisions accurately and effectively in a timely manner.

Islamic education teacher is responsible to teach and provide effective learning sessions until the student is able to read the Al-Quran on their own with correct pronunciation. As outlined in the Tasmik model, Islamic education teacher is also responsible to record a student's progress in the Al-Quran Reading Record Book, as well as identify weaknesses and make corrective action during the teaching and learning session. Additionally, the school administration can appoint non-Islamic education teachers who are capable in Al-Quran recitation as the instructor of this program. At the same time, students who have read until the last verse of Al-Quran can also assist in the teaching and learning session. During each session, the instructor must assess and confirm student achievement at least once a week in the Al-Quran Reading Record Book.

At the same time, they must ensure that students receive guidance from Islamik education teachers before the assessment commences. A comprehensive report then should be submitted to the state education department for monitoring and planning purposes (Kementerian Pendidikan Malaysia, 2004).

On the other hand, the J-QAF Student Achievement Record Book provides a collection of important records for J-QAF students in National Primary Schools. It consisted of six forms that record students progress in J-QAF program, namely Iqra' Recording Form, Al-Quran Recitation Recording Form, KBS Recording Form Year 1 until Year 6, Jawi Achievement Form for Year 1 until Year 6, Arabic Language Achievement Form for Year 1 until Year 6 and PAFA Recording Form. Islamic education teachers need to fill up all forms until the students graduate in Year 6.

All records related to the student's progress in Al-Quran recitation are recorded using handwriting and prone to errors. In relation to this, manual data entries are performed by the Islamic education teachers which lead to inaccuracies and low data quality (Neil, 2021). Close monitoring from the state education department and school administration required Islamic education teachers to maintain their records at any time. They should be able to present the student's progress report to the stakeholders when it is required. However, it will take some time for the Islamic education teachers to analyse of student's progress accurately. Moreover, they require help from the expertise analyse the record further.

Adoption of Digital Technology in Learning

The use of digital technology improves efficiency as well as enlarging possibilities to fully analyse students' progress in learning. The existing literature highlights the ability of digital technology to determine students' progress over time through data provision and data integration (Hipkins & Cameron, 2018). On the other hand, the integration of digital technology in the pedagogical process will also facilitate learning personalisation based on students ability that was difficult to be implemented using pen and paper approach (Blundell, 2021). In such, teachers will be able to accommodate diverse students' needs and give more emphasis to students' weaknesses, learning gaps and ways to learn (Avinash et al., 2021). Digital technology also enabled the collected evidence including audio, video and documents to be stored and analysed digitally in ePortfolio (Blundell, 2021). The information then can be used to assist in learning reflection, knowledge sharing among students, feedback analysis, and students' assessment.

The accomplishment and outcome of digital technology adoption in learning are largely determined by the motivation among teachers to integrate digital technologies in their routine tasks. The willingness to shift from the existing approach to the digital technology and positive attitude towards changes in pedagogical practice are among key components that are discussed in the previous literature (Avinash et al., 2021). At this point, teachers should clearly understand how digital tools are beneficial to their teaching process and embrace a high level of self-efficacy in using digital technologies meaningfully (Hatlevik, 2017). Indeed, teachers that hold positive belief in the usage of digital technologies are more willing to adopt digital technology in their pedagogical practice (Margarida et al., 2021; Hammond et al., 2011). In

addition, the success of digital technology adoption is also determined by teachers' knowledge and familiarity in using digital tools (Hebert et al., 2021). In relation to this, the competence levels among teachers in using digital tools will also influence their ability to effectively monitor students' progress and intervention decisions later on (Avinash et al., 2021).

Additionally, previous researchers also highlighted the importance of infrastructural access including digital devices, internet connectivity and computer application (Hebert et al., 2021) as the biggest barriers to meaningfully incorporated digital technology in pedagogical process. Lack of access to a reliable digital device such as personal computer, smartphone, tablet, and appropriate computer application during or outside the school hours create issues for teachers to plan, monitor, and document students' progress in an efficient and timely manner using the digital technology. Eventually, accessibility difficulties, device failure and application error raised frustration among teachers and gave a bad perception that the digital technology is unreliable and inflexible to their needs (Wohlfart et al., 2021). In this context, continuous development program and appointment of specific technical support groups is inevitable and proven effective to nurture digital technology adoption (Margarida et al., 2021).

Methodology:

This study employed a quantitative research design using a questionnaire-based survey to gather data on the usefulness of the existing method used by Islamic education teachers in recording, analysing and reporting students progress. Additionally, the researchers also examine the readiness level among Islamic education teachers in the Tasmik program towards the adoption of digital technology for data recording, analysis and reporting.

Participants

Participants for this study were Islamic education teachers appointed by the MOE. Non-probability sampling of purposive sampling technique was used for data collection due to the nature of this study and the needs to include only Islamic education teachers that are responsible in the Tasmik program (Maxwell, 2013). A total of 45 Islamic education teachers were involved in this study and their selection was based on their school's demographic area which are urban, suburban and rural. Consequently, four national primary schools named Sekolah Rendah Kebangsaan Sultan Abdullah (urban), Sekolah Kebangsaan Mat Kilau (suburban), Sekolah Kebangsaan (RTP) Bukit Goh (rural) and Sekolah Kebangsaan (F) Bukit Sagu 2 (rural) was selected for this study.

Instruments

In this study, a questionnaire with 32 items was prepared and administered. There are three components of this questionnaire; Section A is respondents background (6 items); Section B is the perception on the usefulness of the method currently used by Islamic education teachers in managing student's progress (16 items) and Section C is the teacher readiness in adopting digital technology for data recording, analysis and reporting in the Tasmik program (10 items). Questionnaire was developed in English language and each item was assessed using a 5-point Likert scale ranging from "strongly disagree" (1), "disagree" (2), "neutral" (3), "agree" (4) and

“strongly agree” (5). All items in the questionnaire were validated by four experts (two IT and two education domains) before being distributed.

Data Collection Procedure

In this paper, e-Tasmik is proposed as a new digital tool in managing students progress data. In order to determine e-Tasmik effectiveness, respondents are given one month time to use e-Tasmik during the Tasmik program. A demonstration session along with continuous support is given to the respondents during the study. The questionnaire is then distribute to the respondents after one month period ends.

The respondents filled in the questionnaire after the researcher explained the purpose of the study. As quality response is important, the researcher also explained to the respondents on how they should consider each item in the questionnaire. Each session lasts for 20 minutes and each completed form is submitted when the session ends.

Data Analysis

The resulting responses were then recorded and analysed using SPSS Version 21. All items in Section A were analysed based on its frequency and percentage. In Section B, items were analysed based on descriptive analysis using frequency, percentage, mean, and standard deviation as well as correlation analysis using Spearman Rho correlation test. Additionally, items in Section B are grouped according to the analysis intention. Then, the average mean score for each group was divided into five levels to produce low, low-intermediate, intermediate, high-intermediate and high indicators as shown in Table 2.

Table 2. Average mean score indicator for each group of items

Low	Low-intermediate	Intermediate	High-intermediate	High
1.00 - 1.50	1.49 - 2.99	3.00 - 3.99	4.00 - 4.49	4.50 - 5.00

Results and Discussion:

The respondents comprised 13 teachers (28.8%) from urban schools, 16 teachers (35.6%) from suburban schools, and 16 teachers (35.6%) from rural schools. Out of these respondents, 31 respondents (68.9%) were female, and 14 respondents (31.1%) were male. As illustrated in Figure 1, 84.4% respondents have a bachelor's degree and 8.9% respondents have a diploma while the master's degree is the least, which is 6.7%. Thus, the difference between respondents with a bachelor's degree and a master's degree is 77.7%. The result shows that the majority of Islamic education teachers involved in this study have bachelor's degrees in the related Islamic study. Notably, the limitation on teachers' education level is low and they have the ability to promote high quality teacher-student interaction throughout the Tasmik program. In line with (Anna et al., 2021), educational institutions with highly educated teachers tend to exhibit higher quality teacher-student interaction.

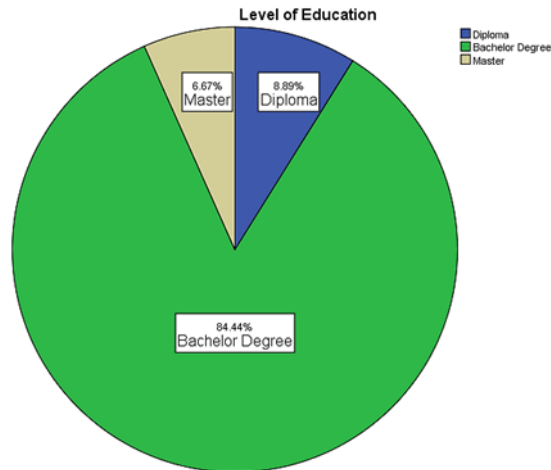


Figure 1. Percentage of respondents by level of education in Islamic study

All items in the instrument are tested for normality. The skewness values for each item are ranged between -4.073 and 0.794. While the kurtosis values are reported between -0.904 and 2.896. Based on the results, the researcher assumes sufficient normality where the skewness value is less than absolute value of two and the kurtosis value is less than absolute value of seven (Kline, 2005; Stevens, 2002; Mirghafoori, et al, 2020)

Perception on the Usefulness of the Existing Method

In the analysis, it is indicated that all respondents are currently using the Al-Quran Reading Record Book to manage their student's progress in the Tasmik program. Table 3 demonstrates the ability of the currently used method to facilitate Islamic education teachers to identify the level of a student's progress after each session. Particularly, 8 (17.8%) strongly agreed, 13 (28.9%) agreed, and 17 (37.8%) had neutral feelings with the statement. Only 7 respondents (15.6%) disagreed. The mean value for this item is 3.49 with standard deviation of 0.968 which shows that teachers can moderately rely on the existing manual methods to determine the level of their students ability. Further analysis concludes that the finding is closely related to the need for each Islamic education teacher to write their students' current progress each time the session ends. On the other hand, it is difficult for the teachers to review the development of weak students overtime and strategise rectification action before the next session starts.

Table 3. Ability to identify the level of a student's recitation progress after each Tasmik session

Item	Frequency & Percent (N=45)					Mean	Std. Deviation
	1	2	3	4	5		
B2 Teachers can identify the level of a student's recitation progress after the Tasmik session ends.	-	7 15.6 %	17 37.8 %	13 28.9 %	8 17.8 %	3.49	0.968

There are 16 respondents (35.6%) who have neutral feelings towards the usefulness of the existing method in helping them to determine the number of students according to their level of ability. As shown in Table 4, item B3 recorded a mean of 3.22 and a standard deviation of 1.02. Item B4 recorded a mean of 3.09 and a standard deviation of 0.996 while item B5 recorded a mean of 3.07 with standard deviation of 0.986. The average mean score for these three items is 3.13 which is at intermediate level. It is worth noting that the number of respondents who disagree with the statement is almost equal to the number of respondents who agree. This defines that the usefulness of the existing recording method is not promising even in facilitating teachers to accomplish simple analysis. Moreover, there is no solid evidence from our study to claim that the existing method is able to provide accurate and effortless simple analysis in a short period of time. On the other hand, teachers should be able to know the numbers of students according to their level of ability as this will help teachers to enhance learning experience during session and strategize ways to develop students ability incrementally (Benjamin & Heidrun, 2021).

Table 4. Ability to identify the number of student according to their level of ability

Item	Frequency & Percent (N=45)					Mean	Std. Deviation
	1	2	3	4	5		
B3 After recording the Tasmik data, the teacher can accurately determine the number of students according to their level of ability	-	12 26.7 %	18 40%	8 17.8%	7 15.6 %	3.22	1.02
B4 During each Tasmik session, the teacher can quickly determine the number of students according to their level of ability	-	15 33.3 %	16 35.6 %	9 20%	5 11.1 %	3.09	0.996
B5 During each Tasmik session, it is effortless for the teacher to determine the number of students according to their level of ability	1 2.2%	12 26.7 %	20 44.4 %	7 15.6%	5 11.1 %	3.07	0.986

The usefulness of the existing method in enhancing teachers ability to analyse students progress is further examined in Table 5. Specifically, item B6, B7 and B8 investigate the extent to which teachers can accurately, quickly and effortlessly determine the percentage of students according to their level of ability right after each Tasmik session. The results showed that item B6, B7 and B8 consistently had a higher percentage in disagreement towards the statement. These items recorded mean values of 2.82, 2.80 and 2.71 respectively. This indicates that the respondents have to spend extra time and do extra tasks before students progress can be accurately analysed.

The usefulness of the existing method in enhancing teachers ability to analyse students progress is further examined in Table 5. Specifically, item B6, B7 and B8 investigate the extent to which teachers can accurately, quickly and effortlessly determine the percentage of students according to their level of ability right after each Tasmik session. The results showed that item B6, B7 and B8 consistently had a higher percentage in disagreement towards the statement. These items recorded mean values of 2.82, 2.80 and 2.71 respectively. This indicates that the respondents have to spend extra time and do extra tasks before students progress can be accurately analysed.

Table 5. Ability to identify the percentage of student according to their level of ability

Item	Frequency & Percent (N=45)					Mean	Std. Deviation
	1	2	3	4	5		
B6 After recording the Tasmik data, the teacher can accurately determine the percentage of students according to their level of ability	1 2.2%	20 44.4 %	14 31.1 %	6 13.3 %	4 8.9%	2.82	1.007
B7 During each Tasmik session, the teacher can quickly determine the percentage of students according to their level of ability	3 6.7%	17 37.8 %	15 33.3 %	6 13.3 %	4 8.9%	2.80	1.057
B8 During each Tasmik session, it is effortless for the teacher to determine the percentage of students according to their level of ability	3 6.7%	21 46.7 %	11 24.4 %	6 13.3 %	4 8.9%	2.71	1.079

As shown in Table 6, 12 respondents (26%) disagree that the existing method helps teachers to determine student's weaknesses accurately, quickly and effortlessly. Additionally, almost half of the respondents (42%) have neutral feelings towards the statement. Examining the mean of item B9, B10 and B11 showed an average mean value of 2.94 and a standard deviation of 0.970 which indicates a low-intermediate level. Item B9 recorded the highest mean value of 3.04 which suggests that the existing method moderately helps the respondents to accurately determine students weaknesses. However, based on item B10 which has the lowest mean value of 2.84, the respondents need to spend more time before they can determine students' weaknesses in the execution of Tasmik program.

Table 6. Ability of the existing method to determine the level of student weakness

Item	Frequency & Percent (N=45)					Mean	Std. Deviation
	1	2	3	4	5		
B9 After recording the Tasmik data, the teacher can accurately determine the student's weaknesses.	1 2.2%	11 24.4%	21 46.7%	9 20%	3 6.7%	3.04	0.903
B10 After recording the Tasmik data, the teacher can quickly determine the student's weaknesses.	3 6.7%	14 31.1%	19 42.2%	5 11.1%	4 8.9%	2.84	1.021
B11 After recording the Tasmik data, the teacher can easily determine the student's weaknesses.	2 4.4%	13 28.9%	20 44.4%	6 13.3%	4 8.9%	2.93	0.986

In Table 7, there are 23 respondents (51%) disagree that the existing method helps them to accurately, quickly and easily prepare the student's progress report to the stakeholder and administrator. In relation to this, the average mean value for item B12, B13 and B14 is 2.71 which is at low-intermediate level. The findings indicate that the respondents hold a negative perception towards the ability of existing methods in helping them to analyse data and accurately report the findings. Additionally, the barriers hinder stakeholders to precisely interpret a student's progress based on the given report.

Table 7. Ability of the existing method to prepare student's progress report

Item	Frequency & Percent (N=45)					Mean	Std. Deviation
	1	2	3	4	5		
B12 Teacher can prepare an accurate analysis report of a student's progress to the administrator and stakeholders.	3 6.7%	20 44.4%	12 26.7%	6 13.3%	4 8.9%	2.73	1.074
B13 Teacher can quickly prepare the analysis report of a student's progress when requested by the administrator and stakeholders.	4 8.9%	19 42.2%	12 26.7%	6 13.3%	4 8.9%	2.71	1.100

B14 Teacher can easily prepare the analysis report of a student's progress when requested by the administrator and stakeholders.	4	20	11	6	4	2.69	1.104
	8.9%	44.4%	24.4%	13.3%	8.9%		

In Table 8, the ability of the existing method in facilitating teachers to accomplish tasks in a timely manner is explained. The mean value for item B15 is 2.67 with standard deviation of 0.798. In addition, 2 respondents (4.4%) strongly disagree and 18 respondents (40%) disagree that the existing method helps them to plan, monitor, and document student's progress in an efficient and timely manner. 18 respondents (40%) have neutral feelings towards the statement while only 7 respondents (15.6%) agree. The finding indicates that a large number of respondents (44.4%) believe that using the existing method is a serious impediment to their efficiency in managing student's progress within a timely manner.

Table 8. Ability of the existing method to facilitate teachers to complete task efficiently

Item	Frequency & Percent (N=45)					Mean	Std. Deviation
	1	2	3	4	5		
B15 The existing method in the Tasmik program allows me to plan, monitor and document student progress in a timely manner.	2 4.4%	18 40%	18 40%	7 15.6%	-	2.67	0.798

Respondents' perception towards the ability of the existing method in improving their job performance is shown in Table 9. Item B16 recorded the mean value of 2.73 with a standard deviation of 0.751. Majority of the respondents (51.1%) have a neutral feeling while 6 respondents (13.3%) agree with the statement. On the other hand, the number of respondents that disagree is 16 (35.6%). The large number of respondents with neutral feelings shows that they somewhat hold a negative perception towards the usage of existing methods in recording and analysing student's progress data. The negative perception can be explained by the inability of the existing method to conduct prompt analysis, and accomplish their task in managing student's achievement within a timely manner.

Table 9. Ability of the existing method to improve the job performance

Item	Frequency & Percent (N=45)					Mean	Std. Deviation
	1	2	3	4	5		
B16 The existing method of recording and analysing data in the	2 4.4%	14 31.2%	23 51.1%	6 13.3%	-	2.73	0.751

Tasmik program improve my job performance							
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Teacher Readiness in Adopting Digital Technology for Data Record and Data Analysis in the Tasmik Program

Table 10 analyzes teachers' readiness in using digital technology for recording, analysing, and reporting students' progress in Al-Quran recitation. The overall mean for all items of teacher readiness is 4.32, meaning that most respondents agreed that they are willing to use digital technology in recording, analysing, and providing reports on students' Al-Quran recitation progress. The low overall standard deviation of 0.648 indicates that the data distribution is narrow, which means that most respondents' answers are not scattered.

Item C21 has the highest mean value, with a mean of 4.73 and standard deviation, 0.495, indicates that most teachers have internet access on their smartphone. While the lowest mean in item C19, with a mean value of 3.58 and standard deviation 0.812, shows that teachers have moderate experience in using computer applications for data recording, analysis and reporting. The value difference between mean value for item C21 and C19 is 1.15.

The results clearly indicate that Islamic education teachers believed they are ready to adopt digital technology in the Tasmik program, specifically during data recording, analysis and reporting process. Also, they have access to the computers, smartphones and internet either during school time or outside their working hours. Despite the motivation to embrace digital technology, they have moderate experience in using computer applications which limit their ability to effectively use digital tools in the Tasmik program. In this case, a very learnable application with familiar interface will help them to quickly adopt the digitalisation and facilitate them to employ the full potential from the digital technology. The importance of digital competencies in the teaching process is highlighted in (Margarida et al., 2021) where teacher's experience in using digital tools determine the success of digital adoption in teaching and learning activities.

Table 10. Teacher Readiness in using digital technology

Item	Frequency (N=45)					Mean	Std. Deviation
	1	2	3	4	5		
C17 I am familiar with Google Spreadsheets.	-	3	11	27	4	3.71	.727
C18 I often record student data using Google Spreadsheets.	1	6	10	19	9	3.64	1.026
C19 I have vast experience in using any computer application to record data, analyse and report the student's progress	1	2	16	22	4	3.58	.812
C20 I have access to a computer and smartphone.	-	-	2	11	32	4.67	.564
C21 I have internet access on my computer and smartphones.	-	-	1	10	34	4.73	.495

C22 I have internet access when I am outside the school.	-	-	1	20	24	4.51	.549
C23 I subscribe to a personal internet plan on my smartphone.	-	-	-	13	32	4.71	.458
C24 I have no problem with using the internet for the Tasmik program.	2	-	3	17	23	4.36	.802
C25 My computer and smartphone are very useful in my daily work as a teacher.	-	-	1	12	32	4.69	.514
C26 I am ready to change the manual process in data recording, analysis and reporting in the Tasmik program to the digital technology.	-	-	1	14	30	4.64	.529

e-Tasmik - A New Digital Tool for Islamic Education Teachers to Record, Analyse and Report Students Data

To facilitate digital technology adoption among Islamic education teachers in the Tasmik program, e-Tasmik is being developed as a digital tool to replace conventional practice of recording, analysing, and reporting student data. The development of e-Tasmik took into account all of the factors indicated in Table 10 and was tailored to the level of readiness among Islamic education teachers to adopt digital technology. In order to promote familiarity and speedy learnability, e-Tasmik allows users to supply students data and create reports reflecting the student's development in the form of a spreadsheet. Additionally, e-Tasmik is also suitable for any screen displays, whether personal computer, tablet, or smart phone. This makes it easier for user to select the proper device to use for capturing data, as smartphones being the most commonly used due to its portability and accessibility among Islamic education teachers. Figure 2 depicts the developed e-Tasmik interface in this paper.



Figure 2. e-Tasmik user interface

The effectiveness of e-Tasmik is evaluated based on its Perceived Ease of Use (PEoU), Perceived Usefulness (PU) and User Acceptance (UA) derived from the Technology Acceptance Model (TAM). The findings is further described in Table 11.

Table 11. PEoU, PU and UA

Item	Frequency & Percent (N=45)					Mean	Std. Deviation	Skewness	Kurtosis
	1	2	3	4	5				
D42 Using e-Tasmik would enable me to track student progress more quickly.	-	-	-	13 28.9%	32 71.1%	4.71	.458	-2.725	-1.616
D43 Using e-Tasmik would improve my job performance.	-	-	-	14 31.1%	31 68.9%	4.69	.468	-2.387	-1.942
D44 Using e-Tasmik would make my job easier.	-	-	-	11 24.4%	34 75.6%	4.76	.435	-3.479	-0.734
D45 I would find the e-Tasmik useful in my job.	-	-	-	6 13.3%	39 86.7%	4.87	.344	-6.311	4.493
D46 Learning to operate e-Tasmik would be easy to me.	-	-	-	10 22.2%	35 77.8%	4.78	.420	-3.909	-0.135
D47 It would be easy for me to become skillful at using E-Tasmik.	-	-	-	15 33.3%	30 66.7%	4.67	.477	-2.069	-2.210
D48 I would find e-Tasmik easy to use	-	-	-	9 20%	36 80%	4.80	.405	-4.388	0.614

According to the results of the investigation, item D45 has the highest mean of 4.87 with a standard deviation of 0.344. Item D45 also has the greatest skewness and kurtosis values, with skewness of -6.311 and kurtosis of 4.493.

In order to understand the level of relationship between Islamic education teachers' readiness with e-Tasmik effectiveness, this paper conducted the Spearman Rho correlation test. The

Spearman Rho correlation test is selected paper as the items studied in this paper are in ordinal scale and the normal distribution is not observed in the measured items. Furthermore, the Spearman Rho correlation test enabled researchers to better evaluate the strength of the association for each researched component. To facilitate the assessment, the strength of the relationship for each comparison made will be assessed using correlation interpretation through Guilford's Rule of Thumb. Interpretation of the relationship based on the strength of the correlation refers to Table 12.

Table 12. Interpretation of Relationships according to Guilford's Rule of Thumb Table

Absolute Value of R	Interpretation
<0.19	Slight; almost no relationship
0.20 - 0.39	Low correlation
0.40 - 0.69	Moderate correlation
0.70 - 0.89	High correlation
0.90 - 1.00	Very high correlation
>0.30	Practically significant relationship

The correlation test result in Table 13 indicates that the readiness level among Islamic education teachers to adopt digital technology is weakly correlated with the effectiveness of e-Tasmik. The correlation coefficient value is 0.27 with significant value, 0.071.

Table 13. Correlation analysis table

			Readiness level among Islamic education teachers	Effectiveness of e-Tasmik
Spearman's rho	Readiness level among Islamic education teachers	Correlation Coefficient	1.000	.272
		Sig. (2-tailed)	-	.071
		N	45	45
	Effectiveness of e-Tasmik	Correlation Coefficient	.272	1.000
		Sig. (2-tailed)	.071	-
		N	45	45

Based on the findings, it is obvious that the readiness level among Islamic education teachers as studied in this paper has a low correlation towards the effectiveness of e-Tasmik as the digital tool. To explain further, the e-Tasmik is found effective for improving work performance and enabling Islamic education teachers to efficiently track their student

development. Since e-Tasmik was created with a familiar and easy-to-learn interface, it explains its efficacy in resolving challenges associated with the traditional method of recording, analysing, and reporting student data in the Tasmik program. Thus, the readiness level among Islamic education teachers is not very important in making e-Tasmik helpful to them.

Discussion:

This paper determine the readiness level among Islamic education teachers towards the adoption of digital technology for managing student's progress in the Tasmik program. Additionally, this paper proposed e-Tasmik as a digital tool to replace the manual methods in managing students progress data. The effectiveness of e-Tasmik is determined based on its Perceived Ease of Use (PEoU), Perceived Usefulness (PU) and User Acceptance (UA). The correlation analysis is also conducted to determine the level of relationship between Islamic education teachers readiness level and the effectiveness of e-Tasmik.

During each Tasmik session, students are required to recite the Al-Quran in front of their teachers and the teacher is responsible to correct any mistakes before the student can proceed to the next verse. As the Al-Quran is written in Arabic language, students will take time to learn the pronunciation, comprehend its meaning and in some cases, it will take more than six years before they can perfectly recite the 114 chapter in the Al-Quran. In the Tasmik session, the teacher is also required to record various students ability including accuracy of the pronunciation of 28 basic Arabic alphabets, 17 emission points of the letters located in the various region of mouth, throat, tongue, lips, and nose, emphatic consonants with heavy accents, prolongation according to the letter, Arabic language pausal and stop rules, as well as the number of verses that their students have mastered. Students' progress will be recorded throughout their study in the national primary school or until they have mastered the recitation until the end chapter of the Al-Quran. Additionally, teachers will use the recorded data to strategize ways so that their students can master Al-Quran recitation as soon as they can.

At the time this study was conducted, all respondents revealed that they are still using pen and book to record their students' progress. The study also revealed that respondents can moderately rely on the existing manual methods to determine the level of their students ability during each Tasmik session. In this context, respondents are able to validate their students' progress at the end of each Tasmik session without taking into consideration their students' long-years progress in reciting the Al-Quran. As developing students' ability to perfectly recite the Al-Quran would take the whole years in national primary school, using the manual way in data recording will limit teachers to track the effect of their previous teaching methods and avoid themselves from using effective methods for the new students (Hipkins & Cameron, 2018; [24] bichranloo et al, 2021). In addition, the manual method used in the Tasmik program also prohibits teachers from reflecting on the students' progress overtime.

Overall, it was found that the existing manual method is not very useful in helping respondents to conduct analysis on the data. The conclusion is drawn from the findings which suggest that most respondents have difficulties in conducting an accurate and effortless simple analysis within a short period of time. On the other hand, respondents also believed that they have to spend extra time and do extra tasks before students' weaknesses can be accurately identified

based on the recorded data. Several reasons emerge from using the manual methods in managing students' progress and contributed to the negative perception towards the ability of the existing methods in helping them to analyse data and accurately report the findings. In line with Blundell (2021), paper-based tools as currently used in the Tasmik program restricted teachers to automate provision of feedback, analyse the learning analytics and personalized learning experience. As a result, the learning process during the Tasmik session will be less student-directed and not matched with the students' ability.

Importantly, a large number of respondents (44.4%) believed that the existing method is not very useful in facilitating them to plan, monitor, and document students' progress in a timely manner. This is also related to the disagreement among the majority of respondents (86.7%) that the existing method improves their related job performance. As such, the existing manual method in the Tasmik program does not reduce their workload but consume more time and effort to track students' progress and identify students' weaknesses. In line with Jerrim & Sims (2021), the increment in the amount of time that a teacher spends on a particular task will eventually increase their workload and give a negative impact to their teaching quality. Additional tasks also cause unnecessary burden to the teachers and disrupt their focus. Irma et al. (2021) discussed the negative effect of the irrelevant burden in teachers' tasks within the Malaysia context and highlighted the reduction in teaching quality due to the unnecessary burden.

The study found that most of the respondents believed that they are ready to adopt a digital technology to record, analyse and report students' progress in the Tasmik program. Additionally, all respondents are well equipped with the internet, computer and smartphone which creates opportunities for the enhancement of teaching and learning activities and establishment of rigorous students' progress management method. The findings also suggest that there are less technical barriers for the respondents in implementing a digital technology for the Tasmik program. As such, they are beneficial to digitally assess their students' progress, give feedback, identify weaknesses and progress tracking (Blundell, 2021) on condition that the used digital platform is reliable across all digital devices. For example, spreadsheets on cloud technology. Beyond hardware and internet access, it is reported that the respondents have a moderate experience in using computer applications to record, analyse and report students' progress. This would become the biggest challenge in adopting digital technology for the Tasmik program, specifically to gain confidence and trust among Islamic education teachers towards the new digital technology. Concerns on experience limitation can be addressed through skills development sessions and technical support programs which give more focus to overcome teachers' fears and develop their competency to the extent that they are able to accomplish tasks on their own using the computer application (Hebert et al., 2021). In such, continuous training should be given based on the digital skills that are lacking among Islamic education teachers and the expected digital competence level to ensure the success of digital technology implementation (Margarida et al., 2021). It is also important for the Islamic education teachers to acknowledge the positive values from digital technologies adoption in the teaching and learning activities and explore its benefits during the training.

Taking into consideration the available challenges and readiness level among Islamic education teachers, the e-Tasmik is proposed as a tool towards digital technology adoption in the Tasmik program. Based on the analysed data, e-Tasmik is proven as easy-to-use and effective solution in recording, analysing and reporting student progress during the Tasmik program. Looking further, the Islamic education teachers readiness in adopting digital technology is less important to determine the effectiveness of e-Tasmik.

Conclusion:

The main goal of this paper was to analyse the readiness level among Islamic education teachers in the Tasmik program towards the adoption of digital technology for data recording, analysis and reporting. This study has shown that the respondents hold a negative perception on the usefulness of the existing method especially on its ability to improve job performance and facilitate in the students' progress analysis. At the same time, the respondents also believe that they are ready to adopt a digital technology even though most of them have a moderate experience in using digital tools for data recording, analysis and reporting.

To overcome the available gap in digital technology adoption among Islamic education teachers, this paper proposed e-Tasmik as a tool for recording, analysing and reporting students' progress in the implementation of the Tasmik program. Based on the correlation analysis conducted in this study, the effectiveness of e-Tasmik is not determined by the readiness level among Islamic education teachers to adopt digital technology. The results support the applicability of e-Tasmik in replacing conventional recording, analysing and reporting methods in the Tasmik program. At the same time it shows that e-Tasmik is easy to use and helpful to the Islamic education teachers.

The creation of a digital technology in recording, analysing and reporting students' progress is essential in reducing the limitation of the existing manual method currently used in the Tasmik program. In such, the new approach should be useful to facilitate Islamic education teachers to accurately track students' progress and identify students' weaknesses in a timely and effortless manner. Notwithstanding the belief that respondents are ready to adopt the digital technology, the computer application that will be used for recording, analysing and reporting students' progress should be readily learnable, and familiar to its users. Considering the respondents' experience in using digital tools, it is also important to ensure that the benefits of the digital technology can be successfully translated into the increment in job performance and teaching quality in the Tasmik program. Apart from that, it is hoped that the digital technology could help stakeholders to plan and implement suitable intervention programs towards the success of the Tasmik program in the national primary school. Aligned with the aspiration, the development of advance digital tool should be the next focus with serious consideration on specialised digital technology such as machine learning and artificial intelligence to foster analysis in the students' progress.

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