

Evaluation of technology-based learning in an Islamic school

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ABSTRACT: The rapid development of technology has an influence on learning and teaching across all types of institutions, including Islamic schools. To ensure the quality of education, it is necessary to evaluate the use of technology-based learning in those schools, considering various factors, such as school facilities and teachers. The purpose of this study was to evaluate the use of technology in the teaching and learning process in Islamic schools, and to provide some guidelines for overcoming potential obstacles and improving the use of technology in those schools. In this study, a qualitative method was used with an evaluation model, including the context, input, process and the final product. The study involved 28 teachers from Islamic schools in the Jakarta area in Indonesia. Data was collected using interviews, questionnaires, observations and documentation to teachers regarding the use of technology in the teaching and learning process. The results of the study indicate that 76.2% of the teachers use technology as a medium of teaching and learning, while 23.8% of them still teach conventionally without the aid of technology.

INTRODUCTION

Learning in Islamic schools has progressed and developed, incorporating technology-based educational approaches. Students in Islamic schools do not only study religious knowledge but also technology, social and natural sciences. In the process of learning, students gain knowledge and skills from the teacher and engage in self-learning. In this digital era, the educational process has changed across all types of schools, including Islamic schools. During the digitalisation period, teachers were required to change their teaching methods, and not to teach conventionally, but to based their teaching on technology, when applicable.

In the current situation, willingly or not, teachers must learn and adapt to technology-based education provision. However, not all teachers are able to learn and adapt to this new technology-based approach. Therefore, solutions have to be found to overcome this reluctance to the use of technology, and to ensure that technology-based teaching is practiced by all teachers in Islamic schools.

The importance of technology in learning cannot be overemphasised, because it can have a considerable influence on study and work in today's digital era. Through technology-based learning students can overcome problems and difficulties in understanding traditional learning materials [1], and thus progress much better in their studies.

In technology-based learning, learning is a process where technology is implemented as a medium to help teachers and students to achieve better results in their educational activities [2]. Hence, the use of technology-based approach can be appropriately considered a supporter in successful learning, as the use of technology in an educational setting stimulates the desire to learn, and positively impacts on student continuing interest and motivation [3].

To ensure the quality and best outcomes in education, it is necessary to evaluate the learning and teaching process regarding the technology used, and its implementation in the learning process in Islamic schools in the Jakarta area in Indonesia. According to Santiyadnya, evaluation is an assessment process to get a picture of the existing situation that can provide a basis for decision making; for example, for implementing technology-based learning in Islamic schools [4]. Once it is implemented, principals, teachers and school committees need to evaluate the technology-based learning approach and identify any problems or drawbacks. In technology-based learning, several obstacles are often encountered that need to be addressed in the evaluation cycle.

Evaluation is absolutely crucial, the more as the use of technology requires Internet access to educational platforms, tools and materials which can be expensive and often involves the expenditure of quite large amounts of funds. However, schools need to provide the adequate technology for the learning process to run optimally, and have to consider how to overcome the lack of teacher competence in using technology-based platforms [5].

The platforms used in technology-based learning include WhatsApp groups, YouTube, Edmodo, interactive PowerPoint, Zoom and Google Classroom. Islamic schools are in the highest demand in Indonesia. Thus, efforts are particularly needed to overcome the obstacles encountered in the technology-based learning process. This type of education poses challenges to teachers in Islamic schools at Jakarta, including innovation and creativity in designing learning materials, choosing media that are fun and easy to understand by students in the learning process, as well as giving paperless, interestingly prepared assignments based on Google Forms. In the on-line environment, assignments can be given in the form of digital games so that students are fully engaged and satisfied. Tasks should no longer be a scary activity, but should be embraced with enthusiasm.

This change in the learning process follows the development of technology and the emergence of the digital era. In this era, students are already actively using technology, but need to be guided by teachers in regard to the proper and correct use of technology. Teachers are expected to use technology as a medium and source of learning. It has to be highlighted that in Islamic schools, teachers are given support to carry out technology-based learning by them with guidance and training on the student-centred implementation of technology in the learning process. In Islamic schools, coaching and training activities are given to teachers every semester. Their knowledge and skills in technology need to be continuously upgraded and updated as educational technologies change, so that the teachers are not left behind in new and emerging technology-based learning media and resources.

The purpose of this study was to evaluate the use of technology in the learning process in Islamic schools in the Jakarta area in Indonesia. The findings can provide some guidelines for overcoming potential obstacles and improving the use of technology in those schools.

METHOD

In this study a qualitative method was used with an evaluation model, including the context, input, process, and the final product. The authors deemed this model as appropriate for evaluating the use of technology in Islamic schools in the Jakarta area in Indonesia. In the evaluation model the study context is considered first, followed by the input /process/product stages that refer to the problem identification, setting objectives, data collection and analysis, and the study findings. The input stage in the evaluation concerns the researcher's input. The process stage refers to the way of achieving the objectives of this study. The product is obtained upon the study completion. [6]. The context, input, process and the product constitute a framework for continuous and systematic quality assessment of technology-based learning specifically in Indonesian Islamic schools, but it could be applicable outside the boundaries of these particular type of schools.

RESULTS AND DISCUSSION

The study involved 28 teachers from Islamic schools in the Jakarta area in Indonesia. Data were collected by interviews, questionnaires, observations, and documentation to teachers regarding the use of technology in the learning process in Indonesian Islamic schools. The questionnaire used in this study was based on a Likert-type of scale to enable easier rating of individual items by the teachers.

The results allowed to make a broad division between the teachers that use and those that do not use technology in their teaching. The data indicate that 76.2% of the teachers always use technology as a medium of instruction while 23.8% of the teachers teach conventionally. Applications commonly used are animated videos and PowerPoint. In creating technology-based learning media various technology devices are usually used.

One of the questions in the survey referred to the type of device used by teachers in the educational process, and in response 72% of the teachers stated that they used mobile phone, 8.37% of the teachers used computers, while 19.63% of them relied on notebooks. Teachers are more likely to use mobile phones because they are easier to carry and use, while computers and notebooks are considered bulkier and more difficult. It was also established that some teachers cannot operate computers or notebook yet and hence do not use them. As far as students in Islamic school in the Jakarta area are concerned, they have more mobile phones than computers and notebooks. But learning can still run well and be effective.

Technology-Based Context in the Learning Process

Since the onset of the Covid-19 pandemic in 2020, distance learning has been carried out with the help of technology. Therefore, teachers had not only to quickly learn and understand how to use technology in education, but at the same time maintain student engagement and interest in the learning process. One of the Islamic schools in Indonesia relied on outdated tools and approaches, and had to engage in reforms to support teaching and learning activities in the new technological era, while other schools also needed some forms of assistance. Efforts to remedy this situation were made by providing six projectors for teaching/learning purposes. At that time, the need for systematic evaluation came out strongly as teachers do not always take advantage of the facilities provided by the school, one of which is technology. Therefore, during the evaluation particular emphasis should be paid to the use of technology in teaching.

As mentioned above, some Islamic schoolteachers do not understand the educational benefits of technology and do not know how to use computers and mobile devices, so they teach conventionally. However, several schools have come up with appropriate training and coaching for those teachers, and continue to motivate and support them as technology-based learning poses several challenges, some of them unique to the setting. The main challenge, however, is to ensure that students are able to grasp and fully comprehend the provided material.

Input to the Use of Technology in Learning in Islamic Schools in Jakarta

There needs to be support for Islamic school teachers to continue innovating and be creative in using technology as a learning medium. Teachers are given appropriate equipment and training in technology development and use; for example, the provision of adequate school facilities is reinforced by instruction. In addition, it is necessary to conduct an evaluation every semester to find out the progress of the use of technology. Teachers must also be able to keep up with future technological developments, and to be able to use several applications to support the learning process. The goal is that students are fully engaged with the learning media used by the teacher, that they do not become disengaged due to boredom or withdraw from classes. The requirement to use technology in schools goes back to the 2013 curriculum, whereby teachers were directed to always use technology in teaching activities. Figure 1 presents the current usage of various tools and platforms in Indonesian Islamic schools.

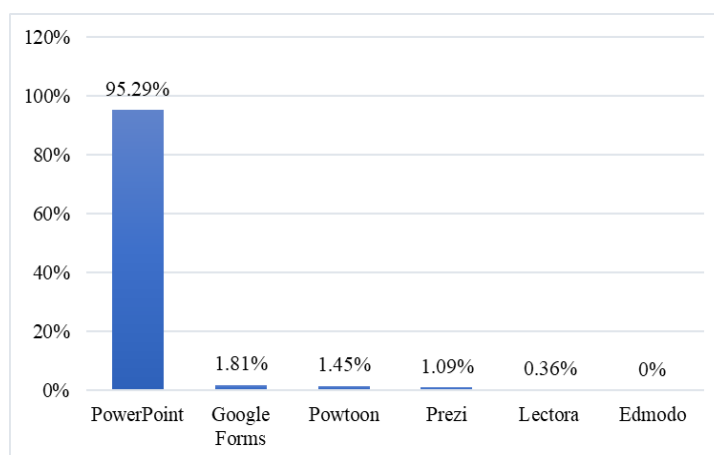


Figure 1: Selected technology-based learning tools and platforms.

Based on the results included above, one can see that teachers in Islamic schools use the PowerPoint tool because it is considered the easiest to use and make presentations with. Furthermore, the teachers usually select learning videos from YouTube tailored according to the learning material that will be given. Several other tools and platforms are used as alternative media by teachers learning in Islamic schools so that the learning process is efficient and engaging for students, while at the same time the teachers develop their abilities regarding learning technology.

PowerPoint is a very efficient tool, however, in the digital era it is considered as rather traditional and many teachers who are not proficient in technology use PowerPoint as a learning medium. The teacher presents the material in the form of text, images, animations, even videos or in the form of games. When using PowerPoint, the teacher prepares several slides on a given topic and then uses the slides to explain the topic. As it is an easy tool it can be utilised very quickly by novice teachers, especially at the beginning of their career when they are just learning about technology-based educational media.

Teachers can also utilise the YouTube platform, which contains educational videos ready for downloading or they can create their own videos - which they sometimes do - and then upload them thus making them available to other teachers. The goal is the same as in regard to other media, that is to ensure a smooth running of the class with students easily following and absorbing the learning material. Teachers only share video links which is sufficient and provide explanations to students.

The Google Forms Web application can be used for surveys and quizzes. Teachers in Islamic schools use it for assignments, and examinations in the middle and end of semester. The Google Forms includes formulas that can be modified to determine student understanding. The teacher only writes questions and adjusts the form of questions that will be given to students, such as multiple-choice, essays or short descriptions. In addition, Google Forms can very quickly process the results of student answers and give summaries. Thus, many teachers use it when trying to determine the student's knowledge and skills acquisition.

The Process of Implementing Technology-based Learning

As part of study, observations were carried out of the process followed by teachers in utilising technology for educational purposes, namely of their learning planning, learning implementation and learning evaluation. Before the

learning process, the teacher often prepare supporting media, such as videos and PowerPoint presentations. For lower-grade students, the teacher may also create, or utilise existing, technology-based games. Usually, the teacher makes the videos, PowerPoints or other material available to students the day before the actual class starts, so that they can get familiar with the learning material and be prepared for the class earlier. This approach facilitates learning by making students more active during the class, with the teacher providing additional explanations and examples as needed. In this setting, technology is a tool used for students to more comprehensively understand and absorb the material. However, if technology-based educational tools are not available, the teacher has to explain the topic by giving a lecture. Technology-based learning has a positive impact on students' and teachers' engagement in education.

Products resulting from the Technology-based Learning Process

In this study, the product refers to the results of evaluation of technology-based learning. One of them is the actual use of technology in the learning process. At this point it is worth highlighting that Islamic schools are based on religious values, but they follow technological developments and apply appropriate tools and platforms. Moreover, Islamic schoolteachers appreciate the educational benefits of teaching and learning with the assistance of technology and graduates of Islamic schools are among the best graduates in Indonesia, who can compete with others in Indonesia.

Based on the results of the questionnaires, it was established that 84% of teachers in Islamic schools in the Jakarta area find technology-based teaching convenient. This type of education provision it easier for teachers as they can explain the study content by using pictures, slides or video. However, it was also established that 16% of the teachers still have difficulties with technology-based education (as mentioned earlier 23.8% teachers use conventional methods), and with applying technology in their daily lives. These challenges can be overcome by continuing to practice the use of technology, and also by appropriate support and motivation.

In the evaluation stage, several indicators were considered that related to the context, input, process and the product, and they are included in Table 1.

Table 1: Evaluation of technology-based learning.

Components	Aspects evaluated	Indicators	Collecting data
Context	Facility in school	Availability of learning infrastructure	Interview and observation
Input	Teacher	The number of teachers in Islamic schools and their competence in technology-based teaching/learning	Questionnaire
	Students	Students' understanding of technology-based learning	Questionnaire and observation
	Media learning	The platform used in the learning process	Questionnaire
Process	Planning	Learning materials easily accessible and attractively presented on the chosen platform, and adapted to the character of the material and students in Islamic schools	Observation
	Implementation	Implementation of technology-based interactive learning for students	Observation
	Assignment	The effectiveness of using technology platforms for giving assignments to students	Observation
Product	Student learning outcomes using technology in the learning process	The results of daily tasks, assessment of the middle- and end-of-semester learning with the use of technology, students' learning outcomes	Questionnaire and observation

In the context of this study, learning relates to theory and practice regarding the subject matter introduced by the teacher, and is a process to acquire knowledge and skills by the interaction between teachers and students [7]. In education provision, it is important that learning and teaching are enjoyable, and follow and incorporate technological developments. In Islamic schools, the learning process follows technological developments, with only some teachers using more conventional approaches. The use of technology facilitates knowledge and skills acquisition by students who are comfortable in using technology as a learning resource in the learning process. It also helps that teachers connect learning materials to real-life through pictures and videos.

Islamic schools that have teachers, students and graduates with high technological or digital competence will be able to have a considerable influence on the development and progress of such schools [8].

Islamic schools in the Jakarta area are adequate in terms of technology-based learning facilities. However, it has to be stressed again that the drawback is that there are still some teachers who do not understand and cannot even perform simple functions on technological devices. Therefore, support across the whole teaching and administrative staff is important in technology-based learning to obtain maximum results. An interesting learning experience, satisfaction and engagement are paramount in achieving good educational outcomes by students [9].

The transformation to technology-based learning is not a real challenge or problem for professional teachers in Islamic schools. Professional teachers can develop their digital abilities and continuously upgrade and update their knowledge with the ever-evolving technology always reflecting on and evaluating the teaching completed so far. They are also eager to improve based on that evaluation [10].

The advantages for teachers after the evaluation are as follows. First, the ability of teachers to use or operate technology as an educational medium will improve and facilitate their work with students. Second, teachers can prepare the learning material prior to the class so that the learning process is maximised. Third, teachers will be satisfied when the use of technology increases students' motivation and interest in the learning content and process. Fourth, teachers can become more creative and innovative in the use of technology [11].

Impact on Engineering and Technology Education in Islamic Schools in the Jakarta area

Based on the observations of Islamic schools in the Jakarta area it can be stated that the application of technology to madrasa education can have a positive or in some cases negative impact. The positive impact relates to the convenience and easiness of finding information, acquiring knowledge and broaden students' horizons. This can be seen in teaching and learning activities carried out by teachers and students using computers and Internet media. In addition, technology can provide a stimulus to students in the learning process, thereby improving their ability to understand the learning material and maximise learning outcomes. Ultimately, it can create graduates who are able to contribute by utilising digital media or technology [12]. Technology is not only used in the learning process, and teachers in Islamic schools use it for writing reports, generating examination questions, collecting and assessing student assignments [13].

The negative impact is related to some students who ignore the educational aspect of technology and use it for private gain or satisfaction. For example, they may use technology only for playing games, thus reducing the focus on learning, which results in decreased student achievement. Therefore, the role of teachers in madrasas is crucial as they have to master technology and provide appropriate direction and supervision for students. . In addition, the role of parents is also important in monitoring student usage of learning and other media, especially those available on smartphones.

This study is an effort to improve the effectiveness and efficiency of technologies used in the learning process in madrasas. Technology can be considered as the most important component in the field of education. Especially, in engineering and technology education, they are key resources in knowledge and skills acquisition by learning media have to be applied to in students.

Routine evaluations of teaching and learning can have a positive impact on teachers, particularly if they include recommendations regarding the choice, development and usage of appropriate educational media in terms of their advantages and disadvantages and considering the users' characteristics and needs. Teachers also need to prepare learning plans with learning objectives for students [14].

In view of the highly emphasised importance of technology in this article, the authors hope that the results of this study will be useful not only in the specific context of madrasas in in the Jakarta area, but also for other types of schools, especially in developing countries.

CONCLUSIONS

The evaluation of technology-based learning in Islamic schools in Indonesia, using the context, input, process and product method has yielded some positive results. Various initiatives are undertaken to support the use of technology by providing adequate facilities, infrastructure and teacher training in educational technology. The implementation of technology is enjoyable and facilitates active learning so that it is easier for students to understand the learning content. The evaluation results can provide information for improvement measures in the choice of platforms and tools for teachers. It is crucial to undertake systematic evaluations.

In addition, Islamic schools always keep abreast of digital developments and adapt technological advancements to their specific educational settings, which contributes to their high popularity among educational institutions in Indonesia. They provide education based on religious values, but offer a wide range of study disciplines, including technology, science and arts.

REFERENCES

1. Imbar, V.R., Supangkat, H.S., Langi, A. and Arman, A.A., Digital transformation readiness in Indonesian institutions of higher education. *World Trans. on Engng. and Technol. Educ.*, 20, 2, 101-106 (2022).

2. Liu, Q., Geertshuis, S. and Grainger, R., Understanding academics' adoption of learning technologies: a systematic review. *Computers & Educ.*, 151, **2**, 103857 (2020).
3. Astawa, D.N.W., Influence of mind mapping method implementation on learning results social science is required from students interest. *Inter. Research J. of Manage., IT and Social Sciences*, 6, **3**, 94-100 (2019).
4. Santiyadnya, N., The effectiveness of CIPP model's implementation in secondary school. *J. of Phys.: Conf. Series*, 1810, 012071 (2021).
5. Zaini, H., Afriantoni, Hadi, A., Sofyan, F.A., Faisal, Padjrin and Hamzah, A., Coronavirus disease 2019 and Islamic education in school: searching for alternative learning media. *Webology*, 18, **1**, 154-165 (2021).
6. Rocha, A.C., Silva, M. and Duarte, C., How is sexuality education for adolescents evaluated? A systematic review based on the context, input, process and product (CIPP) model. *Sex Educ.*, 22, **2**, 198-216 (2022).
7. Vad der Wal-Maris, S.J., Beijgaard, D., Schellings, G.L.M. and Geldens, J.J.M., How meaning-oriented learning is enhanced in Dutch academic primary teacher education. *Teacher Develop.*, 22, **3**, 375-393 (2018).
8. He, T. and Li, S., A comparative study of digital informal learning: The effects of digital competence and technology expectancy. *British J. of Educational Technol.*, 50, **4**, 1744-1758 (2019).
9. Azhar, N.C. and Napitupulu, T.A., Factors affecting the effectiveness of on-line learning in higher education. *World Trans. on Engng. and Technol. Educ.*, 20, **1**, 60-65 (2022).
10. Sedov, S. and Kashfrazyeva, G., Trends in the development of technological education and advanced vocational training of students in the context of technological education. *World J. of Educ. Technol. Curr. Issues*, 14, **1**, 200-216 (2022).
11. Qoyyimah, U., Singh, P., Exley, B., Doherty, C. and Agustiawan, Y., Professional identity and imagined student identity of English as an international teachers in Islamic schools. *J. of Language, Identity and Educ.*, 1-16 (2020).
12. Alim, N., Md Saad, M.S., Mahmud, H. and Gunawan, F., Usability and satisfaction of Google Classroom as an instructional teaching and learning medium: the students' perspective. *World Trans. on Engng. and Technol. Educ.*, 19, **1**, 16-20 (2021).
13. Makhubele, D.M., Simelane-Mnisi, S. and Makgato, M., Exploring technology teaching and learning approaches within South African high schools. *World Trans. on Engng. and Technol. Educ.*, 17, **3**, 266-271 (2019).
14. Ghani, A.R.A., Fatayan, A., Yatri, I., Qodariah, L., Bunyamin and Burmansah, B., Evaluation of school-based management implementation (Sbm) in Madrasah Jakarta. *Talent Develop. and Excellence*, 12, **1**, 3490-3511 (2020).