

Learning Based on QR Code Technology to Improve Teacher Performance at SDN 90 SIPATANA

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Abstract : The purpose of this research is to carry out QR Code-based learning to improve teacher performance. In this study using several data collection techniques, namely, interviews, documentation and observation. Interviews were conducted with elementary school teachers at SDN 90 SIPATANA for a preliminary study and to assess the equipment being made. In this study, the results of the study showed that the data was collected through teacher interview observations, then managed the data, and concluded whether the Quick Response Code learning media was used in the teaching and learning process in class VI at SDN 90 SIPATANA. The result of this QR Code-based learning is to increase the effectiveness of the teacher's performance in learning, streamline learning time, add insight, and provide a new atmosphere in learning.

Keywords: QR Code, Teacher Performance, Learning Technology

Introduction

Education is the most important part of human life, because with education, the quality of human resources can be improved. Education is a long process that is continuous and takes place continuously. Therefore, the quality of education must always be improved so that the goals of education can be achieved. The implementation of education in elementary schools currently uses the 2013 curriculum where the learning model uses thematic learning models.

According to Satria (2021) states that thematic learning is learning that uses themes in connecting several subjects so that it can provide meaningful experiences to students. In addition, according to Utami & Egok (2020) states that thematic learning is integrated and meaningful learning because it is adapted to the stage of learning development of elementary school children. Thematic learning is an integrated learning model that uses themes to link several subjects so as to provide meaningful experiences to students. Malawi (2017)

The development of science and technology has brought changes in almost all aspects of human life, including in formal education. The aspect that influences the success of achieving competence is the teacher, because it is the teacher who is directly involved in efforts to influence, foster and develop the abilities of his students so that they become intelligent, skilled, and have high morality and social spirit so that students are able to be independent as individual and social beings. Besides the teacher, the aspect that most influences the success of achieving competence is the teacher's way or method of delivering learning material. According to Susilo (2018) Teachers do not only act as educators, but also must be able to be role models, motivator, and directors for student development. Besides that, one of the important tasks for the teacher is to provide convenience for students in the teaching and learning process and to be able to design learning tools well so that students can follow the teaching and learning process with enthusiasm Hayati (2017). The role of the teacher as an educator has a great influence on changes in students' thinking skills Valen (2020).

The use of information and communication technology today has become a basic necessity in life that is undeniable. The rapid development of informatics and computer engineering has an impact on the world of education today. According to Dermawan (2018), On the other hand, the

changing educational paradigm from teacher-centered learning to student-centered learning has brought very significant changes to the learning methods currently being developed. One of the learning methods being developed is learning 4.0 which is a response to the industrial revolution 4.0 where humans and technology are aligned to enable new possibilities. Technology is becoming a supporting tool that plays an important role in educational practice by teachers and students.

The influence of technology today has penetrated every aspect of human life in various ways. This is influenced because technology is able to facilitate human work. According to Tiene (2000), online learning makes students more interested in discussing, commenting and interacting with teachers and other students so that it is believed to be able to increase student learning motivation. Rinaldi (2017) In the world of education, learning that is oriented towards the use of technology is able to change the form of learning philosophy from teacher-centered learning to student-centered learning. Therefore, the use of technology for learning is able to provide an effective and efficient learning process for students Kristanto (2017).

According to Bahraeni, (2017) One aspect of education that needs attention when using technology is preparing learning resources. Teaching materials have very important benefits not only for educators but also for students. Where for educators the use of thematic teaching materials can save time in teaching, place educators as facilitators, and assist in creating an efficient and interactive teaching and learning atmosphere. The learning resources available in schools are currently very limited, where the learning resources used by teachers in the learning process in class are only guided by books in schools provided by the government. Kosasih, (2021).

By providing the right learning resources, effectiveness and efficiency as well as attractiveness that has been proven to have a positive impact on students' learning interests and achieving educational goals with greater opportunities. In accordance with the statement from Hariyanto (2017) that learning resources are a set of materials, materials, equipment to support the interaction of teachers and the environment which aims to facilitate the learning process and performance evaluation. The demand to increase their expertise in terms of acquiring knowledge and improve in managing their implementation strategy marks the start era we are currently facing. According to Iswan & Herwina (2018), A new issue that has emerged and is being widely discussed is how Science in Technology (IPTEK) can change the face of a more advanced world of education and can change human mindsets to be wiser and more intelligent from various aspects. In the 2013 Curriculum there are several changes, one of which is related to the role of ICT is the removal of ICT subjects and instead ICT becomes a teacher's tool in the learning process in all subjects Marzoan (2014).

Given these problems, it may be necessary to use certain techniques as learning resources or media for conducting research to improve students' learning outcomes in mathematics. Efforts to solve educational problems, especially problems related to the quality of learning, can be reached by using various learning sources and using learning media that function as a tool to increase the level of student learning outcomes Anshori, (2018).

The technology used in the learning process in the field is by using the internet and students' smartphones. Then it was chosen to use a QR code to bridge the process. QR itself stands for Quick Response and explains that students can quickly access information by using a code provided by the educator. According to Nasruddin (2020), said Qr Code stands for Quick Response Code (quick response or response) so that its function and main objective is to convey information quickly so as to get a fast response or response. QR-Code is a two-dimensional image that represents data, especially data in the form of text. Mustakim, Walanda, & Gonggo, (2013).

It is hoped that the use of the QR-Code can further increase the speed of students in being able to obtain information related to the material being taught. QR-Code is completely in sync with the use of growing trends in the development of the world of education, especially student-centered learning. QR-Code has good potential to be integrated into the curriculum Sharma, (2013).

The use of QR Code media can also solve several problems in learning, as experienced by grade 6 students at SDN 90 Sipatana, they have difficulties in learning about building materials in

mathematics, lack of knowledge about origins and customs in the city of Gorontalo (where they live) and have difficulty understanding series and parallel circuit material in science subjects. Therefore this QR Code media is very helpful in minimizing the difficulties they face

The benefits and objectives of this research are to assist the teacher's role in carrying out teaching and learning activities in elementary schools. besides that it can also motivate students to be able to take advantage of technological advances that have occurred today.

Method

In this study, researchers will collect data through observing teacher interviews, then managing the data, and making conclusions whether the Quick Response Code learning media is used in the teaching and learning process in class VI at SDN 90 SIPATANA.

The type of research used is qualitative research. The term qualitative research. According to Denzin & Linclon (1994) states that qualitative research is research that uses natural settings with the intention of interpreting phenomena that occur and is carried out by involving various existing methods.

Results And Discussion

A. Results

One method that has been used to gather data in this study is direct observation, this method is used for preliminary studies and for assessing the device to be made.

The first observation was carried out on September 26 2022, the researcher tried to interview a teacher who is also a class VI homeroom teacher at SDN 90 Sipatana on behalf of Mrs. Sofrin S. Yunus S.Pd. From the results of interviews with researchers, the teacher has several obstacles in the learning process, these obstacles are in the form of difficulties in teaching because usually the teacher runs out of time and students get bored easily. This problem lasts a long time, especially in certain subjects, namely Mathematics, Science, MULOK.



The second observation was carried out on October 17, 2022, the researcher tried to explain to students using new media, namely learning media based on QR Code in learning Mathematics on Fractions and Spatial Structures, Science on Series and Parallel Series, and MULOK on historical material in Gorontalo.



The third observation was carried out on October 18 2022, the researcher explained and carried out the process or stages of using the QR Code media to students.

In the process students will download the QR Scanner application on the Play Store or App Store, then students will be distributed QR Codes to be scanned using the previously downloaded application, after being scanned students read and understand the material contained in the QR Code according to the learning material that has been determined , then after students understand the material in the QR Code the teacher gives reflection on the material that has been given. The purpose of this media is for the effectiveness of the teacher's performance in learning, streamlining learning time, adding insight, and providing a new atmosphere in learning



Serial & Parallel Series (IPA) QR Code Fraction Material QR Code (Mathematics)



QR Code of Historical Sites in Gorontalo (Mulok)

B. Discussion

1. Quick Response Code QR Code concept

Advances in technology are very influential in the world of education so that the learning process must be able to keep up with technological developments, but again the use of learning media, especially digital-based ones, is not optimally utilized. Thus the researcher will apply digital-based learning media, one form of technological innovation is the existence of a QR Code. QR Code is a two-dimensional barcode that was introduced by a Japanese company, namely Danso Wave in 1994, even though it is almost 23 years old, the usefulness of each QR Code is felt, especially in the trade and service industry.

In the journal Rahmawati & Rahman (2012) explains that in several versions the Quick Response Code (QR Code) symbol ranges from Version 1 to Version 40. Each version has a different module arrangement or number of modules (this module refers to the black dots and white that forms the Quick Response Code (QR Code)).

Each version of the Quick Response Code (QR Code) symbol can have a data capacity that corresponds to the amount of data, type of character and level of error correction. So that in checking the data with the maximum capacity determined in each version. In the version and maximum data capacity, the amount of data and modules will increase so that the Quick Response Code (QR Code) symbol will get bigger.

Stagescan QR Code is as follows: 1) Android can do a scanner on the QR Code. 2) A QR Code that has not been registered will display information in the form of a translation of the Quick Response Code (QR Code). 3) QR Code that has been registered will be searched for data in a database. 4) The registered QR Code will display a website containing the information that has been entered. 5) after the website screen is closed it will display the translation of the QR Code.

2. Learning Media based on QR Code

Definition of Learning Media Based on Quick Response Code (QR Code)

Learning media is seen as one of the important elements in learning, there is no doubt that the presence of media in elementary schools really helps the learning process. Along with the development of the era, learning media does not have to be monotonous using traditional learning media, but learning media must also be able to keep up with the technological era.

The function of the learning media itself according to Hamalik (1986), states that the use of learning media in the teaching and learning process can arouse the desire or interest of new students, generate motivation and stimulate student learning activities, and bring psychological influences on students. It is quite clear that with the existence of learning media students will be more active and more motivated to study hard.

In line with that Levie & Lentsz (1982), mentions four functions of the use of learning media, especially visual media, namely: Attentional Function, Affective Function, Cognitive Function, Compensatory Function. The function of visual media attention is the core, namely by attracting and directing students' attention so that students concentrate on the lesson content related to the visual meaning that is displayed or accompanies the text of the subject matter. Thus the presence of learning media cannot be ignored anymore and indeed it must be utilized better so that the learning process can run optimally.

On the other hand, technological advances are very influential in the world of education so that the learning process must be able to keep up with technological developments, but again the use of learning media, especially digital-based ones, is not optimally utilized. Thus the researcher will apply digital-based learning media, one form of technological innovation is the existence of a QR Code.

QR Code is one of the technologies that can be utilized in the world of education. So the researcher took the QR Code to be used as a learning medium. Along with the development of the times, the development of learning media also follows the era where now it has entered the technological era, the development of technology-based learning media.

One technology that is quite familiar is the QR Code, QR Code is quite familiar in the world of commerce or even in the world of advertising but the use of the QR Code is not used properly in

the world of education. Therefore the researcher wants to take advantage of the effectiveness of the QR Code in the world of education. Learning media based on QR Code has several stages in the learning process, namely:

1. The teacher provides teaching materials packaged in QR Code media
2. Make sure the student's cellphone has an internet network connection
3. Ask students to download the "QR Scanner" application on the Playstore or App Store
4. Explain to students how to use the QR code
5. Guide student in use QR code moment process learning takes place.
6. Ensuring all students can use the QR Code properly. Thus the learning process is structured through the following stages:

the above stages so that the learning process can be optimized properly by the teacher.

a. The steps for implementing QR Code-based Learning Media There are several steps for learning media based on QR Code that support the learning process, namely:

1. Students make sure their cell phones are connected to the Internet network
2. Students download the QR Scanner Application on the Play Store or App Store
3. Students scan the QR code prepared by the teacher
4. Students wait a few moments until it opens on the teaching material website page
5. Students read and understand the material from the website page.

b. Advantages and Disadvantages of Learning Media based on QR Code

1. Advantages of QR Code-based Learning Media

- a. This learning media is easy to use in learning because the teacher can access material that is not in the teacher's book
- b. Can help the teacher's role, where the teacher no longer bothers to access or search for material on Google because it is already contained in the QR Code
- c. Efficient time because the teacher does not need to explain too long because the teaching materials are already listed on the QR Code
- d. It can be accessed anytime and anywhere even without a teacher to guide learning
- e. The teaching material on the QR Code is summarized properly and clearly so students don't get bored easily reading learning material.

2. Disadvantages of QR Code Based Learning Media

- a. This learning media cannot be used in the 3T area
- b. This media must have a stable internet network connection
- c. On certain smartphones, you must download the QR Scanner application
- d. Can only access certain learning materials.

Conclusion

A. Conclusion

Learning media is seen as an important element in supporting learning, there is no doubt that the presence of media in elementary schools really helps the learning process. Along with the development of the era, learning media does not have to be monotonous using traditional learning media, but learning media must also be able to keep up with the technological era. QR Code is one example of learning media that can be used to help implement more effective learning. This QR Code learning media is a learning model which is a barcode in the form of two-dimensional technology-based.

The QR Code itself has several stages, including:

- 1) The teacher provides teaching materials packaged in QR Code media,
- 2) Make sure the student's cell phone has an internet network connection,
- 3) Ask students to download the QR Scanner application on the play store or app store,
- 4) Explain to students how to use the QR Code,
- 5) Guiding students in using the QR Code during the learning process takes place,
- 6) Ensuring all students can use the QR Code properly.

From the results of interviews and observations, this QR Code learning media is effectively used in the learning process for class VI at SDN 90 Sipatana. This is based on the results of observations that the researchers made where it was seen that all students were active and enthusiastic in using the QR Code for learning and facilitating teachers in the learning process, especially in increasing teacher performance in class management, especially in learning devices.

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