Development of Kahoot Application-Based Learning Evaluation Tool Using Smartphones in Civic Education Lessons for Class XI of Madrasah Students

Ali Basriadi[1], Ridwan[2], Sukardi[3], Ana Rusmardiana[4], B. Herawan Hayadi[5]

Master of Technology and Vocational Education Master Program, Faculty of Engineering, Padang State University[1,2,3]
Universitas Indraprasta, Jakarta Indonesia[4]
Universitas Pasir Pengaraian, Riau Indonesia[5]

{aliabisan@gmail.com[1]}

Abstract. The purpose of this study was to develop Kahoot-based learning evaluation tools where lately technology has developed in education. The researcher developed a Kahoot-based learning evaluation tool by utilizing the potential that exists in the Batam high school state Islamic senior high school with the availability of Wi-Fi networks. This research method uses the Research and Development (R & D) method with a 4D model. The instruments used were questionnaires and questions about the pretest and posttest. Pretest and posttest questions are used to evaluate student learning outcomes. As for the results of the material expert validation, the percentage of 86% criteria was very valid, the media expert was 81% with Valid criteria, the teacher of civic education was 88.6% with valid criteria, Language 81% with valid criteria and 89.25% development trial, the field test was 83.4%. The results of pretest data analysis on average were 62.76%, and the posttest average was 73.43%. As for the pretest normality test results obtained sig values $0.59 > 0.05$ which are categorized as Normal, Homogeneity test results obtained sig $0.021 > 0.05$ which are categorized as not Homogeneity two pretest and posttest variables that do not get a difference. The t-test uses paired sample t-test, then the sig value is 0.000 value <0.05, then Ho is rejected H1 is accepted because there are differences in the two variables pretest and posttest.

Keywords: Kahoot Application, Civic Education, Madrasah.

1. Introduction

The results of observations conducted in August 2018, several facts prove that Madrasah students have not been able to understand the learning material of Civic education given. Students do not understand the material of this subject because the material is difficult to understand; the material changes with the times, students become sleepy while studying[1].

Problems that result in low student on Civic Education learning outcomes, researchers find in the field are; (1) the teacher teaches in the class more thoroughly pursuing the material and describes the additional task of recording from the completion of the KKM score; (2) many teachers give psychomotor assignments, effective and just reasoning, many remedial values of

students are not yet complete; (3) The planned implementation of learning in the implementation is sometimes not in accordance with the field[2]–[4].

Kahoot is an educational game application that allows students to take quizzes online in the classroom. One of the main goals of this game is to increase the motivation of students to pay attention and take the initiative to look for material taught by teachers outside the classroom. When evaluating learning, students compete to be the best. The concept of learning using Kahoot will increase students' interest in learning more seriously and be able to complete KKM limits. Because learning by using Kahoot will be more interesting and can change the emotions and feelings of students in Madrasah to be better, thus, of course, students will more easily develop their potential to the maximum stage[5].

2. Literature review

In the 21st century, rapid technological developments took place. Almost all students can use technology. Teachers must be able to adjust themselves to learning. One of the learning methods using Kahoot is very appropriate to help students increase participation in learning according to Lough et al. [6].

The Kahoot application is presented in the form of a game that aims to include students in responding to quizzes, discussions, surveys. Students involved in the game do not need a new account, because it can be accessed directly through a web browser available on gadgets, laptops, or computers[7].

Dellos (2015: 50) in an article entitled "Kahoot! A Digital Game Resource for Learning "describes the features available in the Kahoot application. The quiz feature in Kahoot contains multiple choices available in four choices. Quizzes are not only in the form of written questions but can be inserted images, videos, and songs to support the thinking power in understanding the quiz[8].

Kahoot is a game application that allows students to take quizzes online in class. One of the main objectives of this game is to motivate students to be winners in each game played so that students are motivated to pay attention to the teacher and encourage students to look for material taught by teachers outside the classroom. The Kahoot application is a free learning game, as an educational technology. It is designed to be accessed in the classroom and learning environment. The Kahoot application can be made by anyone and is not limited to age. The Kahoot application can be played using a device, desktop or laptop with a web browser.

3. Method

The type of research used is the type of research on the development of linear and development (R & D). The researcher developed the Kahoot-based Civics learning evaluation tool using a 4-D computer model using Thiagarajan, Semmel and Semmel et al. The steps of the research are defining, designing, developing, and distributing[9].

This study aims to develop and produce educational products in the form of Kahoot-based learning evaluation tools for formative test evaluation on civic education subjects. In the opinion of Arifin 2014 states that development is the result of field findings, field tests, and revisions to the improvement of deficiencies found in the limited trial phase and field test.

3.1 Expert Validation and Product Trial

Developing Kahoot-based learning tools of civic education evaluation products, trials of the learning evaluation tool products carried out are divided into two types, namely trials to find out the validation of the instrument evaluation and trial tools to determine the validation of evaluation questions. The data that has been obtained is then analyzed and used to improve or refine the evaluation tools developed.

a. Designing Evaluation Questions Based on Kahoot.
   1) Formulative Evaluation
      There are two steps, namely; Alpha testing and Beta testing. Alpha testing was evaluated by material experts, media, civic education teachers, and Language teachers while beta testing was carried out tests on class XI of students. Beta 1 is five students for the development test. Beta 2 numbered 35 students for field testing.
   2) Summative Evaluation.
      Summative validation was carried out to determine the validity and reliability of the product in the form of the level of mastery and understanding of basic competencies in Civics lessons which were realized with test scores from learning outcomes using Kahoot application products that had been developed.
b. Trial of subject
   1) Expert trials
      It consists of 5 material and media experts, 3 civic education teachers, 2 language teachers. 2 Lecturers of the engineering faculty of Padang State University as material experts and media experts and an additional 3 experts from STT Ibnu Sina Batam, 3 teachers from Batam of Islamic state senior high school (MAN), and 2 Islamic state senior high school language teachers in Batam.
   2) Test the subject
      The trial was carried out in class XI of social science in senior Islamic high school in Batam consisting of testing of 5 students, while field tests consisted of 35 students.

3.2 Data Type

The data used in this development research are qualitative and quantitative data. Qualitative data are data obtained from responses regarding aspects of learning, material, display of products from various sources of material experts, media experts, subject teachers, languages, and class XI students of Madrasah. According to Sugiyono 2007 is "Data in the form of words, sentences, schemes, or images". Validation results in the form of questionnaires given to experts were evaluated and then analyzed by percentage techniques. While the quantitative data is data that is tested through the analysis of the validity of the questions in the form of validity, reliability, level of difficulty and the power of different questions. Tested using is the test of T-Test.

4. Result and discussion

Learning evaluation tools are used to evaluate the end of the lesson systematically, the teacher can take the UH value through this evaluation tool as follows. The first Kahoot web image application, the second image is the choice of student device usage.
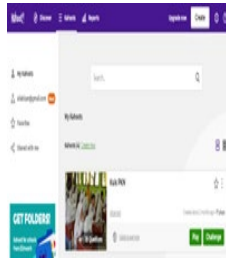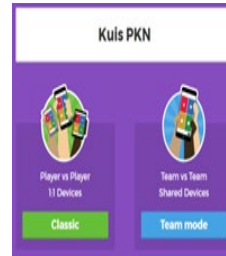
Figure 1

Figure 2

Figure 1 is the result after designing the learning evaluation quiz. Figure 2 operational choice quiz if the number of student devices is insufficient for team mode choices and if the device suffices for each student one device then classic choice.
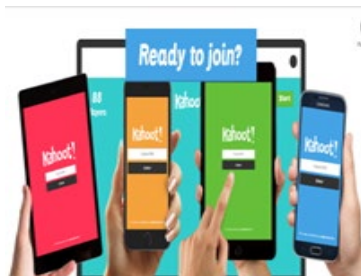

Figure 3

Figure 4

Figures 3 and 4 through each student's device are directed to access http://kahoot.it by entering the name and accessing the pin displayed on the main screen.

Figure 5

Figure 6

After students make a list of names/groups the teacher can start entering the star quiz stage, like picture 5. And picture 6 will appear on the screen of the student device when starting the Kahoot quiz star. Students can make choices according to the questions listed on the main screen/front of the class.
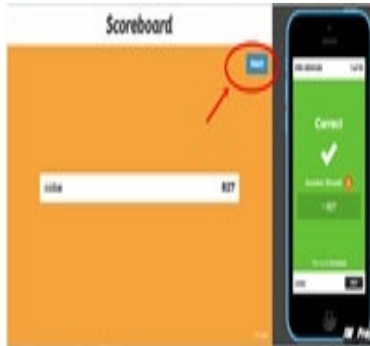
Figure 7   **Figure 8**

Next is picture 7, where after all students answer the quiz displayed on the screen, in the next quiz, there will be a 1-5 rank of students who answer the fastest, right and correct. After completing the entire quiz the teacher who displayed the quiz can see the data entered into excel like Figure 8.

Figure 9

In figure 9 After students have finished answering the quiz displayed, students are asked to give a response (feed black) to the learning quiz show that has been carried out

5. Conclusion

The development and results of the assessment of the evaluation tool of civic education learning based on the Kahoot Application for students of Batam in State Islamic Senior High School can be summarized as follows:

a. Product development research learning evaluation tool based on Kahoot produces a product of learning civic education learning evaluation tools that can be operated on a laptop or computer online. The development of the Kahoot-based learning evaluation tool was developed with a 4-D development model referring to the research design and development model of Thaigarajan et al. This development model uses four stages consisting of the Define, Design, Develop and Disseminate stages. The material discussed in the product development of the evaluation of civic education learning tools contained in the Core Competency Standards and basic Competencies in the Madrasah curriculum in one odd semester.

b. The results of the development of Kahoot-based learning evaluation tools that have been validated by material experts show that the average validation rate is 86%, and Media expert validation averages 81%, the civic education teacher validation on average is 88.6%,

average language teacher validation average of 81%, the average development test is 89.25%, the average field test is 83.4%, the results of the average learning evaluation are 82.62%.

c. The results of the analysis of the items used for the pretest and posttest tests were 25 questions, the results of the calculations were then consulted to the $_r$-table at a significant level of 5% produce:

 1) There are 19 items of questions declared valid.

 2) There are six items in question declared invalid.

d. Based on the results of the reliability test the question is said to be very reliable with an average of 15.54, and the standard intersection of 5.61, the XY correlation is 0.81, and the reliability level of the test is 0.90. Then consulted on the criteria for very high interpretation of reliability.

e. Based on the results of the difficulty level test questions obtained, the number of very difficult questions was not found in this study, difficult questions had four items, and moderate level questions amounted to 10 items, easy level category questions as many as five items, very easy category questions as many as six items.

f. Based on the results of different research questions, the questions categorized very well there are as many as seven items, the questions are categorized as good there are as many as nine items, enough category questions as many as six items, the questions are categorized as bad as three items.

g. Based on the results of the effective analysis, there is an answer that the student is depicted in the form of a symbol or sign. The sign (++) of the level of deception of the category is very good, the sign (+) of the level of deception is a good category, the sign (-) of the level of deception about the category is not good, the sign (-) of the level of the bad category, sign (---) the level of deception about the category is very bad.

The results of the recapitulation of the pretest evaluation of class XI analysis of the normality test obtained the sig value. 0.59> 0.05 which is categorized as Normal, homogeneity test obtained sig value. 0.021> 0.05 is categorized as not homogeneity of the two variables there are no differences, and continued by the t-test using the Paired sample t-test obtained by the sig value. 0,000 <0,05, then Ho is processed, and H1 is accepted because there are differences in the two variables pretest and posttest.

References

[1]   H. Hashim, N. A. Salim, and M. Kassim, "Students' Response on Implementation of Kahoot in the Classroom," in *2018 IEEE 10th International Conference on Engineering Education (ICEED)*, 2018, pp. 1–4.

[2]   F. Monteiro, C. Leite, and C. Rocha, "Ethics and civic education in the curriculum of Portuguese power engineering courses," in *2016 51st International Universities Power Engineering Conference (UPEC)*, 2016, pp. 1–5.

[3]   R. E. Davis, "Intentional, Integrated Learning for Engineering Students," in *2010 IEEE Transforming Engineering Education: Creating Interdisciplinary Skills for Complex Global Environments*, 2010, pp. 1–14.

[4]   P. Hylton, W. Otoupal, and R. Wyman, "Work In Progress - Documenting an Environmental Footprint as a Means Toward Achieving Student Civic Involvement," in *Proceedings Frontiers in Education 35th Annual Conference*, 2005, p. T4D–20– T4D–21.

[5]   C. Douligeris, E. Seralidou, and P. Gkotsiopoulos, "Let's learn with Kahoot!," in *2018*

IEEE Global Engineering Education Conference (EDUCON), 2018, pp. 677–685.

[6]   K. G. Lough, R. Stone, and B. Bachman, "Interdisciplinary Engineering: Enabling student dreams, broadening participation in engineering, and increasing student retention," in *2008 38th Annual Frontiers in Education Conference*, 2008, p. S1E–5–S1E–8.

[7]   T. Gross, L. Szekrenyes, and C. Tuduce, "Increasing student participation in a networked classroom," in *33rd Annual Frontiers in Education, 2003. FIE 2003.*, 2003, vol. 3, p. S2E_9-S2E_13.

[8]   D. Puyada, G. Ganefri, A. Ambiyar, R. E. Wulansari, and B. Herawan Hayadi, "Effectiveness of interactive instructional media on Electrical Circuits," *Int. J. Eng. Technol.*, vol. 7, no. 2.14 Special Issue 14, 2018.

[9]   L. D. Paulson, "Researchers develop self-assembling chip technique," *Computer (Long. Beach. Calif).*, vol. 37, no. 2, p. 19, Feb. 2004.