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Smartphone - Based Apk Sociologi.Q Learning Media to Improve Students' High Order Thinking Skills (Hots)

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Abstract. The purpose of this research is to improve students' higher order thinking skills (HOTS). The formulation of the problem is to design a prototype and examine the effectiveness of using instructional media. The method used is quantitative. Research results: 1) According to media theory, the application of learning media is new media in the world of education. The Sociology.Q learning media apk is specially designed according to the learning needs of students. 2) The use of this learning media has advantages and disadvantages. 3) The effectiveness of learning media is very effective in learning. The end result is that using smartphone- based learning media at this time can improve students' higher-order thinking skills (HOTS).

Keywords: learning media; smartphone; HOTS skills

INTRODUCTION

Facing challenges in the current VUCA (Volatility, Uncertainty, Complexity, and Ambiguity) era , KEMENDIKBUD sparked the idea of independent learning (Rochyadi, 2014) . The teacher's way of teaching is the main key to understanding the abilities of students. The right way of teaching will make students enthusiastic, diligent, diligent in following the lessons being taught, so that it is hoped that there will be changes in mindset, attitude and also their skills (Sucipto, 2017) .

According to the researcher, Puspitasari (2021) with an article entitled " Social Science Learning Media Prototype Based on Smartphone in the 4.0 Learning Era" that the development of Science and Technology (IPTEK) provides its own challenges for teachers to create learning media that can improve the quality of education that better. Along with the development of science and technology, it encourages teachers to produce smartphone- based learning media. The existence of a smartphone can have a very big impact on human life and provide a lot of convenience in its use. However, the use of smartphones is only used for social media use and only a small number use it to assist learning activities and human work. Currently, many applications are offered in one hand, making it easier to find the information needed (Sari, Suyahmo, & Juhadi, 2021) .

Digital marketing research institute Emarketer estimates that by 2018 the number of active smartphone users in Indonesia will reach more than 100 million people. With such a large number, Indonesia will become the country with the fourth largest number of active smartphone users in the world after China, India and America. Every year the growth of Indonesian society cannot be separated from smartphones. Its users are evenly spread across all levels of society, both from children to adults who already have smartphones and are able to use them properly. The results of a survey conducted by Opera in 2018 in Indonesia show that 10% of smartphone users are aged 13-17 years. This proves that children aged from junior high to high school have a great deal of attention in using smartphones. The use of this smartphone will have an impact on student learning activities (Kristiyani, Sesunan, & Wahyudi, 2020) .

21st century learning is simply defined as learning that provides 21st century skills to students, namely 4C which includes: (1) Communication, (2) Collaboration, (3) Critical Thinking and problem solving, and (4) Creative and Innovative. Based on Bloom's Taxonomy which has been revised by Krathwoll and Anderson, the abilities that students need to achieve are not only LOTS (Lower Order Thinking Skills) , namely C1 (knowing) and C-2 (understanding), MOTS (Middle Order Thinking Skills), namely C3 (applying) and C-4 (analyzing), but there must also be an increase to HOTS (Higher Order Thinking Skills), namely C-5 (evaluating), and C-6 (creating). The application of a scientific approach, 21st century learning (4C), HOTS, and integration of literacy and PPK in learning aims to improve the quality of education in order to answer challenges, both internal challenges in order to achieve 8 (eight)

SNPs and external challenges, namely globalization (Dinni, 2018) .

Higher Order Thinking Ability (HOTS), the result of his research is that students are expected to have higher order thinking skills. Problems that contain high-order thinking skills have been developed a lot. The National Examination as a final evaluation tool has included elements of higher order thinking skills in a number of questions. The teacher must be able to develop questions that ask students to improve their higher-order thinking skills. Teachers who have been able to create questions that measure higher-order thinking skills will find it easier to improve student learning outcomes in terms of measuring higher-order thinking skills (Boham & Rondonuwu, 2017) .

(Ulandari & Santaria, 2020) emphasized that the professionalism of a teacher is not in his ability to develop knowledge, but rather in his ability to carry out interesting and meaningful learning for his students. Thus, the task of a professional teacher is to make lessons that were previously considered difficult to become easy, those that were considered uninteresting to become interesting, which does not mean to be meaningful.

The use of learning media has an influence both directly and indirectly. The teacher must pay attention to the characteristics and abilities of each media so that the selection of media is in accordance with the subject matter. By choosing the right media, it can increase the interaction between the teacher and students so that students will not be bored to take part in the lesson, on the contrary, students will be happy with the media because the media can optimize the quality of student learning so that it will produce satisfying outputs including changes in behavior. learners. Conventional learning with the lecture model is not very attractive to students, for this reason there is a need for innovation in learning. Appropriate learning media can help grow the cognitive skills and attitudes of students. In the future, students will have the skills needed to deal with the changes that occur (Prasetyo, 2017) .

Learning media that utilize smartphone technology is an alternative to developing learning media. To improve the quality of learning by trying to break through the limitations of space and time. Smartphone -based learning media as a complement to learning and provides opportunities for students to learn material that is not mastered anywhere and (Yunendar, 2016) . Currently there are still few learning media that utilize smartphones. Many students still use laptops or even use manuals to support learning at school (Djajadi, 2020) .

Based on the background above, the researcher wants to conduct research on "Smartphone- Based Sociology Learning Media to Improve Higher Level Thinking Skills (HOTS) of Students in the Vuca Era at SMA Negeri 1 Jepon, Blora Regency".

METHODS

This study uses a quantitative approach. At this design stage, this stage includes the media design stage, how to make this media using the Smartapps creator (SAC) software. This study has several variables, namely smartphone learning media in this case the use of smartphone learning media, the effectiveness of smartphone learning and higher order thinking skills. The use of smartphone learning media is expected to have a level of effectiveness towards higher order thinking skills that will be possessed by students after using the smartphone learning media.

RESULTS AND DISCUSSION

Smartphone -Based Learning Media Prototype

Smartphone- based learning media created by researchers to make it easier for teachers to teach sociology. The steps for making smartphone- based learning media are as follows:

1. The prototype model begins by installing the SAC (Smart Apps Creator) application, continued with the creation of material that will later be used as an application called Sociology.Q.
2. Enter the download address for the application master file (Smart Apps Creator), in a web browser and press enter http://bit.ly/SAC-installfix . Download the file according to the computer specs by right-clicking download. Then download the file that was successfully downloaded and print the screen or print screen display on the screen after that extract the zip file.
3. Open the Smart Apps Creator_3.1.7_en.exe application file by double-clicking to install. There is a prompt on the screen after double click on Smart Apps Creator_3.1.7_en.exe file, click yes to continue installation.
4. Open the Smart Apps Creator_3.1.7_en Application, ignore the registration number.

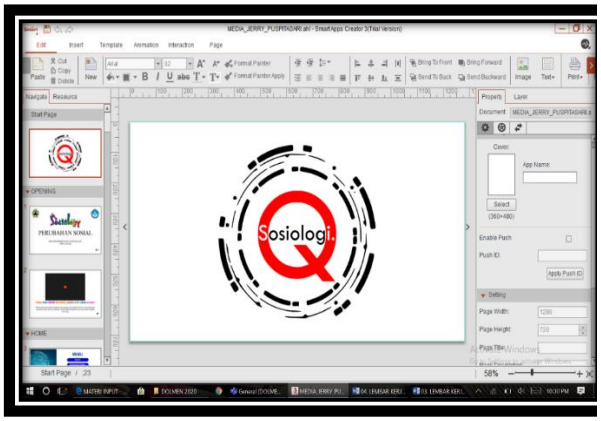

Figure 2. Appearance of the Smart Apps Creator application

Enter the e-mail address for each participant. Click trial 30 days. The SAC (Smart Apps Creator) display will appear on the screen as shown in Figure 4.3. Start using the SAC (Smart Apps Creator) application by creating an application name, by clicking on the floppy image and then giving a name to the application you created.

5. smartphone -based learning multimedia competency map chart as shown in figure 3.

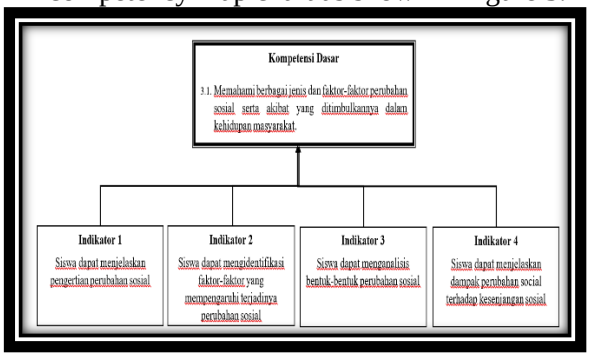

Figure 3. Competency Map

The function of making this basic competency map is the subject matter that will be made into applications in smartphone- based learning media. There are four indicators that will be conveyed, this will make it easier for the teacher to make media visualizations. In addition, so as not to deviate far from the material to be delivered.

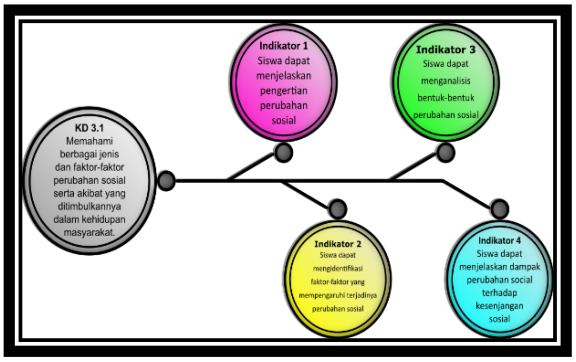

Figure 4. Visualization of the basic competency map on the smartphone- based Sociology learning media application

Figure 4 explains that KD 3.1 understands the various types and factors of social change and the consequences they have in people's lives are broken down into 4 indicators. The first indicator is that students can explain the meaning of social change, the second indicator students can identify the factors that influence the occurrence of social change. The third indicator is that students can analyze forms of social change and the fourth indicator students can explain the impact of social change on social inequality.

6. After making a competency map chart then make a material map from the basic competency map in Figure 5.

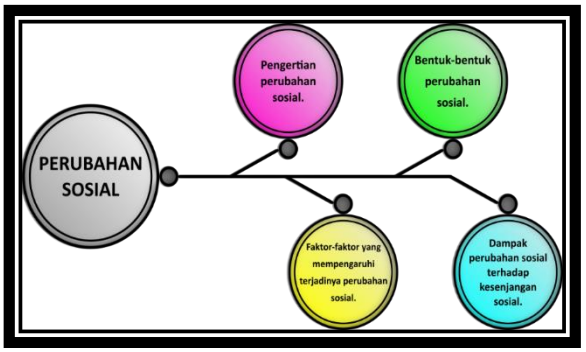

Figure 5. Smartphone- based application Sociology learning media.q apk

The material that will be presented in KD 3.1 is regarding the understanding of social change, the factors that influence the occurrence of social change, forms of social change and the impact of social change on social inequality. The material map displayed in the sociology.Q application is the understanding of social change, the factors that influence social change, forms of social change and the impact of social change on social inequality. Visualized with different colors to make it more interesting.

7. An outline of the content of smartphone-based learning multimedia media

Make an outline of multimedia media with the aim of making it easier to make learning media.

THE DISCUSSION

Sociology learning media prototype. q smartphone-based apk is a new learning media. According to Allen in (Daryanto, 2015: 17), there are nine groups of media, namely visual stills, television films, three-dimensional objects, recordings, programmed lessons, demonstrations, printed textbooks, and oral presentations. Tools that function as learning media include modules, books, interactive VCDs, videos, slides and so on. While the tools used as aids include computers, laptops, VCD players, TVs. The next development is a smartphone that can be used as a tool in using learning media. Referring to the theory of new media, smartphone- based learning media is included in it.

Smartphones in this case enter into the second media era. If, the first media era is described (1) production centralization (one becomes many); (2) one way communication; (3) control of the situation, for the most part; (4) reproduction of social stratification and differences through the media; (5) a divided mass audience; and (6) the formation of social awareness. The second media era, on the other hand, can be described as (1) decentralized; (2) two-way; (3) out of control situation; (4) democratization; (5) raising individual awareness; and (6) individual orientation.

There are perhaps two dominant views of the difference between the first media age, with its emphasis on broadcasting, and the second media age, and its emphasis, on networking. The two views are the social interaction approach and the social integration approach. The social interaction approach differentiates media according to how close the media are to face-to-face interaction models. Older forms of broadcast media are said to place more emphasis on disseminating information which reduces opportunities for interaction. These media are considered as informational media and therefore mediate reality for consumers. Instead, new media. more interactive and creates a new understanding of personal communication.

The most prominent proponent of this view is Pierre Levy (1997) who wrote a well-known book entitled Cyberculture. Levy views the World Wide Web as an open, flexible and dynamic information environment, which enables humanity to develop new knowledge orientations and also engage in a more interactive and community-based democratic world of mutual sharing and empowerment. The virtual world provides a virtual meeting place that broadens the social world, creates new knowledge opportunities, and provides a place for broadly sharing views.

New media are not like face-to-face interactions, but provide new forms of interaction that bring us back to personal relationships in ways that earlier media could not. There are some problems in making this comparison, and some believe that the new media are more "mediated" than their proponents would believe. New media also contains power and limitations, disadvantages and advantages, and doubts. For example, new media may provide open and flexible use, but may also cause confusion and chaos. New media is indeed a very broad choice, but the choice is not always the right one when we need guidance and structure. Difference is one of the great values in new media but difference can also lead to splits and divisions. New media may provide time flexibility in use, but they also create new time demands. For example, you can now check your e-mail anytime, but you might have to spend several hours a day just checking e-mail today which was not a problem 10 years ago.

The second way that distinguishes media from social integration. This approach describes the media not in the form of information, interaction, or dissemination, but in the form of rituals, or how humans use media as a way of creating society. The media are not only an instrument of information or a way to achieve self-interest, but unite us in some form of society and give us a sense of belonging.

Sociology learning media. q smartphone -based apk This smartphone -based application is installed on a smartphone so students can use it offline. The teacher gives orders through messages that are broadcast via whatsapp media. Then it was followed up with the participants doing the orders from the teacher. In certain situations without face-to-face learning can still be done independently. During the Covid pandemic, students were faced with different learning problems, if they usually met face to face at school, whereas now it has been almost a year since students have been laid off. Learning is carried out online, therefore students are required to learn and solve problems in their own way. This is what will make students motivated and have high-level thinking skills that are used to

deal with problems later in the future.

Smartphone -Based Learning Media in Improving Higher Order Thinking Skills (HOTS)

The results of the preliminary research conducted by researchers by interviewing several students, obtained the results of the study: 1) the use of creative learning models was only a small part; 2) learning media with PowerPoint, most of the teachers have used it; 3) some IT-based learning media have been used; 4) the use of innovating learning media is very little.

The results of the analysis of the needs of learning media in the form of innovation and the results obtained based on the checklist given to students, from students, the results obtained that most students chose IT-based learning media, in this case, smartphones. According to Aldi class XII IPS 3, "learning to use a smartphone is very enjoyable, it makes me not sleepy, it makes me concentrate more". (result of interview, 10 February 2020). The following are the opinions of students regarding the use of smartphone-based Sociology learning media.q apk In the table, data is obtained by filling out a questionnaire on the Google form.

Data was obtained through an electronic questionnaire using a Microsoft form on September 24 2020. The result was that most students answered that it was fun, easy to understand, interesting, practical and not boring. This is because there is interesting music and animation.

From the table, the percentage of KKM is 92.4% of 36 students, only 3 of which have not been completed. From the calculation of experimental class data obtained Sig. 0.061, because $\alpha = 5\% = 0.05 <$ Sig. = 0.061, then it can be said that the data is normally distributed. From the calculations for the control class pretest data, the value of Sig. 0.191. Because $\alpha = 5\% = 0.05 <$ Sig. = 0.191. So it can be said that the data is normal. Based on the calculation of pretest data for the experimental class and control class, the sig value for each class is > 5%, so the data is homogeneous.

Based on the results of the calculation of the balance test (t test) the value of sig (2-tailed) = 0.000 is obtained, because $\alpha = 5\% = 0.05 >$ sig. = 0.000, then Ho is rejected. Confidence level = 95% or (α) = 0.05. The number of students in the experimental class is 36 people and the number of students in the control class is 36 people, obtained $t_{table} = 2.003$ (can be seen in the attachment t_{table}). The calculation results obtained the value of t = 3.946 while $r_{table} = 2.003$. Because $t_{count} > t_{table}$, then Ho is rejected. From the results of this analysis it can be concluded that the average value of learning outcomes in the experimental class is higher than the control class or there is a significant difference between the experimental class and the control class from the application of smartphone -based learning media.

smartphone -based learning media is included in the category of problem skills solving. Learning carried out by students using smartphone media makes students have the skills to solve problems using high-level thinking logic. That is, students learn to solve problems that exist in their environment with learning experiences obtained from smartphone media. Students look for solutions to their personal problems, then students look for solutions to social problems that occur as a result of social change.

Based on the calculation results, the value of sig (2-tailed) = 0.000 is obtained, because $\alpha = 5\% = 0.05 <$ sig. = 0.000, then $H0_{is}$ accepted. With a 95% confidence level or (α) = 0.05. The number of students for the experimental class 36 and the number of students for the control class 36 obtained $t_{table} = 2.003$ (can be seen in t_{table}). Then the results of the calculations obtained the value of t = 3.948, while $t_{table} = 2.003$. Because $t_{count} > t_{table}$, then H_0 is rejected. Based on these two analyzes it can be concluded that the average value of the experimental class learning outcomes is higher than that of the control class. This means that there is a significant difference between the experimental class and the control class.

The results of the experimental class with the Paired Sample Test , obtained an average score. Based on the calculation results, the value of sig (2-tailed) = 0.000 is obtained, because $\alpha = 5\% = 0.05 <$ sig. = 0.000, then $H0_{is}$ accepted. With a 95% confidence level or (α) = 0.05. The number of students for the experimental class 36 and the number of students for the control class 36 obtained $t_{table} = 2.003$ (can be seen in t_{table}). Then the results of the calculations obtained the value of t = 3.948 while $t_{table} = 2.003$. Because $t_{count} > t_{table}$, then H_0 is rejected. Based on these two analyzes it can be concluded that the average value of the experimental class learning outcomes is higher than that of the control class. This shows that students in the experimental class experienced a significant increase in learning outcomes after being given treatment using smartphone - based sociology learning media , and students in the experimental class

experienced a significant increase in learning outcomes after being given treatment to carry out the learning process.

Learning media is said to be effective if there is a difference in the average value before treatment and after treatment in the implementation of learning and there is a difference in the average value in the experimental class and the control class. From the implementation of learning with smartphone - based learning media sociology.q apk , seen from the analysis of the results of the t test, after conducting limited trials it can improve higher order thinking skills at SMAN 1 Jepon. As Suryadharma's opinion (2013: 156) "Learning using media can be declared effective if learning outcomes become good or increase in quality. Measuring the quality of learning outcomes is carried out after learning ". From the analysis of the results of the research and discussion, learning media sociology.q apk is smartphone- based effective to be used as a learning medium.

CONCLUSION

Based on the results of the study that the learning media sociology.q apk is smartphone-based to improve students' higher order thinking skills (HOTS). The results of this study are: (1) The application of learning media according to media theory includes new media in the world of education. Sociology learning media. q smartphone -based apk This special design has been adapted to the needs of students at SMAN 1 Jepon. (2) The use of this learning media has advantages and disadvantages. The advantages can be used anywhere and anytime without quota (off line), attractive display and content, there are audio, video, animation and can be interacted with. The drawback at the time of installation requires sufficient memory space on the smartphone. (3) The effectiveness of learning media is very effective in learning, this can be seen in the results of the calculation of the balance test or (t test) the post-test value of the experimental class is higher than that of the control class. The application of learning media has problems in installation, this is what must be found for students as a solution, the result is that students can think about finding problem solving for their problems. The end result is that using smartphone- based learning media at this time can improve students' higher-order thinking skills (HOTS). So that in the future students can provide solutions to social problems that occur. Smartphone- based learning media can be used to support other learning media.

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