

Problem Analysis And Needs Electronic Student Worksheet Based On Android Biology Material In SMAN 3 Padang

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Abstract – The development of technology has resulted in various types of smartphones. Smartphones android is used by various circles of society, especially among students in high school. Smartphone users among students can provide challenges as well as opportunities for teachers to optimally utilize technology for learning activities. One of the optimizations of smartphones is the creation of electronic student worksheet (e-worksheet) which can be accessed by smartphones *android*. E-worksheet is *android* expected to be a solution to overcome the problems of students regarding their dependence on the use of smartphones. The purpose of this study is to describe the problems and needs of e-worksheet *android* in schools. This type of research is descriptive research. The method used is data collection consisting of the results of interviews, questionnaire results of problems, and needs. Based on data analysis, the results of this study are: 1) students at SMAN 3 Padang are allowed to use smartphones at school. 2) Students are more active in using smartphones to socialize through social media, games, and browsing compared to learning activities. 3). Students use the dominant smartphone usage time between two to four hours of the day 4) Students agree if there is learning material in the form of e-worksheet based *android* at school. 5) students agree if e-worksheet based *android* consisting of componets e-worksheet equipped with pictures and videos. 6) students agree if e-worksheet is based on *android* equipped with biological material and displayed interesting pictures and videos to make it easier to understand the material.

Keywords – Analysis, Problems, Needs, E-worksheet, *Android*.

I. INTRODUCTION

The technology that is currently rapidly developing is a smartphone with the operating system *android*. Data from *Stat Counter Global* in July 2019 put *Android* in first place in Indonesia with 93.83% of system users *mobile* (Statcounter, 2019). Based on smartphones android is used by various circles of society, especially among students in secondary schools.

Smartphone users among students can provide challenges as well as opportunities for teachers to optimally utilize technology for learning activities. Facts in the field show that students can spend hours interacting with smartphones. The use of smartphones among students is more used for *chatting*, *browsing*, playing *games* than for learning activities. It that is means to have a negative impact on learning activities at school. The activities and learning outcomes of students decreased. This is a problem that must be resolved.

Data obtained from the distribution of questionnaires that have been filled in by 34 students of class X MIPA 7 at SMAN 3 Padang on May 26, 2019, stated that students have an-based smartphone *Android* by 97.06%. The largest percentage of time to use smartphones in the daily activities of students, namely between two and four hours per day, was 52.94%. Students using smartphones for learning activities, playing *games*, *browsing* and *chatting* were 58.82%, 52.94%, 79.41%, 82.35%, respectively. This can have a negative impact if students are not directed to carry out positive activities in using smartphones.

Also, the lack of-based teaching materials *Android* on smartphones, which raises parallel problems, causing students to have low motivation and attention in participating in the teaching and learning process. Students tend to use smartphones to play activities that spend time and are lazy to learn. The use of technology and social media is very important and they must have it (Bannon et al., 2011). However, the use of technology also gives a negative value to *millennials* because they expect to have everything instantly (Cahill and Sedrak, 2012).

Observation data from several high schools throughout the city of Padang show that there are no-based teaching materials available *on android*. One of the teaching materials commonly used by teachers is the Student worksheet. Worksheet in printed form can only display still images that do not move so that students lack interest in learning and difficulty understanding learning material. There are still many students who have not reached the minimum completeness criteria (KKM) for the mid-semester 1 biology lesson. The existence of these problems needs to be overcome with appropriate learning materials, in this case, electronic learning materials, namely-based e-worksheet *android*.

The android-based e-worksheet developed includes interactive technology and its development is following the 2013 curriculum demands. Interactive means that there is feedback between the *user* (students) and the program of e-worksheet. E-worksheet is made by containing evaluation questions that students can do online. Students can find out the score results after completing the evaluation questions. The results of the evaluation that have been done by students can also be accessed by the teacher so that it can make it easier for teachers to make assessments.

The purpose of this study is to describe the analysis of the problems and needs of android-based e-worksheet, which is used in biology. This is done as a basis for obtaining concrete data for developing android-based e-worksheet.

II. RESEARCH METHOD

This research was conducted at SMAN 3 Padang. The research subjects were a biology teacher and 34 students of class X MIPA 7. Data collection used a list of questions for interviews, a closed questionnaire for problems, and a closed questionnaire for needs. Data analysis was carried out in a descriptive qualitative manner which included data collection, data analysis, data presentation, and conclusion drawing.

III. RESULTS AND DISCUSSION

Results

The results of interviews with Ibu Muharmiati, S. Pd. as a biology teacher at SMAN 3 Padang on May 26, 2019, it is known that:

1. Students can spend hours using smart mobile phones in their daily activities.
2. Students are more active in using smartphones for socializing through social media, playing *games*, and *browsing* than for learning activities.
3. The lack of availability of electronic teaching materials such as android-based E-worksheet in schools, so that students do not use smartphones for learning activities.
4. Student learning outcomes are still low as seen by the average midterm test scores of students who have not reached the KKM.

The results of a problem analysis questionnaire distributed and filled in by 34 students of class X MIPA 7 at SMAN 3 Padang

1. In the implementation of learning in schools, students are allowed to bring smartphones, as many as 97.06% of class X MIPA 7 students at SMAN 3 Padang have-based smartphones are *Android* shown in Figure 1.

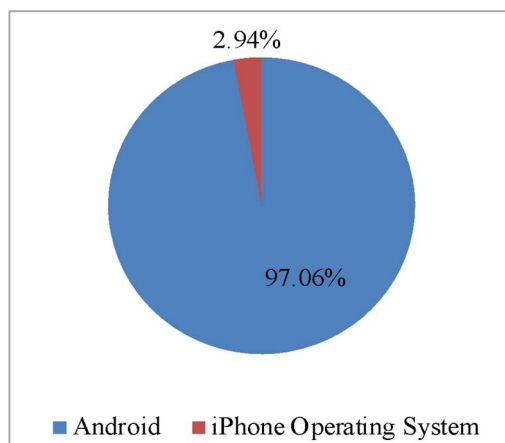


Figure 1. Students who have an-based smartphone *Android*.

- Students are allowed to bring smart cellphones with the aim of adding references in learning via the internet, but in fact, students use smartphones for learning activities, playing *games*, *browsing chats*, respectively 58.82%, 52.94%, 79.41%, 82.35% are shown in Figure 2.

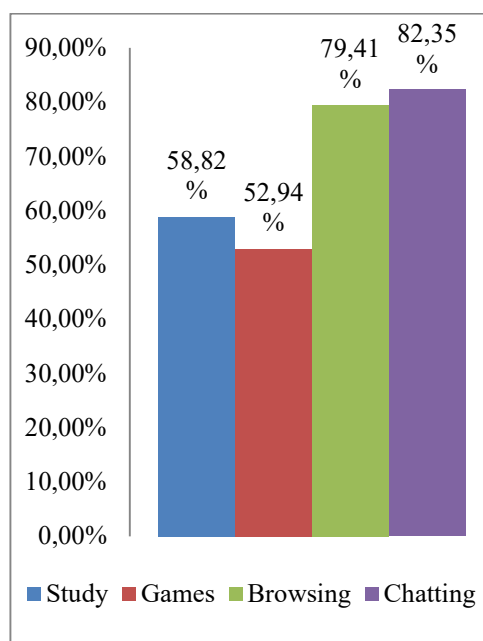


Figure 2. Student activities with smartphones.

- Students use smart cell phone usage time in everyday life, which is between one and two hours at 11.76%, between two and four hours at 52.94%, and more than four hours at 35.30% shown in Figure 3.

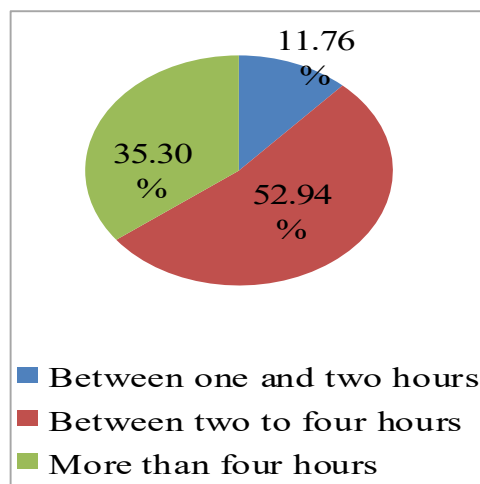


Figure 3. the use of smartphones usage time by learners.

The results of the-based e-worksheet needs analysis *android*, it is known that:

1. Students agree if there is learning material in the form of e-worksheet -based *Android* school with a questionnaire result of 97.06% is shown in Figure 5.

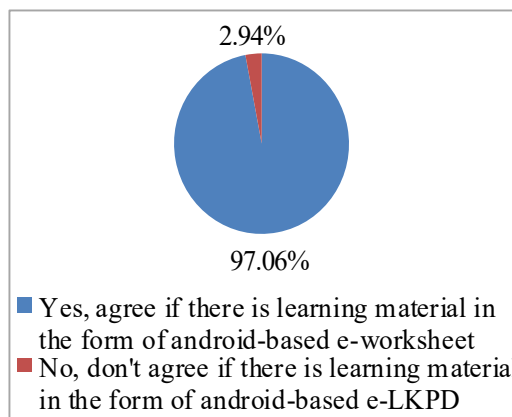


Figure 5. Students who agree if there is learning material in the form of E-worksheet based android at school.

2. Students agree to E-worksheet -based *Android* consisting of opening pages, covers, menus, profiles, introductory words, instructions for use, KI, KD, and indicators, learning activities, practicum activities, learning videos, evaluations, evaluation keys, and a bibliography with the results of questionnaires 94.12% displayed in Figure 6.

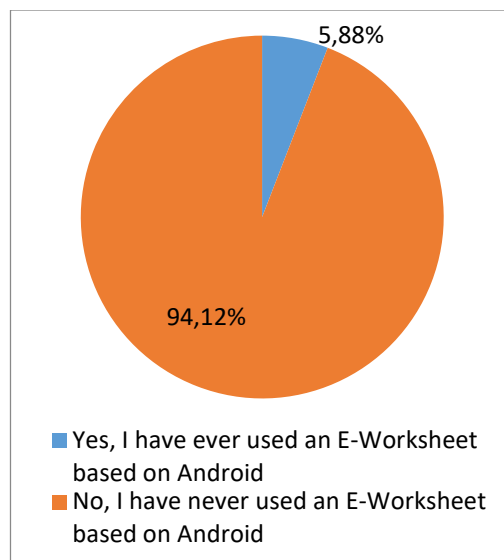


Figure 6. Students who agree with the components of E-worksheet based on android.

- Students agree that E-worksheet based, *Android* -equipped with biological material and displayed interesting pictures and videos to make it easier to understand the material with the results of the questionnaire 100% shown in Figure 7.

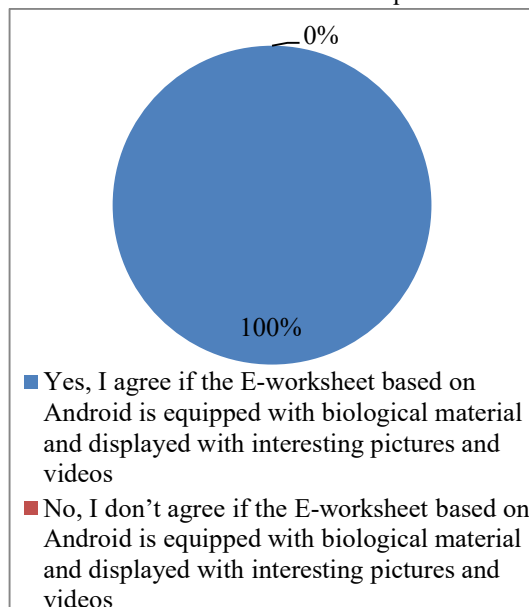


Figure 7. Students who agree if E-worksheet is based on android equipped with pictures and videos.

Discussion

Analysis of the problems and needs LKPDbased *android* biological materials in SMAN 3 field starting from the interview with the mother Muharmiati, S. Pd. as a biology teacher at SMAN 3 Padang. The results of the interview obtained were that students at SMAN 3 Padang were allowed to use smartphones at school to find references in learning. Students use smartphones at most between two to four hours per day, but students do not use them less for learning activities. Students tend to use smartphones more for chatting, browsing, and games.

The lack of-based teaching materials *Android* on smartphones raises parallel problems, causing students to have low motivation and attention in following the teaching and learning process. According to Rahmi, et al (2018), an educator must be able to prepare

teaching materials before learning activities begin so that the learning process becomes systematic, effective, and attractive for students

Students tend to use *smartphones* to play activities that spend time and are lazy to learn. Smartphones have become a part of student life. Among students, smartphones influence the daily lives of students. Students spend a lot of time on social media. As a result, participants lose time to learn. this has an impact on activities and learning outcomes. According to Cahyana (2018), the use of technology in the form of communication equipment such as smartphones is one of the efforts to create a meaningful learning process and improve the learning quality of students.

Teachers should have been able to develop-based electronic learning materials *Android* because every time students use smartphones for various activities. According to Sari and Lepiyanto (2016), students, either individually or in groups, can build their own knowledge with various learning sources. The teacher plays a more role as a facilitator, and one of the teacher's duties is to provide learning tools that suit the needs of students.

Students use cell phones with a time span of one to more than four hours per day. Time to use a smartphone underutilized by students for learning activities. Students are more active in activities such as rather *chatting*, playing *games*, *browsing* than studying. These activities make students less interested in learning because they are considered more attractive. The resulting impact makes student learning outcomes less satisfying because their time has been consumed by activities on smart handheld telephones. This is in line with the statement of Anggraeni and Hendrizal (2018), adolescents today are unwittingly very dependent on smartphones. This has a negative impact, for example playing *games*, playing *games* indefinitely can make teenagers lazy to learn.

Furthermore, most students also have never used learning materials in the form of-based E-worksheet *android*. Even though at school students are allowed to use smart cell phones. The results of one student's midterm exam in biology show that there are still many students who have not reached the minimum completeness criteria (KKM). The existence of these problems needs to be resolved with appropriate learning materials, in this case, electronic learning materials, namely-based electronic student worksheets (e-worksheet) *android*.

Android is a software and operating system framework (OS) for mobile and tablet devices based on the Linux kernel (El-Sofany, 2014). The operating system of *android* which is *open source* allows application makers to develop various features available according to the needs of its users (Rozikin, 2017). One of the teaching material applications that can be operated using smartphone *Android* is e-worksheet.

Android-based e-worksheet can be used as a solution to improve learning outcomes and student activities. This is also supported by previous studies that show E-worksheet has a positive impact on students. The results of research conducted by Abi et al. (2019) regarding the development of electronic flash worksheets show that electronic worksheets are said to be effective teaching materials used in the learning process. Another research, conducted by Aidin (2019) on the development of the-based LKPD PJOK application, *Android* shows that this product can improve the learning abilities of students.

The android-based e-worksheet developed contains interactive technology so that it can motivate students in learning. According to Krisnawati (2015), LKPD in the learning process can increase the activity of students which affects the performance and quality of learning. Learning performance and quality significantly affect student learning outcomes (Razak and Rusdina, 2015).

Students agree if there is learning material in the form of E-worksheet based *android* at school. In line with this, Ahmar and Rahman (2017) stated that this period was the era of science and technology. The ins and outs of human life cannot be separated from science and technology. Advances in technology allow the use of innovative learning media in education. According to Zheng, et al. (2015) Currently, smartphones are not only used by users as a medium of communication but can be used as a medium that supports the improvement of student learning outcomes and activities.

Students agree that E-worksheet -based *Android* consisting of an opening page, cover, menu, profile, preface, instructions for use, KI, KD, and indicators, learning activities, practicum activities, learning videos, evaluation, evaluation keys, and bibliography. Haqsari (2014) created E-worksheet by containing concept map features, material content, info, quizzes, and crossword puzzles that students can fill in, glossaries, practice questions, and video review materials.

Also, students also agreed that E-worksheet based on *android* equipped with biological material and displayed interesting pictures and videos for learning because it makes it easier for students to understand the material on smartphones. In line with this, Wiratomo (2019) states that the use of multimedia in teaching materials can make learning more interactive and effective. In line with this, Sari, et al (2017) suggest that the development of E-worksheet includes animations, pictures, and video, so that learning is more interesting and can provide motivation to students.

IV. CONCLUSION

From the data analysis carried out, it can be concluded that:

1. Student learning outcomes tend to be low because there is no electronic learning material used, such as-based E-worksheet *android*-based e-worksheet *Android* will later be accessible on smartphones.
2. The existence of-based e-worksheet is *android* expected to improve learning outcomes and student motivation when using smartphones.

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