Developing Appypie-Based Android to Support Teacher's Quality and Creativity in 21st Century

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Abstract—**This study aims to determine the results of developing appypie based android to support teacher's quality and creativity in 21st century. The research method adopts a mixed method between qualitative methods and R n D. The initial stage of this activity is to uncover learning problems that arise among the teachers, then the team discuss with partners related to agreed priority issues, and determine appropriate solutions to overcome the problem. Before the workshop, the team first coordinated with the teacher to discuss the socialization activities, especially the place and schedule of implementation, as well as the equipment and materials participants had to prepare before participating in the workshop. Based on the results of the activity, it is known that the teachers are aware of the importance of getting out of their comfort zone so far. They are the time to carry out cultural transformation. If now society has turned into a digital society, then the teacher must immediately change himself, both technically and socially, to familiarize himself with the digital world. If this has been cultivated, the quality and creativity of teachers will increase. Teacher competencies to educate in the digital learning era need to be prepared by strengthening cyber pedagogy in the teacher. Teachers must play more roles as facilitators and be able to utilize existing digital technology to design critical, creative and fun learning.**

Keywords—Developing, Appypie, Teacher, 21st Century

I. INTRODUCTION

The era of professionalism in the field of education was accompanied by a large allocation of the education budget by the government, one of which was realized as the Professional Allowance for Educators for teachers. The professional allowance received by the teacher has been proven to raise the dignity of the teacher, and to improve the welfare of the teacher. This certainly has a big impact on the community where the public interest to study in educational study programs is increasing. The competition to become a teacher is now getting tougher, even PGSD and PG PAUD are invaded by thousands of enthusiasts. From this, it can be said that the prospect of teacher education and teacher function is still strategic. With an increase in the education budget of 20% of the APBN, the educational opportunities and the role of professional teachers will increase [1].

As a logical consequence of the professional allowance, a teacher is encouraged to increase his productivity and professionalism. Teachers are not only required to fulfill the burden of teaching assignments 24 hours a week but are also demanded to be more productive and increase the effectiveness of the learning process they carry out [2].

The role of teachers in educational units is the key to success in developing educational and teaching missions in schools in addition to being responsible for organizing, directing and creating a conducive atmosphere that encourages students to carry out activities in the classroom [3]. Considering the complexity of educational objectives, how big and heavy is the task of an educator in creating quality processes and learning outcomes.

Based on the Republic of Indonesia Minister of Education Regulation No. 65 of 2013 concerning process standards, it is explained that the learning process in the education unit must be conducted interactively, inspiration,

fun, challenging, motivating students to participate actively, as well as providing sufficient space for initiative, creativity, and independence in accordance with talents, interests and physical and psychological development of students [4]. Besides, the government through the Indonesian Ministry of Education provides a policy that is the application of the 2013 curriculum must be able to realize and encourage the process of penetration of new media in the world of education. With the use of this new media, teachers are expected to be able to build information network capabilities through distan-ce learning, open knowledge networks for students, disseminate learning materials with standard quality and encourage strengthening efforts in efficiency and effectiveness of educational administration policies [6].

Based on observations and FGD with teachers who are members of the Social Sciences MGMP, it is known that the use of information technology in schools to support learning is still not optimal. ICT equipment facilities owned by teachers cannot be utilized maximally to support the work of teachers, especially on the academic side.

As a result of the above, teachers have low productivity in developing learning content based on multimedia and ICT. In delivering learning in class, many teachers still use conventional methods and tend to be mono-tonous. Alwi [7] explained that the learning practices implemented by teachers so far often found symptoms that the learning process was monotonous, the classroom situation was passive and verbalismie students were only given away and received and the teacher carried out teaching by verbal. It is rare to find further learning activities such as discussing or making discove-ries.

The above is certainly not surprising, given that these teachers are elderly and do not have an understanding of digital literacy. Most teachers said that if they were laymen or unfamiliar with the media especially with various media tools and features. In addition, they do not understand the variety of learning media and the skills in using media are not very good.

Various problems experienced by these teachers, certainly cannot be used as an excuse not to change the paradigm of thinking in accordance with the times. Especially our current students who incidentally millennial generation can not be separated from the gadget in each of its activities. Ali, et al [8] explain that Millennial Generation is a unique generation and is different from other generations. This is much influenced by the emergence of smartphones, the expansion of the internet and the rise of social media networks (social media). These three things influence the mindset, values and behavior adopted. With the emergence of various effects of these gadgets, do not let students misuse their functions and designation. The teacher must be able to direct the use of gadgets to support the learning process. Today, teachers must get out of their comfort zones and carry out cultural transformation. If now society has changed to a digital society, the teacher must also immediately transform themselves, both tech-nically and socio-culturally to familiarize themselves with the digital world.

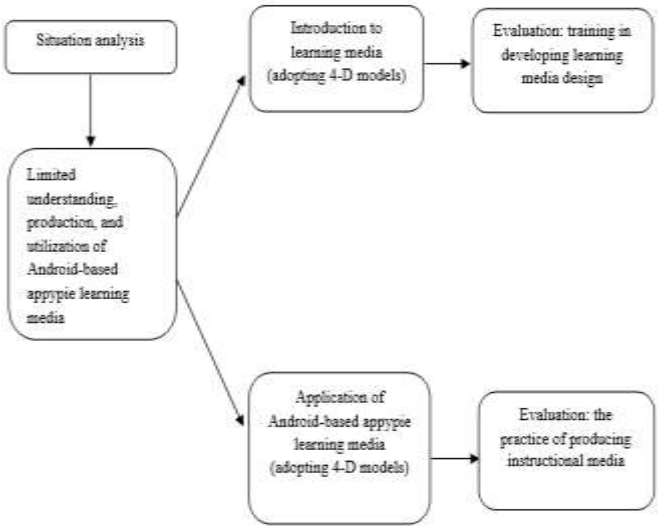
In the present era of the 21st century, teachers must be able to utilize digital technology to design creative learning. The ability of teachers to educate in the era of digital learning needs to be prepared by strengthening the cyber pedagogy of the teacher. Teachers who have more role as facilitators must be able to utilize existing digital technology to design creative learning that enables active students and critical thinking [9].

II. METHOD

This study adopts a mixture of qualitative methods and R&D. The initial stage of this activity is to uncover the problems that arise among the teachers, then discuss the proposer with partners to formulate the root causes of priorities agreed upon and determine the right solution. However, before the workshop, the proposer coordinates with the teachers, the coordination is related to the socialization activities, especially regarding the place and schedule of implementation, as well as the equipment and materials that must be prepared

by the participants before attending the workshop activities.

The workshop was attended by 30 teachers from the Social Sciences MGMP. The teachers will be trained to develop an Android-based appypie-based learning media to improve their quality and creativity. They will be taught how to produce good media by adopting the 4 D. Development model. The 4-D development model (four D models) consists of four stages, namely: define, design, develop, and disseminate (develop), and disseminate (spread) [10]. The design of this activity is as follows:



Picture 1. Activity Design

III. RESULTS AND DISCUSSION

a. *Result of the Workshop*

The overall activity of the workshop was in accordance with the target of the team, starting from the number of participants, the expected results and the smooth evaluation. Although there are several obstacles such as finding the right time, the lack of skilled teachers in mastering IT and the teacher's laptop that is trouble, finally all can be solved with good cooperation from all parties who support the implementation of this activity.

The workshop was held on 3 August 2019 with a total of 55 teachers. The workshop was begun with the opening, introduction of various media and the importance of developing instructional media for improving teacher professionalism. Explained several media development both simple and IT based. The next presentation will focus on the explanation of the appypie, as well as showing the superiority of this media compared to other media. In this first stage, some of the results of the development of the appypie media were also shown, which had previously been prepared by the team to be demonstrated and made an example for the participants. The purpose of this demonstration activity is to show participants that in appypie media all media, whether images, photos, sounds or videos can be used as a material in the development of appypie media. In the next part, the teacher also explained various features contained in the appypie, the work process of the appypie after that was explained how to develop a material with this media appypie.

Question and answer and light discussion between the team and the participants were given a large portion to get closer while knowing what was still difficult for the participants. Not forgetting also emphasized that the core of this media making is only used as a learning aid, so it should be noted that the contents of the appypie, referred to here, because only as a tool, it should be written only the important points.

In the next stage, which is media development, teachers are assisted directly in how to produce media apps by adopting a 4-D model. This assistance is carried out intensively by the team to maximize teacher performance.

Wahyuningtyas [4] and Bahri [11] states that teachers need to experience practice exercises continuously and systematically to get used to the media.

As an initial stage of media development with the 4-D model, namely, define. Teachers are guided to analyze students and the material that will be used as content in the media. After that, the teachers were guided to design the media. At this stage the teacher is asked to do a literature study, collect, sort out, select material and pour it into the media storyboard design. If the storyboard design is complete, the teachers are trained to produce their own appypie based learning media. At this stage, the teacher is given direct assistance to complete the medium. This is, of course, to make it easy for teachers to operate every component in the appypie application. After the media developed by the teacher is finished, the media will be validated by lecturers who are experts in developing media appypie to find out the strengths, weaknesses and give input from the media results.

Based on the results of the activity, it was known that the teachers were very happy and enthusiastic about this workshop. Some teachers explained that if the development of this media, students certainly would like to follow social studies learning. Considering all this time the teacher taught only with lectures and there were no other variations in his learning. Media such as this app will greatly assist students in concreting the material, motivating students in learning and making it easier to access additional information outside the textbook. This is reinforced by the opinion [12] which explains the more sensory devices are used to receive and process information, the information will be easier to understand and can be retained in memory. Thus, students are expected to be able to receive and absorb easily and well the messages in the material presented.

Besides, other teachers explained that all this time they were reluctant to use media because they felt they were not proficient, hassle and were too complicated to understand computers. From the questionnaire answers, it is known that 40% of teachers answer if they are not proficient in using technology based media. Yet if the feelings of these teachers continue to be allowed to drag on, it will create a barrier for the teacher to progress. Prayitno argued that "a problem is something that is not liked to exist, creates difficulties for oneself and/or others, wants or needs to be eliminated" [13]. Furthermore, Wena [14] stated "if the problems experienced by teachers are left, the effectiveness and efficiency of learning will be low". From these problems, the teacher should try to overcome the obstacles they face to be able to use computer-based media.

b. *Supporting and Inhibiting Factors of Workshop Activities*

In the implementation of the workshop activities, a variety of interesting things emerged that could be used as lessons and experiences in the future in providing material activities like this. Various kinds of problems and solutions arose when the workshop was held, starting from the standard or unexpected things which in addition to adding insight to the participants also added to the team's insight so that this activity also gained something valuable that was used as additional knowledge to carry out a workshop in the future.

As for several supporting and inhibiting factors during the course of this workshop, namely:

1. Supporting Factors
    a. Coordination and teamwork are very solid so this workshop can run smoothly.
    b. Active participation from the teachers of SMPN 1 Pakis who provided a lot of assistance for the smooth running of this workshop.
    c. The enthusiasm of the participants was very extraordinary. Beyond the team's expectations, the material presented could be quickly received and understood well by the participants.
    d. The emergence of various questions during the discussion made easier for the team to find alternative workshop materials so that what was taught to the participants could be effectively received.

e. The seriousness of the participants in participating in all workshop materials.

2. Inhibiting factors
   a. The different basic abilities of the participants made it difficult for the team to adjust the workshop material. There are participants who already know and are familiar with this appypie media, some are completely unfamiliar and may not be accustomed to using a laptop, for example still awkward in moving the mouse.
   b. Participants were preoccupied with a variety of tasks from the school which caused some participants to focus less paying attention to the workshop material.

Arsyad & Osman [15] explain amid the tight uncertainty and challenges faced by each of these people, it requires a paradigm shift in the education system that must be able to provide a set of 21st century skills needed by students to deal with every aspect of global life. The change in question is like a change in pedagogy, namely a change in acting from simple action towards comprehensive action and the transition of the dominance of traditional teaching towards technology-based teaching.

Responding to all these changes, the Indonesian government swiftly answered all the challenges that exist in the 21st century by issuing a new policy, namely the 2013 curriculum application. This policy is expected to be able to realize and encourage the process of penetration of new media (new media) in the world of education. With the use of this new media, teachers are expected to be able to build information network capabilities through distance learning, open knowledge networks for students, disseminate learning materials with standard quality, and encourage strengthening efforts in efficiency and effectiveness of educational administration policies [6].

In accordance with Permen No. 16 of 2007 concerning Teacher Competence, it is explained that a teacher is required to master the material, structure, concepts, and scientific mindset that supports subjects; mastering KI and KD, developing learning materials creatively; develop professionalism in a sustainable manner by taking reflective actions, and utilizing ICT to develop themselves. Teacher professional development activities can be carried out in various ways, such as participating in scientific gathering activities, especially in the field of education, carrying out scientific or scientific work in the field of education, finding appropriate technology in the field of education, making teaching aids or tutoring tools, and creating artwork. Among these activities, scientific gathering activities are seen as important to be carried out by the teacher, because through this scientific gathering activities the teacher can more easily and more freely develop their performance.

As in the case of scientific meetings (workshops) initiated by researchers, providing great benefits for teachers in the development of instructional media. In the workshop held on August 3, 2019, the teachers were not only provided with explanations about the concept of media, the variety of instructional media, but they were invited to practice directly developing and producing learning media. At the media development stage, teachers are taught how to produce media by adopting a 4-D model. As an initial stage of this model (define), teachers are invited to analyze students and the material that will be used as content in the media. After that, the teachers were invited to design the media. At this stage the teacher is asked to do a literature study, collect, sort out, select material and pour it into the media storyboard design. If the storyboard design is complete, the teachers are trained to produce their appypie based learning media. At this stage, the teacher is given direct assistance to complete the medium. This is, of course, to make it easy for teachers to operate every component in the media application. After the media developed by the teacher is finished, the media will be validated by lecturers who are experts in developing media appypie to find out the strengths, weaknesses and give input from the media results.

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As in the case of scientific meetings (workshops) initiated by researchers, providing great benefits for teachers in the development of instructional media. With this workshop, the teachers have realized that it is time for them to get out of their comfort zone. If now society has changed to a digital society, the teacher must also immediately transform themselves, both technically and socio-culturally familiarizing themselves with technology. If this has been cultivated, the quality, creativity of the teacher will increase and learning becomes efficient. Nasution [16] states "teachers play an important role in the development of educational technology so they must try to learn how to use it". Modern educational technology tools are not enemies of the teacher but as an auxiliary tool to improve the efficiency and effectiveness of the learning process.

It must be recognized in this 21st century learning that ICT based media provide great benefits for teachers or students. Especially if we look at the character of students today, where life can no longer be released by the use of smartphones. In order for the use of this smartphone to lead to something positive, the teacher must be a creative inspiration in packaging learning material into android-based media such as this app. Kurniawan [17] explained that the design of an android based learning system application can be a solution to support teaching and learning activities to be more effective, efficient and real time. With the mobile learning application (appypie) it helps the learning process to be practical and flexible [18]. In addition to mobile learning, media learning can increase learning motivation compared to using conventional learning media. Increased student learning motivation will have an impact on understanding students' concepts in learning material [19].

Mastery of the media for the 21st century teachers is a necessity if you want to remain considered authoritative in front of students. Therefore creativity and ICT based teaching competence are absolutely essential for teachers in the 21st century. So a teacher must be able to apply a learning model for example that uses a hybrid learning pattern with the use of gadgets because the learning process in the 21st century is not only conventionally, but also online through the learning site. Fifth, the characteristics of 21st century teachers amid the rapid development of the era of digital technology, however, must be able to make a cultural transformation.

The ideal 21st century teacher should be a motivator and inspiration. First, in addition to its role as an educator as well as acting as a manager or facilitator, teachers must be able to plan, implement and supervise educational resources so that students can learn productively. Second, teachers must be able to transform themselves in the era of cyber pedagogy by having a high interest in reading. Without high reading interest, teachers in the current era of cyber pedagogy will lag behind the knowledge of their students, which will reduce the credibility or authority of the teacher. The loss of teacher authority will have a serious impact not only on the decline in the quality of learning but also on the progress of a nation. Third, teachers in the 21st century must have the ability to write. Having high reading interest is not enough for the teacher, but must have the skills to write. Teachers are also required to be able to express innovative ideas in the form of books or scientific works. Without the ability to write the teacher will have difficulty in efforts to increase their credibility in front of students. Fourth, 21st century teachers must be creative and innovative in developing media, learning

methods or finding solutions to learning problems, thereby improving the quality of ICT based learning.

Darling [20] further explained that 21st century teachers are required not only to be able to teach and manage classroom activities effectively but also to be able to build effective relationships with students and the school community, use technology to support the improvement of teaching quality, as well as reflect and improve the practice of learning continuously.

IV. CONCLUSIONS

If now society has changed to a digital society, the teacher must also immediately transform themselves, both technically and socio-culturally to familiarize themselves with the digital world. If this has been cultivated, the quality and creativity of teachers will increase. Teacher competence to educate in the era of digital learning needs to be prepared by strengthening cyber pedagogy in the teacher. Teachers must play a greater role as facilitators and be able to utilize existing digital technology to design critical, creative and fun learning.

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