Augmented Reality (AR) Application Usage Training to Improve Teacher Digital Literacy at SMP Negeri 1 Jeneponto

Riskawati 1*, Hendra Baharuddin 2

1 Universitas Pendidikan Indonesia, Indonesia
2 Universitas Negeri Yogyakarta, Indonesia

* riskawati@student.upi.edu

Abstract

SMPN 1 Jeneponto get help a total of 63 Gadget Units (Tablets) brands evercoss from government with goal to get used by internal teachers learning. However Not yet utilized with ok. this because internet network at school the No support and digital literacy teachers greatly low. Solution from problem the is increase teacher 's ability deep digital literacy utilization of Gadgets (Tablets) for learning media both offline and online with implementing Augmented Reality (AR) for optimizing Gadgets (tablets) as learning media in form activity training and mentoring. Activity results training This is there is enhancement about understanding importance teachers' ICT literacy and understanding of AR as a learning medium innovative by 95.6%. Enhancement Teacher's Digital Literacy is 87% and deep teacher skills using AR of 78.2%. This result proves that existing training and mentoring can increase teacher digital literacy at SMP Negeri 1 Jeneponto. Through activity, it is expected that the teachers are up to date on development technology and make an effort to increase one of them is professionalism through understanding Digital Literacy and implementing it in activity learning

Keywords: Augmented Reality, Digital Literacy, Middle School Teachers

Introduction

Technology and Information moment This experience changes and develops fast. Technology information helping, facilitating and supporting in the learning process purposeful teaching realization quality good learning (Qumillaila et al., 2017; Dhar et al, 2021). Effort government moment This is to activate learning based technology as form attention to innovation learning with method give help technical, equipment technology, training and as well accompaniment to the inner teacher utilization technology learning (Hsu et al, 2019; Jamrus et al, 2021; Hug et al, 2017).

Problems found at SMP Negeri 1 Jeneponto, Sulawesi Selatan that is there are 63 tablets of help from the government from 2019 yet utilized with Good until now. This caused Because very internet networks are slow / not stable besides That deep teacher digital literacy use of gadgets as learning media Still low. The teachers thought in utilization gadgets they need a good and smooth internet whereas use of learning media offline still Can done (Mystakidis et al, 2021; McMahon et al, 2016)

https://doi.org/10.30605/ipmas.3.1.2023.304
Change in the world of education today This leads to increased interest and power to pull students through innovation Industry 4.0 that is the use of mobile learning media in the learning process (Rahmat et al., 2019; Simonova et al, 2022). Technology offers great progress in the future (Carbonell et al, 2017; Chiang et al, 2022; Lin et al, 2022). One technology is Augmented Reality (AR) which refers to the integration of the real world with visualization in digital form (Farshid et al., 2018; Riyanti et al, 2022). Through an AR student can visualize objects or objects and generate data about the real world in 3d shape. Excess of AR is characteristic interactive and real time so can be used as learning media. One for example is used to introduce inheritance culture or history (Arvanitis et al, 2021). Very AR technology is effective where teachers only provide a marker which will be highlighted by the cellphone camera and displays 3D images of objects without need using medium size big inside class however (Arifin et al., 2020; Alalwan et al, 2022). Based on problems and limitations of the teacher in the use of learning media, the team devotion community in the partnership program stimulus community (PKMS) did an innovation in introducing, optimizing the use of (AR) Augmented Reality as one of the innovative and alternative media in enhancing quality implementation of the learning process. (Chiang et al, 2022; Gómez et al, 2020)

Deep effort enhancement teacher digital literacy with Augmented Reality (AR) based media in form series activity assistance and training (Howorth et al, 2019). This Because has he found problem; (1) only 4 Masters are capable use Technology for learning media for example is make a powerpoint; (2) No affordable internet network at school, because school the located in the middle middle plantation rubber. This resulted in the teacher not being able to utilize technology (Tablet/Gadget) with maximum; (3) Low Digital Literacy Teacher in creating, designing, using and utilizing technology (tablets/gadgets) as learning media (Korenova et al, 2019). PkM This aims to increase digital literacy. Middle School Teachers with methods give training and mentoring which make use of Gadgets (Tablets) with implementation of Augmented Reality.

Method

Implementation of the partnership program society started on Saturday, August 13, 2022 by the lecturer of Nurul Huda University’s Physics Education Program consisting of 2 people and 1 lecturer of the Technology Education Program Information (PTI). This PKMS activity was also assisted by 6 students from the PTI and Physics Education program. PTK Head of Education Department of Education for the Disabled East is also present there in activities. This PKMS activity was attended by 23 SMP Negeri 1 Jeneponto teachers. Activities this implemented because the PKMS Team found Priority problem such as: (1) Low Teacher’s Digital Literacy about learning media based digital technology; (2) Mitra has not ever take advantage of Gadgets (Tablets) totaling 63 Units from help government for used as a learning medium; (3) The internet network is very slow / Difficult Internet access (Garcia et al, 2019).
After setting priority, the team discusses the solution with the partner. The partners team makes plans for what to do. Which method will be applied to carry out PKMS is in form assistance and implementation (practice) about use of Augmented Reality (AR) for optimization of gadgets as learning media (Peterson et al, 2020). At stage first, the team do observation and interviewing in a manner directly with Head SMP Negeri 1 Jeneponto 3 related to existing learning media This is used by the teacher in learning. Sober up problems found, the solutions offered by the PKMS team are to do activity outreach, training and mentoring for teachers.

In the preparation process, the team do coordination implementation activities, composing material to be delivered related to deep AR learning and Importance ICT Literacy for Teachers, teams do installation AR application from the Home portal Study Ministry of Education and Culture and Assembler Edu on 63 Gadgets (Papanastasiou et al, 2019). During the training process explained and demonstrated especially formerly related AR use (Bacca et al, 2015). In the mentoring process, the team asks the teacher to form a group and practice direct in a manner individual AR applications through gadgets or tabs that have been AR installed. At stages end, the team gives a questionnaire about understanding ICT Literacy and AR Use as form evaluation. A number of Suite stages partnership program activities can be seen in Figure 1.

Indicator implementation and success of this program is an improvement: (1) understanding the importance of ICT in learning and understanding AR is one of the learning media IT- based; (2) Skills of Teachers in using AR, and 3) Improvement Digital Literacy Teacher.

Results and Discussion

Implementation of this PKMS program is done through a number of stages that is preparation, socialization training, and mentoring. Stages preparation, done with interview Head SMP Negeri 1 Jeneponto about learning media in schools ever used for learning. Problems found in the field that is lack of or low deep teacher digital literacy use of learning media based technology matter this is also caused Because internet network at school not enough support.
At stage socialization is done to give exposure about ICT literacy for Teachers and AR as Learning Media innovative. Once done socialization, then held activity training and demonstrations the use of AR that has been installed on the gadget. Team presents material that started from method install AR on the Home portal Study Ministry of Education and Culture and Assembler edu until use it. Exposure materials and assistance by the PKMS team are displayed in Figure 2.

### Table 1. Stages Activity Training and Assistance in PKMS activities

<table>
<thead>
<tr>
<th>Activity</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socialization</td>
<td>Importance ICT literacy for teachers and introducing AR as innovative media learning</td>
</tr>
<tr>
<td>Training</td>
<td><strong>Stage I</strong>: Make account House study and study method install AR application on the Home portal learn and on the Play Store ie Assembler Edu application Know various topics on AR such as (Art Music, Biology, Viruses, My Goals, Science, Mathematics, Physics, History, English)</td>
</tr>
<tr>
<td>Accompaniment</td>
<td>Practice using an AR application from House Learn and Assembler Edu. Discussion and Q &amp; A and continued with Evaluation partnership program implementation public</td>
</tr>
</tbody>
</table>

Stages teacher assistance requested form a group consisting of 5 people and welcome for practice and try Alone procedure in installation use AR app accompanied directly by the PKMS Team and Students. Serving material on the partnership program publicly displayed in Table 1.”

Stages end evaluation purposeful activities for known achievements PKMS implementation with indicators; (1) understanding the importance of ICT in learning; and Understanding AR is one of the learning media Innovative. 2) Skills of Teachers in using AR, 3) Improvement Digital Literacy Teacher. Percentage the ability of teachers to optimize gadgets with AR application as a learning medium served in Figure 3.
From the results analysis obtained, there is enhancement in understanding the importance of teachers’ ICT literacy and understanding of AR as a learning medium innovative by 95.6%. Enhancement Teacher’s Digital Literacy is 87% and deep teacher skills using AR of 78.2%. This result proves that with existing training and mentoring can increase digital literacy of teachers at SMP Negeri 1 Jeneponto so teachers can apply it in activity learning.

Whole stage in training and mentoring that has been held in accordance with the desired goal achieved is to increase teacher digital literacy. At the moment the gift material team gives information related to Technological Pedagogical Content Knowledge (TPACK) that becoming a teacher should fulfill demands skill 21st century one of them is Digital Literacy. A teacher should too have sufficient ability Good in application technology, mastery of content / concept and presentation material or teaching (Herizal et al., 2022). TPACK is called as knowledge, competence and skills of teachers to integrate it for learning (Kabakci et al, 2014). Delivery material furthermore is about Augmented Reality as a learning medium. Teacher teachers convey that they are new for the first time listening to AR terms and yet once use it as a medium. Stages mentoring teachers to form 5 groups consisting adri 5-4 teachers.

Accompaniment carried out by the PKMS team and assisted by students. At the moment the teachers are very enthusiastic in using AR they also want to quickly apply it for learning. ARs used can be downloaded through the home portal Study Ministry of Education and Culture and edu Assemblers who can accessed through play store. AR for learning media This can be accessed for free and efficiently. Kindly whole, there is training and mentoring of teachers to know and get an outlook about various types of learning media such as Augmented Reality that can be used to support the learning process. These results are also in line with saying that there is development competence teacher skills about learning media after training development of Augmented Reality learning media with metaverse app (Sari et al., 2020). Enhancement related teacher understanding ICT literacy also agrees with stating that activity training and mentoring for teachers about utilization technology for learning media show exists enhancement by 52% (Arigiyati et al., 2021).
Conclusion

PKMS activities namely form training and mentoring walk fine and smooth. This showed that there is enhancement in understanding the importance of teachers' ICT literacy and understanding of AR as a learning medium innovative by 95.6%. Enhancement Teacher's Digital Literacy is 87% and deep teacher skills using AR of 78.2%. This result proves that existing training and mentoring can increase teacher digital literacy at SMP Negeri 1 Jeneponto. Through activity, it is expected that the teachers are up to date on development technology and make an effort to increase one of them is professionalism through understanding Digital Literacy and implementing it in activity learning.

Acknowledgment

- 

References


