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Enhancing History Teachers' Competence through Smart Apps Creator Training with Differentiated Learning Integration

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ABSTRACT

This community service was carried out to address three main challenges in history education: the limited optimization of teacher competence, the lack of variety and innovation in learning media, and the need for better accessibility to information. To respond to these issues, a training program was organized on the use of Android-based learning media with Smart Apps Creator (SAC), integrated with differentiated learning, as an effort to support the implementation of the independent curriculum and enhance the competence of high school history teachers in Tasikmalaya Regency. The purpose of this activity was to improve teachers' competence in designing and applying innovative learning media that can support more interactive and effective history learning. The participants consisted of 23 history teachers, and the instruments used were questionnaires (pretest and posttest)to measure competence levels. The method included four stages: (1) providing instruments before training, (2) delivering modules, (3) conducting hands-on training sessions, and (4) administering instruments after training. The results showed a significant improvement in teacher competence, with the average score increasing by 23%, from 70in the pretest to 93 in the posttest. Furthermore, after the training, participants successfully applied Smart Apps Creator in their classrooms to design and implement interactive history learning activities. In conclusion, this program effectively enhanced teacher competence and encouraged the integration of digital media in classroom practice, thereby contributing to improved quality of history education.

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INTRODUCTION

Education is no longer limited to conventional classrooms, but has expanded into the digital realm, which allows wider and more flexible accessibility to learning materials. In an era where technology is increasingly entering every aspect of life, education can no longer rely solely on conventional methods. This means that it has great potential to develop learning activities by utilizing learning media (Tahir, 2019). This is reinforced by UNESCO (UNESCO, 2019) that the integration of technology in education is not only an option, but also a necessity to ensure that education can continue to be relevant and responsive to developments in the era. The existence of this idea certainly poses a challenge in its implementation, including in history education. The challenges of history education in the millennium era require a supply of technology in the learning process. This is very important because history learning should be able to adapt, implement hybridization of various technologies, systems and work models of the industrial revolution 4.0.

Pageh (Pageh, 2019) explains that there are several basic principles of innovative history learning, namely: 1) Emphasizing the objectives of the future-oriented learning process influenced by digitalization and the millennial automation industry, 2) Utilizing cloud computing technology and processes and output skills for the creation of digital products (videos, films, documentaries), emphasizing student activities and creativity, 3) Requires big data literacy skills in cyberspace, human literacy, cloud computing technology literacy, and the process and consequences of its use. Without these reform ideas, it can be assumed that History Education will lose its meaning and strengthen the negative impression in the implementation of history learning. The results of field observations and interviews with the head of the Tasikmalaya Regency History MGMP, that the Tasikmalaya Regency History MGMP was founded around 2000, with current members reaching approximately 105 history teachers. As for training activities on the use of learning media, it has never been done, so it feels right for this partner to carry out training activities to improve teacher competence. The results of the interview with Mr. Angga showed that there were still members who could not utilize digital-based learning media and implement differentiated learning in learning activities. The reason is that it takes time to learn this because teachers are busy with other activities, so self-development is not really done. For the use of learning media itself, teachers usually only rely on PowerPoint presentations without developing it.

Based on this, the use of learning media in the teaching and learning process can develop new interests and desires, generate motivation, and even have a psychological effect on learning. According to Shavab (O. Shavab et al., 2025) that utilizing learning media can assist teachers in conveying learning objectives, enabling students to understand the material effectively, which in turn can improve student learning outcomes. In line with this, according to Zaini and Dewi (Zaini & Dewi, 2017), with learning media, a student needs an intermediary or commonly called learning media, where, with the existence of learning media, teachers can divert students' attention, so that they do not get bored and tired quickly in the teaching and learning process. One of the learning media that can be utilized by teachers in learning activities is by using the Smart Apps Creator (SAC) learning media. This media is a tool for creating applications without coding first, and this tool is a product of U-Smart Technology Corporation Limited. Referring to the opinion of Abidin & Arifin (Abidin & Arifin, 2021) that Smart Apps Creator is a new application designed to create effective learning media. Another opinion states that Smart Apps Creator (SAC) is a desktop application for creating Android and iOS mobile applications without programming code and can produce HTML5 and .exe formats (Rustandi et al., 2020). Smart Apps

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Creator can be taught to elementary, middle, high school / vocational school students to increase their creativity in managing content and also creating attractive mobile applications (smartappscreator.com) (Cahyati & Suherman, 2020). This application can be opened via a smartphone, which is a learning activity using a smartphone that is classified as mobile learning (Haerunnisa & R. F. Permana, 2020).

Several articles examine smart app creator training (Hartanti et al., 2024; Rahmi & Wahyuni, 2021). However, there is a research gap in the population. In that publication, the target is kindergarten and junior high school teachers, while in the article being reviewed, it is high school teachers majoring in history. The use of Smart Apps Creator (SAC) in teacher training can enhance teacher competence across pedagogical, professional, and technological dimensions. From a constructivist perspective, SAC allows teachers to design interactive and student-centered media that foster active knowledge construction, as emphasized by Vygotsky (Vygotsky, 1978). By reorganizing historical content into digital formats, teachers deepen subject mastery while simultaneously improving their pedagogical strategies to meet diverse learners' needs. Moreover, SAC strengthens technological competence by enabling teachers to integrate ICT in practice without advanced programming skills, aligning with the TPACK framework, which highlights the intersection of technological, pedagogical, and content knowledge. Thus, SAC functions as a practical tool to holistically improve teacher competence in history education.

Another innovation, besides utilizing learning media, is to implement differentiated learning, which is a diversity in which an activity occurs to find out about students and pay attention to students' learning responses according to their diversity. Differentiated learning is a strategy or model for developing and implementing learning in schools, which is designed to enable the optimization of the development of different potentials or competencies from each class of students through diversification of content, processes, and products to be developed (Saputra & Marlina, 2020). Differentiated learning is a way to understand and provide knowledge according to the talents and learning styles of students who have many characteristics (Wahyuningsari et al., 2022). Teachers facilitate their students according to the needs of the students themselves, because each student certainly has different conditions and ways of learning.

By utilizing digital learning media and differentiated learning like this, it is hoped that it can improve teacher competence. Teacher competency is a set of knowledge and behaviors possessed and mastered to carry out professional duties (Lafendry, 2020). Four teacher competencies must be possessed, including pedagogical competence, personality competence, social competence, and professional competence. Pedagogical competence is part of an effort to support the realization of sustainable education. The dominant factor that influences teacher performance is social competence (Taniredja & Abduh, 2016). In other findings, it is said that personality competence greatly influences teacher performance (Wardoyo, 2015). In terms of professional competence, it was found that communicative competence problems were considered as the theme of professional competence problems. So that the use of information and communication is very important in effective communication (Syamsinar & Jabu, 2016). Teachers are expected to be able to create effective communication with their students during or outside of classroom management activities. In addition, because effective communication between teachers and students is the key for teachers to becoming ideal teachers, teachers should not ignore all obstacles found during their interactions with students. Teachers' social competence plays a very important role in improving the quality of teaching and student learning (Saudagar, 2014).

Thus, through proper training, teachers and educators will be able to optimize and utilize the potential of learning media, especially Smart Apps Creator (SAC) learning media and differentiated learning to create a more interesting, interactive, and impactful learning experience for students.

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Another thing is that teachers will improve their teaching competence in carrying out learning activities so that learning outcomes can be achieved. Based on this background, the problem formulation is: To what extent does training on Smart Apps Creator (SAC) integrated with differentiated learning improve the competence of high school history teachers in Tasikmalaya Regency? The purpose of this community service activity is to enhance the teaching competence of high school history teachers in Tasikmalaya Regency by providing training on the use of Smart Apps Creator (SAC) integrated with differentiated learning.

METHOD

The following are the stages of implementing community service, as explained in Figure 1:

FIGURE 1. Steps for community service activities

Socialization

At this stage, socialization will be given first regarding the Smart Apps Creator (SAC) learning media, differentiated learning, and teacher competence. This is conveyed through lectures and Q&A involving resource persons, student participation in helping with activities, and participants from MGMP History teachers throughout Tasikmalaya Regency.

Training

At this stage, training will be given on the use of learning media (SAC) and differentiated learning to teachers by means of mentoring, lectures-Q&A, and demonstrations of the use of the application in stages, and students are involved in helping with technical problems in the field. The first thing to do is download & install the application, explain the features in the application, and use it according to the learning design in history learning activities.

Application of Technology

At this stage, one of the participants will be allowed to demonstrate how to use the Smart Apps Creator (SAC) learning media and ask him/her to create learning steps that use the Smart Apps Creator (SAC) learning media according to his/her own version, and students are involved in helping with technical problems in the field. Based on the steps of the community service activities, the design to measure its achievement is a one-group pretest-posttest design. This community service activity sample consisted of 23 respondents using a random sampling technique. The instrument used was a questionnaire, and the duration of the activity was 3 days. The data analysis technique used was the Wilcoxon analysis. The content of this training was utilizing the Smart Apps Creator application in history learning activities, which included material on the origins of the ancestors of the Indonesian Nation, with a total of 5 lesson materials. In this material, learning and gamification were integrated. The facilitator in this training was qualified as a lecturer, and the Smart Apps Creator application resulted from his research.

Mentoring and Evaluation

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The mentoring stage can be started when the training is carried out, such as when downloading and installing the application, and how to apply it to the independent curriculum. The evaluation stage is seen from the completion of the teacher competency instrument before and after the training, so that the extent of the improvement can be measured, and students are involved in helping with technical problems in the field

Sustainability of the Program

At this stage, the sustainability of the program can be carried out with training in creating Smart Apps Creator (SAC) learning media and supported by differentiated learning for high school history teachers throughout the Regency.

RESULTS AND DISCUSSION

Result

Socialization

In this digital era, the use of learning media has become an important part of the education process. Learning media not only facilitates the delivery of material but also increases student interactivity and involvement in learning. To support this, a socialization activity was held on the use of Smart Apps Creator (SAC) learning media for history teachers, which can be used and improve their skills in applying it in class.

The objectives of this socialization activity are:

- Improve teacher skills in utilizing SAC learning media effectively.
- Encourage teachers to integrate SAC learning media into the teaching process.
- Improve the quality of learning through the use of innovative and interactive SAC media.
- This socialization activity resulted in several achievements, including:
- Increased Understanding: Participants showed an increased understanding of the importance of SAC learning media and how to use it.
- Technical Skills: Participants gained new skills in using SAC learning media
- Implementation Commitment: Most participants expressed their commitment to starting to implement the SAC learning media that was introduced in their teaching process.
- Collaborative Network: A collaborative network is formed between teachers to share resources and experiences in the use of learning media.

Training

At this stage, training is provided on the use of learning media (SAC) and differentiated learning to teachers in the following ways:

- Theory Session: Teachers are explained the theory of learning media, types of media that can be

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used, and basic principles in selecting and developing learning media.

- Demonstration and Direct Practice: Training participants are invited to see a demonstration of the use of SAC media and then practice it directly.
- Media Utilization Workshop: Teachers are divided into groups to design learning activities that use SAC learning media based on the material they teach. Each group is allowed to present its work.
- Evaluation and Discussion: After the workshop, an evaluation of the learning design that has been made and a discussion is carried out regarding the challenges and solutions that can be applied.
- During the implementation of the training, pretests and posttests were also given to participants in the activity to determine the extent of the competence of participating teachers before and after the community service activity. The following are the results of the data processing:

TABLE 1. Pre-test and post-test data of participants

Responden	Pre test	Post test
1	70	85
2	71	89
3	70	89
4	70	90
5	71	92
6	73	94
7	71	95
8	70	96
9	70	90
10	70	97
11	70	96
12	71	90
13	70	97
14	70	90
15	72	96
16	70	97
17	71	95
18	70	95
19	70	95
20	71	94
21	70	95
22	70	95
23	70	80
AVERAGE	70	93

Based on Table 1, the following are the descriptive statistics, which are explained in Table 2.

TABLE 2. Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Pretest	23	70	73	70.48	0.790	0.625
Posttest	23	80	97	92.70	4.269	18.221

Table 2 explains that the pretest and posttest data contain some information. The pretest data show a minimum score of 70, a maximum score of 73, a mean score of 70.48, a standard deviation of 0.790, and a variance of 0.625. The posttest data show a minimum score of 80, a maximum score of 97, a mean

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score of 92.70, a standard deviation of 4.269, and a variance of 18.221.

Based on Table 1, the first step in carrying out the analysis is to carry out a normality test, the results of which are presented in Table 3.

TABLE 3. Shapiro-Wilk normality test results

Information	Df	Sig.
Pretest	23	0.000
Posttest	23	0.002

Table 3 shows that the sig. Value is < 0.05, indicating that the data is not normal. The next step is to perform a non-parametric analysis using the Wilcoxon test, as presented in Table 4.

TABLE 4. Wilcoxon test results

Asym. Sig. (2 tailed)
0.000

Based on Table 4, it can be seen that the sig. value is <0.05, which means that there is an influence of Smart Apps Creator utilization training on history teacher competency. These results indicate that the training positively impacted history teacher competency. This is further supported by an average pretest score of 70 and a posttest score of 93, representing a 23% increase.

The following is documentation during the activity

FIGURE 2. Implementation of community service

Application of Technology

At this stage, one of the participants is allowed to demonstrate directly in using the Smart Apps Creator (SAC) learning media and ask them to create learning steps that use the Smart Apps Creator (SAC) learning media according to their own version, and students are involved in helping with technical problems in the field.

Mentoring and Evaluation

The mentoring stage begins when the training is carried out, such as when downloading and installing the application, and how to apply it to the independent curriculum. The evaluation stage is seen from the work on the teacher competency instrument before and after training, so that the extent of the improvement will be measured, and students are involved in helping with technical problems in

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the field.

Sustainability of the Program

At this stage, the sustainability of the program can be carried out with training in making Smart Apps Creator (SAC) learning media and supported by differentiated learning for high school history teachers throughout Tasikmalaya Regency

Discussion

The implementation of the Smart Apps Creator (SAC) training integrated with differentiated learning successfully enhanced the competence of history teachers in Tasikmalaya Regency, as evidenced by the 23% increase in average post-test scores. The significant improvement in teacher competence can be attributed to the dual impact of the Smart Apps Creator (SAC) and differentiated learning. SAC serves as a powerful tool that enables teachers to create interactive, technology-supported learning activities without needing advanced programming skills, thereby facilitating pedagogical innovation. The use of SAC aligns with the Technological Pedagogical Content Knowledge (TPACK) framework, which emphasizes the intersection of technology, pedagogy, and content knowledge (Shavab et al., 2025). However, the analysis could delve deeper into why this combination of SAC and differentiated learning leads to higher competence. Specifically, the training enabled teachers to address the diverse learning needs of students, making the learning process more engaging and accessible. This adaptive use of technology provides an enriched learning environment that promotes deeper engagement and learning, which can be crucial for improving pedagogical effectiveness (Tomlinson & Imbeau, 2023). Additionally, differentiated learning, by providing tailored instruction based on students' readiness levels and interests, enhances teacher competence in adapting their pedagogical approaches to meet varied student needs (Saputra & Marlina, 2020).

While the program demonstrated success within a specific context, its generalizability to other regions or subjects remains uncertain. The study was conducted with a small group of history teachers in one district, and there is limited evidence on whether the findings can be applied to teachers in other subjects or regions. As Stoll et al. (Stoll et al., 2006) highlight, the success of professional development programs may vary across contexts, making it essential to examine whether the intervention can be scaled to other settings. The transferability of these findings to other educational settings should be carefully examined. Future studies could explore the implementation of similar programs in different districts or with teachers from various disciplines to assess the broader applicability of the SAC and differentiated learning approach (Kafyulilo et al., 2016).

A notable limitation of the study is the single-group design, which does not account for potential biases or external factors that could influence the results. The lack of a control group makes it difficult to conclusively attribute the improvement in teacher competence solely to the SAC training program. Future research should consider incorporating a more rigorous experimental design, such as a randomized control trial (RCT), to strengthen the internal validity of the findings. As suggested by Tondeur et al. (Tondeur et al., 2017), employing a control group would provide more robust evidence of the program's efficacy. Furthermore, the absence of a follow-up assessment makes it challenging to determine whether the improvements in competence are sustainable in the long term. Including a longitudinal follow-up would provide insight into the lasting effects of the training, as long-term impact is essential for evaluating the program's overall success (Darling-Hammond et al., 2017).

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The training program mentions the continuation of the use of SAC by teachers beyond the intervention, but the evidence supporting the sustainability of this practice is not yet conclusive. While the results indicate that teachers demonstrated competence in using SAC during the training, there is no data on how consistently and effectively they have implemented SAC in their classrooms post-training. It is essential to provide ongoing support and resources to ensure that teachers can maintain and expand their use of SAC over time. Darling-Hammond et al. (Darling-Hammond et al., 2017) emphasize that sustained professional development programs are crucial for long-term changes in teaching practices. Additionally, establishing a community of practice or mentorship program could enhance the sustainability of the program by fostering collaboration and continuous learning among teachers (Stoll et al., 2006). Furthermore, providing continued technical support and access to updated resources will help ensure the ongoing relevance of the program in the face of evolving educational technology.

CONCLUSION

With the implementation of this community service activity, several things can be seen, such as the MGMP History teachers' understanding of the use of Information and Communication Technology (ICT)-based learning media in history learning is increasing, being ability to use differentiated instructions in history learning, and being ability to collaborate between differentiated instructions and the use of ICT media. Another thing is the increase in teacher competence for MGMP history teachers in Tasikmalaya Regency by 23% with pretest results of 70% and posttest results of 93%. However, the findings should be interpreted with caution due to the absence of a control group, which limits the ability to make definitive causal claims about the intervention's effectiveness. The lack of a control group makes it difficult to isolate the impact of the SAC training from other potential factors influencing teacher competence. Additionally, this study does not address the limitations of the design, such as the single-group design, which could introduce biases.

To strengthen future research, it is recommended that subsequent studies incorporate a control group to provide a clearer understanding of the causal relationship between the training and teacher competence. Furthermore, future studies should explore the long-term sustainability of the program and its impact on teaching practices beyond the immediate post-training period. The inclusion of a follow-up assessment and more diverse participant samples would enhance the generalizability and transferability of the findings. Finally, exploring the scalability of the SAC training program across different regions and educational contexts will provide valuable insights into its broader applicability.

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