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TRAINING ON DESIGNING TEACHING MATERIALS WITH A BOOK CREATOR FOR JUNIOR HIGH SCHOOL SCIENCE TEACHERS IN THE PALI DISTRICT

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Abstrak: Perkembangan teknologi yang begitu pesat dibidang pendidikan dan rendahnya tingkat keterampilan guru dalam pemanfaatan teknologi menjadi latar belakang pentingnya pelaksanaan kegiatan pengabdian ini. Pengabdian pembuatan bahan ajar berbantuan *book creator* ditujukan bagi guru IPA SMP di kabupaten PALI. Hal ini disebabkan karena masih rendahnya tingkat keterampilan guru dalam pemanfaatan teknologi dan belum adanya bahan ajar berdiferensiasi berbasis elektronik. Perubahan kurikulum menjadi kurikulum merdeka dan kurangnya pelatihan dalam pemanfaatan teknologi menjadi faktor utama. Oleh karena itu, tujuan penelitian adalah untuk meningkatkan keterampilan guru dalam pemanfaatan teknologi dan meningkatkan pemahaman guru serta menghasilkan bahan ajar berdiferensiasi dengan memanfaatkan platform digital yaitu *book creator*. PAR (*Participatory Action Research*) merupakan metode yang digunakan dalam pelaksanaan kegiatan pengabdian yang terbagi menjadi: a) persiapan, b) pelaksanaan dan c) evaluasi dan refleksi. Sasaran kegiatan pelatihan adalah 19 guru IPA SMP di kabupaten PALI. Berdasarkan hasil data Pre-Test dan Post-Test yang diperoleh untuk tingkat keterampilan awal peserta pelatihan sebesar 50,86% dan meningkat menjadi 93% setelah melakukan pelatihan. Dibuktikan dengan nilai N-Gain yaitu 0,86 dengan kategori tinggi untuk efektivitas peningkatan keterampilan guru dalam pemanfaatan teknologi dan pembuatan bahan ajar berdiferensiasi setelah melakukan pelatihan. Sedangkan dari hasil evaluasi kepuasan peserta pelatihan berada pada kategori sangat puas dengan nilai 81,57%. Kegiatan pengabdian ini memberikan manfaat dan dampak positif dalam meningkatkan keterampilan guru dan dengan pelatihan seperti ini akan menciptakan guru-guru yang terampil dan profesional di Indonesia.

Kata Kunci: bahan ajar, teknologi, kurikulum merdeka, book creator

Abstract: The rapid development of technology in education and the low level of teacher skills in utilizing technology are the background of the importance of implementing this community service program. The program of making teaching materials with the help of book creators is aimed at junior high school science teachers in the PALI district. This is due to the low level of teacher skills in utilizing technology and the absence of electronic-based differentiated teaching materials. The main factors are the curriculum change to an independent curriculum and the lack of training in technology utilization. Therefore, the research aims to improve teachers' skills in technology utilization, increase teachers' understanding, and produce differentiated teaching materials by utilizing a digital platform, namely book creator. PAR (Participatory Action Research) is a method used in the implementation of service activities, which is divided into a) preparation, b) implementation, and c) evaluation and reflection. The training targets were 19 junior high school science teachers in the PALI district. Based on the results of the pre-test and post-test data obtained, the initial skill level of the trainees was 50.86%, which increased to 93% after the training. They are proven by the N-Gain value of 0.86, a high category for the effectiveness of growing teacher skills in utilizing technology and making differentiated teaching materials after training. Meanwhile, the evaluation results of the satisfaction of the training participants were in the very satisfied category, with a value of 81.57%. This service activity provides benefits and positive impacts in improving teacher skills, and training like this will create skilled and professional teachers in Indonesia.

Keywords: teaching materials, technology, independent curriculum, book creator

Introduction

Technological developments in the era of the Industrial Revolution 4.0 have had an impact on several sectors, including education (De Oliveira et al., 2023). The 4.0 education approach focuses on preparing students to thrive in a digital and technological world (George-Reyes et al., 2024). The Industrial Revolution 4.0 is an era that requires students to have abilities and skills (Azmi et al., 2022). In the development of global technology, the international world is competing in science, and Indonesia is participating in this competition to improve the country's progress (Anggraini et al., 2022).

The Indonesian government plays a vital role in efforts to succeed in the utilization of technology in the field of education and increase the use of technology by educators (Zailani et al., 2022). In Indonesia's education field, the government has integrated technological devices and the use of digital platforms in practice to improve student learning outcomes (Sumarno, 2023). Not only the government, but to maximize student learning outcomes, teachers, parents, and principals have an equally important role (Ummah et al., 2022). Teachers play an essential role in utilizing technology in the learning process in schools.

However, in reality, many teachers still need to gain skills in using technology. This fact is evidenced by previous research where teachers still use conventional methods, teaching methods that are still monotonous, learning media only use textbooks and blackboards, and have yet to utilize technology (Sari et al., 2021). The low level of teacher skills in utilizing technology in learning media is a significant problem in the learning process, especially in improving skills and creating interactive learning for students (Dewi et al., 2020). Therefore, several strategies can be used to improve teachers' skills, utilize technology to achieve success in the learning process, and create interactive learning.

Teachers can use technology as a learning medium to convey knowledge to students through various applications. Teachers are also expected to be able to make material explanations that are interesting and not monotonous so that students are interested and remain enthusiastic about participating in learning activities (Agustian & Salsabila, 2021). The existence of educational technology is one of the many factors that can overcome some of the difficulties in learning, including learning abstract concepts, imagining past events, getting hands-on experience, observing objects that are too large or small, and understanding complex concepts (Widiyono & Millati, 2021). Teachers' use of technology must be based on the latest curriculum, namely the independent curriculum.

The Independent Curriculum focuses on the primary material and the development of learners' competencies and characters and aims to create a more flexible curriculum framework (Kurniati & Kusumawati, 2023). The independent curriculum requires students to learn independently (Shofiya & Qorin, 2022). In short, teachers have freedom of thought and can choose teaching tools so that learning can be tailored to the learning needs of learners (Melani & Gani, 2023).

According to a survey given to junior high school teachers and students, 90.3% of respondents agreed that science learning should be based on critical thinking, an essential

educational skill throughout life (Marlina et al., 2021). Most respondents also agreed that critical thinking is essential to improve academic performance and broaden their understanding of various disciplines (Washington & Zandvakili, 2018). Teaching materials are subject matter compiled thoroughly and systematically based on learning principles used by teachers and students during the learning process (Magdalena et al., 2020). According to research (Ridwan et al., 2022), one of the factors that cause difficulties for teachers in applying critical thinking skills is that learners do not have the necessary knowledge to understand the subject matter. Teachers' pedagogical perspectives and understanding of how to best utilize digital technology to optimize the use of technology in the learning process are crucial in today's technological era (Mercer et al., 2019). From the results of interviews and observations conducted by the team with the chairperson and junior high school science teachers in the PALI district, it is known that the utilization of technology in the learning process is still relatively low. This is due to the low number of teachers skilled in using technology in the learning process. Therefore, it is necessary to provide assistance and training for junior high school science teachers in the PALI district. In this training book, the creator is the choice based on practicality and effectiveness (Anggreni & Yohandri, 2022). Then using this book creator is also a solution to improve students' critical thinking skills (Latifah et al., 2020).

Penukal Abab Lematang Ilir (PALI) Regency is a regency in South Sumatra Province, Indonesia. With the capital city of Talang ubi, the regency is a result of the expansion of Muara Enim Regency, which was legalized on January 11, 2013, through Law No. 7 of 2013. The PALI junior high school science MGMP team requested assistance from the FETT Master of Physics Education Study Program to provide training or information on the utilization of learning technology for junior high school science teachers in the PALI Regency. The training will be held in one of the public junior high schools in the PALI district. On the other hand, through research, the team (lecturers) from the Physics Education Study Program of FKIP Unsri has experience developing STEM-based teaching materials (Science et al.). The assistant, estimated to be the most efficient according to time, funds, and energy limitations, is through training activities to create Science Teaching Materials using Digital Platforms, namely Book Creator, using laptops or computer devices for junior high school science teachers in PALI Regency. Book Creator-assisted teaching material creation training for junior high school science teachers in Pali Regency has enormous potential to improve the quality of education. With this training, teachers are expected to create innovative and exciting teaching materials to increase learning motivation and critical thinking skills and ultimately impact the quality of education in Pali Regency.

Methods

The training activities of junior high school science MGMP teachers in PALI Regency aim to improve the skills and professionalism of teachers in the use of technology, namely in the form of science teaching materials assisted by the Book Creator digital platform. This material is a solution to the problem of low teacher skills in utilizing technology, low skills in making

science teaching materials assisted by the Book Creator digital platform, and the high interest and needs of teachers related to training in making science teaching materials.

The implementation of the training program for making science teaching materials with the help of the Book Creator digital platform was aimed at MGMP science teachers in junior high schools in the PALI district, with 19 participants. The implementation was held on Tuesday, August 6, 2024, starting at 08.00 WIB until 12.00 WIB face-to-face in the classroom.

Conducting service-related activities uses the participatory action research (PAR) approach, which is a teaching strategy for solving issues, addressing the community's practical needs, advancing research, and promoting social change (Sari et al., 2023). The steps of this training are divided into three stages: the preparation stage, the implementation stage, and the evaluation stage.

Preparation Stage

At this stage, the research team conducted a needs analysis or pre-activity of the PALI junior high school science MGMP teachers to see the level of teacher skills in making science teaching materials assisted by the Book Creator digital platform, to see the level of teacher interest in utilizing technology in the form of the Book Creator digital platform and to find out whether it is necessary to conduct training in making science teaching materials assisted by the Book Creator digital platform for PALI junior high school science MGMP teachers.

Then, the level of technology readiness was analyzed using the observation method, and interviews were conducted with the head of the PALI Regency Junior High School Science MGMP regarding making science teaching materials using the Book Creator digital platform. The selected training team is competent in making teaching materials, E-modules, Digital Handouts, and Teaching Media. Assisted by several master's or undergraduate students who have done previous training. It aims to practice in a guided manner so that teachers can easily ask and discuss if there are obstacles in the training process.

Implementation stage

While implementing the training, the expert team gave a lecture to learn the signs of making science teaching materials using the Book Creator digital platform. It is done so that the teacher does not panic and lose concentration if there are obstacles in making the product. Then, the teacher is allowed to discuss and ask questions about the signs and agreements that have been conveyed.

If the teacher is ready, the expert team will provide and explain the tutoring or how to make science teaching materials using the Book Creator digital platform. Master's and undergraduate students are near the teacher to assist, so the training runs smoothly. After that, the instructor can talk about and ask questions about tutorials or methods for creating science lesson plans with the help of the Book Creator digital platform. If there are no problems and the instructor is clear on what is happening, they can create or practice directly and privately.

Making science teaching materials assisted by the Book Creator digital platform begins with making ordinary module materials that will be converted into the Book Creator digital platform. Teachers can be creative in design, appearance, audio, video, and others. If the

product is finished, it will be evaluated by a team of experts.

Evaluation Stage

At this point, the educator is expected to gather and distribute the science instructional materials produced with assistance from the Book Creator digital platform. The teacher conveys what has been made and the obstacles in making it. Here, discussions, questions, and answers are carried out. After completing the product presentation, the expert team will assess and conclude. If the expert panel has determined the product is genuine, there is no need for changes or more training. After the training, there will be skilled professionals who make science materials with the help of the Book Creator digital platform. It will benefit teachers and students in achieving success in the learning process.

Based on the pre-test and post-test results and the trainees' satisfaction, the N-Gain value shows the level of success of the training in making science teaching materials using the Book Creator digital platform. Tables 1, Table 2, and Table 3 show the pre-test and post-test instruments, satisfaction levels, and N-Gain criteria.

Table 1. Pre-test and Post-test Instrument Grids (Patriot et al., 2023)

No.	Question
1.	What is the primary purpose of using e-book creators in learning?
2.	Does Book Creator support collaboration between multiple users in book creation? If yes, how does it work?
3.	Is there an option to print books created using Book Creator, or is only digital format available?
4.	What features are available to customize the look and design of books in Book Creator?
5.	How do I save and share books created in Book Creator?
6.	What are the main differences between Book Creator's free and paid versions?

Table 2. Categories of Trainee Satisfaction (Patriot et al., 2023)

Description	Scale
3,26-4.00	Strongly Agree
2,51-3,25	Agree
1,76-2.50	Disagree
1,00-1,75	Strongly Disagree

Tabel 3. Gain Criteria (Patriot et al., 2023)

Average Normalized Gain	Criteria
$(g) \geq 0{,}70$	High
$0{,}30 \leq (g) < 0{,}70$	Medium
$(g) < 0{,}30$	Low

Result and Discussion

Activity Implementation

The implementation of the training on making science teaching materials with the help of the Book Creator digital platform for teachers of MGMP IPA SMP PALI Regency, on August 6, 2024, began with giving a questionnaire to 19 training participants to determine the level of knowledge and skills of teachers on the use of technology, teaching materials, and book creators. The questionnaire was filled in for 15 minutes and included six questions. Then,

proceed with asking about the teachers' readiness for the training process and what needs to be prepared in the training process. The training began if all participants had completed the questionnaire and prepared the tools. The materials presented can be seen in Table 4.

Table 4. Training Materials for Making Science Teaching Materials Using the Book Creator Platform

No.	Training Materials
1.	Technology utilization
2.	Teaching material learning
3.	Auditory, Visual, and Kinesthetic Learning Styles
4.	Book Creator
5.	Creation of Science Teaching Materials with the help of the Digital Book Creator Platform

Experts provide information and guidance on using technology; the first section of the material describes how quickly technology is developing. Technology plays an essential role in the development of the times, in education and other fields. Teachers must be able to utilize technology in the learning process to improve and maximize student learning outcomes. Teachers who cannot use technology will be left behind, so these teachers will be considered unprofessional. In this situation, teachers must learn individually or through available training; in this case, Sriwijaya University is a place for ladies and gentlemen who want to develop their skills in utilizing technology.

The most recent autonomous curriculum also provides teachers with materials for creating accurate and well-designed teaching materials, currently known as differentiated teaching materials. Making teaching materials must adapt to the needs of students and be able to create interactive learning. Suitable teaching materials are teaching materials that contain materials and concepts that are clear, real, and easy to understand. It can be done by looking at the learning styles of students. Teachers must conduct an initial diagnosis to see students' learning styles and create teaching materials that suit their needs.

Learners' learning styles vary both in one school or one class. Learners' learning styles are divided into audio, visual, and kinesthetic. Learners with an audio learning style usually rely on hearing in the learning process; if the teacher uses teaching materials that contain audio only, these students will be far superior in the learning process and results. While learners who have a visual learning style will rely on real vision in the learning process, the teacher must be able to provide a natural form or be able to relate to daily events; for example, in science learning, the teacher refers daily life to the concepts of science material. Then, students with kinesthetic learning styles are usually more interactive in the learning process; students prefer to practice directly to understand the material of science concepts. Therefore, it is necessary to use teaching materials by utilizing technology that can meet each student's learning style to maximize learning outcomes.

Book creation is a solution to answer these questions. Experts provide examples and product descriptions through teaching materials assisted by book creators. In this case, PALI junior high school science MGMP teachers conducted training accompanied by experts and physics education master students. The teaching materials assisted by book creators greatly

interest PALI junior high school science MGMP teachers. They are also excited about the process of direct practice in creating teaching materials assisted by book creators by being accompanied directly and given step-by-step explanations of the manufacturing process. At this stage, the teacher's skills are seen; the teacher must be able to create an attractive design. A beautiful teaching material design will make students interested and enthusiastic in the learning process, which is a critical indicator of increasing students' interest or curiosity. The training process went smoothly for the design stage. However, while entering images, videos, and audio, the training participants were confused with the features of the book creator. At this stage, experts and physics education master students play an essential role in training assistance; experts and students explain in detail the features and steps in entering audio, video, and images until students understand and can do it. The training process for making teaching materials for IPA with the help of the book creator platform and the results of training in making IPA teaching materials with the help of the book creator platform can be seen in Figure 1 and Figure 2.

Figure 1. Training on Making Science Teaching Materials Using the Book Creator Platform

Figure 2. Product Results of Science Teaching Material Training Assisted by Book Creator Platform

Once the training was finished, teachers were asked to gather products in the form of science teaching materials made with assistance from the book creator platform, and all MGMP junior high school science teachers in the PALI district were proficient in creating science

teaching materials. It aims to see the feasibility of products that expert lecturers will validate and whether the product can be used in the learning process by the components that have been taught. At the end of the training activity, teachers were asked to fill out a posttest questionnaire to see the extent of the teacher's skill level in making science teaching materials using the book creator platform. Teachers are also asked to fill out a satisfaction questionnaire on the training that has been carried out.

Evaluation of Trainees' Skills

Trainees' skills were evaluated by filling out pre-test and post-test questionnaires. The pre-test and post-test results were used to determine participants' initial abilities before creating materials using the book creator platform and the participants' skills after conducting training science teaching materials using the book creator platform. The pre-test and post-test questionnaire consist of 6 questions, which can be seen in Figure 3, the average pre-test and post-test in Figure 4, and the N-Gain value in Table 5.

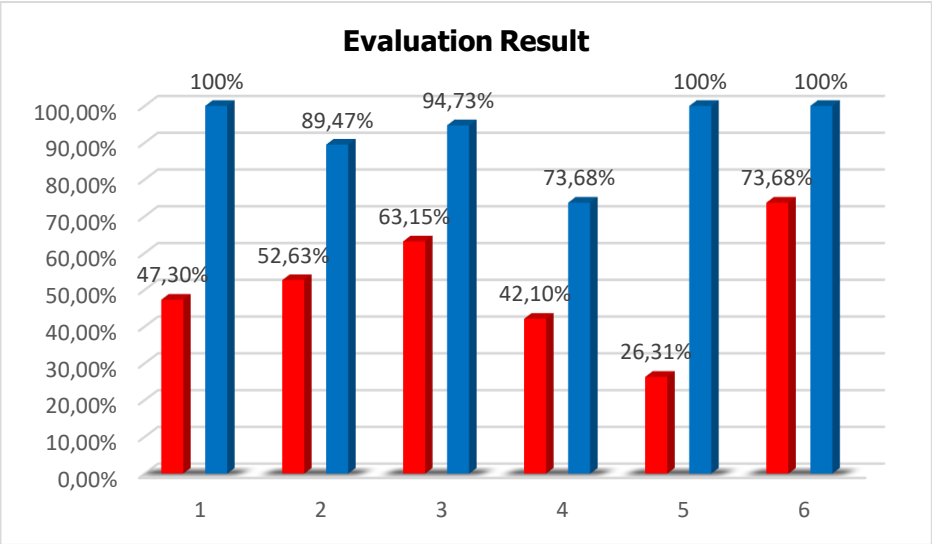

Figure 3. PreTest and PostTest Results on Each Indicator

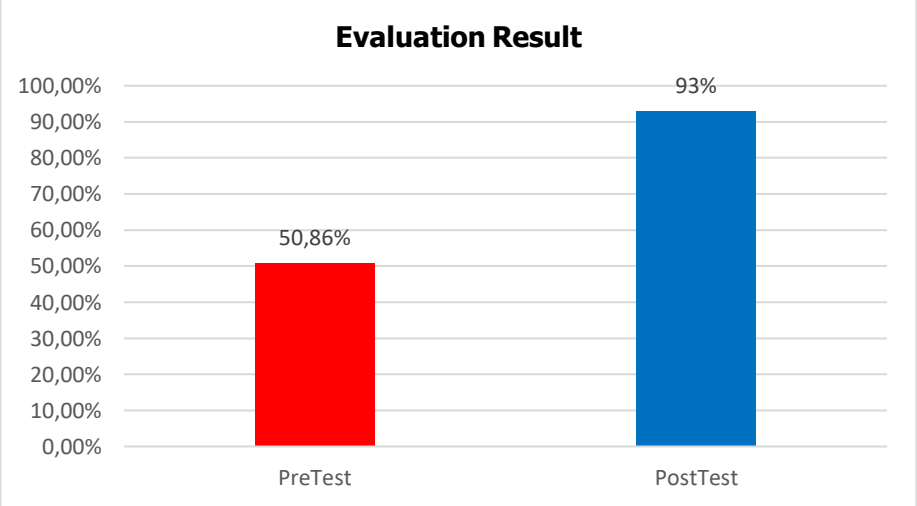

Figure 4. Average PreTest and PostTest Results

Table 5. N-Gain Value

	N	Minimum	Maximum	Mean	Std. Deviation
NGain	6	.55	1.00	.8638	.18034
Valid N (listwise)	6				

Figures three and four show that the red bar chart is the PreTest and the blue bar chart is the PostTest result. The bar chart illustrates how teacher proficiency in creating science lesson plans using the book creator platform has increased in each of the following six indicators: in the first indicator, what is the primary purpose of using e-book creators in learning, training participants showed an increase in understanding and skills as evidenced by the initial value of 47.30% rising to 100%, in the second indicator, namely whether the book creator supports collaboration between several users in making books? If so, how does it work? Training participants showed an increase in understanding and skills as evidenced by the initial value of 52.63%, rising to 89.47% in the third indicator, namely whether there is an option to print books that has been made using the book creator, or only digital formats are available, training participants showed an increase in understanding and skills as evidenced by the initial value of 63.15% up to 94.73%, in the fourth indicator, namely what features are available to customize the appearance and design of books in book creator, training participants showed an increase in understanding and skills as evidenced by the initial value of 42.10% up to 73.68%, in the fifth indicator, namely how to save and share books that have been created in book creator, training participants showed an increase in understanding and skills as evidenced by the initial value of 26.31% rising to 100%, and in the sixth indicator, namely what is the main difference between the free and paid versions of the book creator, training participants showed an increase in understanding and skills as evidenced by the initial value of 73.68% rising to 100%. At the same time, the average pre-test and post-test results increased from 50.86 to 93%. So, the training in making science teaching materials with the help of the book creator platform for MGMP science teachers in junior high school in PALI Regency was successful, as evidenced by the increase in skills in each pre-test and post-test indicator. The service activities carried out positively impact the skills of MGMP science teachers in junior high school in PALI Regency in making science teaching materials with the help of the book creator platform. The improvement of teachers' abilities and skills can be seen in their knowledge and skills in creating science teaching materials using the book creator platform. All participants completed the worksheet and collected it well, which showed that the MGMP IPA teachers of PALI Regency already had high knowledge and skills in making science teaching materials using the book creator platform, as evidenced by the N-Gain value of 0.86 in the high category. This is in line with previous research in technology utilization where E-modules have been made for MGMP Physics teachers (Patriot et al., 2023), E-book digital learning media development training using FlipbookPDF Professional for teachers (Mahardika et al., 2022), and high school teacher skill development training through making Flipbook as an independent learning resource (Ekaputra et al., 2024). The results obtained are the same: using technology through training by a team of experts for teachers can improve teachers' skills, abilities, and knowledge.

Participant Satisfaction Level

The training participants will be asked to fill out a questionnaire to see the level of satisfaction of the participants after attending the training on creating science teaching materials with the help of the book creator platform for 19 teachers of MGMP IPA SMP PALI Regency. Participants are asked to fill out a questionnaire loaded on a Google form using a Likert scale with four categories: strongly agree, agree, disagree, and strongly disagree. The instrument used to determine the participant satisfaction level and the participant satisfaction results can be seen in Table 6 and Figure 5.

Table 6. Training Participant Satisfaction Response Questionnaire Questions

No.	Question
1.	The material provided by the resource person is explicit and complete
2.	After attending the training, you are skilled in making teaching materials
3.	The content, design, and methods of the training are clear
4.	The resource person's presentation is practical and effective
5.	Training and instruction stimulated participants' interest 5.
6.	Time spent is effective and efficient
7.	The instructor always helps and explains the training process
8.	The platform used is interactive and by the needs

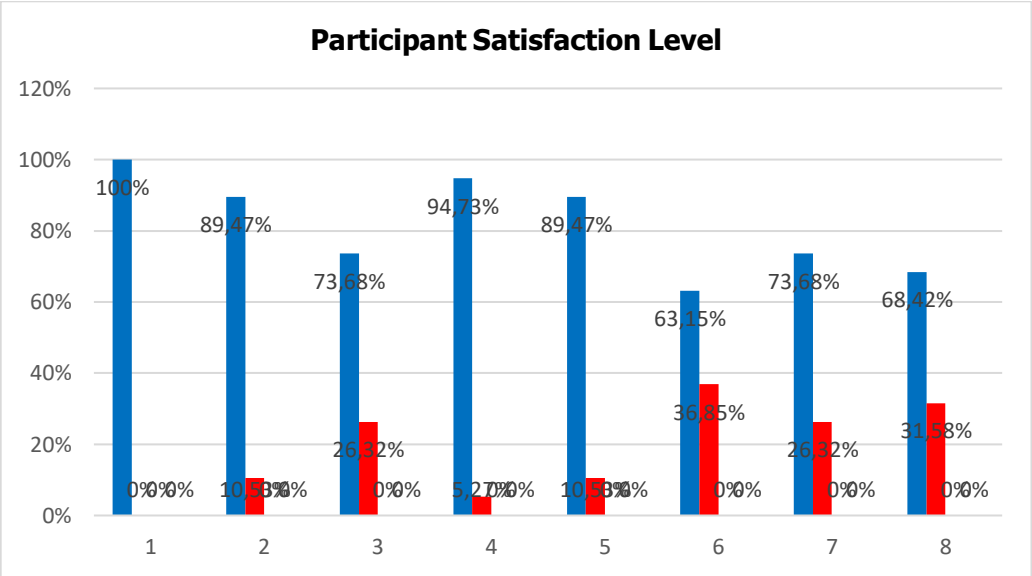

Figure 5. Response Level of Participant Satisfaction

According to the diagram in Figure 5, participants in the training on creating science teaching materials for MGMP science teachers of junior high school in PALI Regency using the book creator platform expressed satisfaction with eight different question types. 94.73% strongly agreed that the resource person's presentation was valuable and practical, 100% strongly agreed that the material provided by the resource person was explicit and complete, 89.47% strongly agreed that the participants were skilled in creating teaching materials after attending the training, 73.68% strongly agreed that the content, design, and training methods were explicit, and 100% strongly agreed that the training and instructions stimulated the

participants' interest. 68.42% strongly agreed that the platform was interactive and met the needs, 73.68% strongly agreed that the instructor provided constant assistance and explanations throughout the training process, and 63.15% strongly agreed that the time used was effective and efficient. The results of the satisfaction level of the training participants explained that the participants were delighted with participating in the training on making science teaching materials with the help of the book creator platform for MGMP science teachers of junior high schools in the PALI district.

Conclusion

In training on using technology in the form of making science teaching materials with the help of the book creator platform, the training participants, namely the teachers of MGMP IPA SMP PALI Regency, successfully utilized technology. It can be seen from the PreTest and PostTest results, where the PreTest value of 50.86% is the teacher's initial skill before training. After conducting training, the teacher's skills in utilizing technology have increased to 93%, as seen from the PostTest value after the teacher conducts training. The training on making science teaching materials using the book creator platform can also be practical, as seen from the N-Gain value of 0.86, which is a high category. The average score of the training participants' satisfaction level questionnaire, which was 81.57% with a very satisfied category, showed that the training participants were likewise thrilled with the instruction provided by the expert team. Training, mentoring, and service activities for teachers have positively impacted teacher skills. Training like this will create skilled and professional teachers in Indonesia. In the training process of making teaching materials with the help of book creators, almost everything went smoothly, but keep in mind that variations in the use of teaching materials in the learning process are needed to avoid boredom experienced by students. Therefore, the training team recommends conducting training activities on making teaching materials with different platforms so that there are variations in teaching materials in the learning process; this is an effort to avoid student boredom, improve teacher skills in making teaching materials using different technologies and create skilled and professional teachers in Indonesia.

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