Available online at: http://e-jurnal.lppmunsera.org/index.php/parahita
Wikrama Parahita: Jurnal Pengabdian Masyarakat
p-ISSN 2599-0020, e-ISSN 2599-0012

Socialization and Training on Learning Outcomes and Merdeka Belajar Digital Modules with the Context of Local Wisdom at SMAN 1 Mengwi

Ida Bagus Ari Arjaya*, Sang Putu Kaler Surata, Anak Agung Inten Paraniti, I Made Surya Hermawan
Department of Biology Education, Universitas Mahasaraswati Denpasar, Jl. Kamboja No.11, Denpasar City, Bali 80233, Indonesia

Article Information

Article history

Received: September 6, 2024
Revised: April 8, 2025
Accepted: May 16, 2025

Keywords: Community-Based Participatory Research; Learning Objectives; Learning Outcomes; Local Wisdom; Merdeka Belajar Digital Module

Abstract

Although SMAN 1 Mengwi is recognized as one of the top high schools in Badung Regency, challenges persist in the development of Learning Outcomes (CP), Learning Objectives (TP), Learning Objectives Flow (ATP), and the integration of the Merdeka Belajar Digital Module with local wisdom. A community service program addressed these gaps and enhanced teachers' knowledge and skills in these critical areas. 38 teachers from SMAN 1 Mengwi participated in this socialization and training initiative, which adopted a structured approach encompassing initial observation, program design, implementation, and evaluation, guided by the Community-Based Participatory Research (CBPR) method. The program revealed that while teachers possessed foundational knowledge of module structures and were aware of local wisdom within their subject areas, they encountered difficulties applying this understanding to preparing CP, TP, and ATP components. Pre-test and post-test assessments significantly improved teachers' comprehension and capability to prepare CP, TP, ATP, and integrate local wisdom into digital modules. Notably, teachers' understanding level regarding CP, TP, and ATP reached 87.41%, while the overall success rate of the socialization and training program participation achieved 100%. These outcomes underscore the program's effectiveness in significantly enhancing teacher competence, ultimately contributing to the advancement of educational practices at SMAN 1 Mengwi and reinforcing the integration of local genius within the framework of modern pedagogy.

*Corresponding Author

Ida Bagus Ari Arjaya
E-mail: ariarjaya@unmas.ac.id

INTRODUCTION

SMA Negeri 1 Mengwi is one of the leading high schools in Badung Regency. The school, located on I Gusti Ngurah Rai Street no 38, Mengwi District, Badung Regency, has many local, national, and international achievements. As of February 22, 2023, it is recorded that SMA Negeri 1 Mengwi has 75 teachers, 25 educators, and 1413 students (Pauddikdasmen, 2023). The facilities and infrastructure of SMA Negeri 1 Mengwi are also very adequate to support the teaching and learning process in schools, such as classrooms, library rooms, laboratory rooms, practice rooms, leadership rooms, and so on. In addition, SMA Negeri 1 Mengwi has also been accredited by the National Accreditation Board for Schools/Madrasah (BAN-S/M).

The highest achievement achieved by SMA Negeri 1 Mengwi is the *Gold Winner of the 5th International Young Inventors Awards 2018* held by Mercu Buana University. It shows that SMAN 1 Mengwi students already have an interest and motivation to excel; interest and learning are among the main factors for students to achieve academic achievement. Research from the past five years has shown a strong correlation between motivation and interest in learning and student academic achievement (Astuti & Zakaria, 2021; Kapitan, Gita *et al*., 2021; Kapitan, Kareri *et al*., 2021; Lutfiwati, 2020; Simbolon *et al*., 2020). Furthermore, the most influential type of motivation is achievement motivation. Achievement motivation is the desire to achieve optimal achievement (success) and avoid failure (Amseke *et al*., 2021; Aulia & Rusmawati, 2020).

The results of interviews with the principals of SMA Negeri 1 Mengwi showed that teachers at SMA Negeri 1 Mengwi had difficulties in compiling learning outcomes (CP), learning objectives (TP), and learning objectives flow (ATP). The principal said that teachers

DOI: https://dx.doi.org/10.30656/jpmwp.v9i1.9400

need help understanding the relationship between CP, TP, and ATP because the socialization materials provided by the education office are generally complex (consisting of many elements and requires a deep understanding) and challenging for teachers to understand. According to research Arjihan *et al*. (2022a), teachers cannot properly compile CP and ATP and design TP and need help developing teaching modules.

The next problem is the difficulty of preparing independent learning modules. Generally, teachers do not know how to structure a sound module, how to integrate *student-centered* activities in the module, and how to create the module digitally so that it is attractive and easily accessible to students (Huriyatunnisa, 2022; Wijayanti *et al*., 2016). The lack of training in schools related to making Merdeka Learning modules also affects the skills and knowledge of teachers to produce exciting and interactive modules. It is based on the findings of Suardana *et al*. (2018), which stated that managerial skills, such as making learning tools, are one of the most urgent things needed at SMAN 1 Mengwi.

The lack of teacher knowledge to find, collect and use relevant and up-to-date local wisdom learning resources in independent learning modules is also a priority scale that must be addressed immediately. The development of digital modules in the context of local wisdom is significant because of the lack of teacher participation in both the creation and implementation of the digital modules (Dewi & Suniasih, 2023; Mega, 2023; Oktaviani, 2022). The interview results also show that teachers have realized their limitations in finding up-to-date reference sources that are valid and relevant to their field of study. However, teachers must override their professional development due to administrative fulfilment constraints.

The characteristics of SMA Negeri 1 Mengwi students are generally digital natives who are very fluent in using the internet and smartphone applications. Meanwhile, the teachers at SMA Negeri 1 Mengwi are digital immigrants. 70% of teachers are senior teachers with limited digital literacy, especially in utilizing learning applications. Therefore, teachers at SMAN 1 Mengwi need to develop their abilities in designing digital modules that suit student characteristics. In addition, there is a tendency for teachers to use only learning resources derived from textbooks and teacher handbooks (Renggo & Rewa, 2022), in addition to using practice questions in the form of LKPD. Of course, this will affect students' understanding. Learning materials far from the context of the environment around students will be difficult for students to understand. Students will consider it unimportant because it is far from their daily lives. Based on the description of the situation analysis above, it can be concluded that "*Socialization and Training on Learning Outcomes and Merdeka Belajar Digital Modules with the Context of Local Wisdom at SMAN 1 Mengwi*" must be implemented immediately.

MATERIALS AND METHODS

Materials

The materials used in this community service are:

1) Independent Learning Digital Module
2) Best Practice Merdeka Belajar Module by the teacher
3) Android Application Merdeka Belajar to find relevant CP, TP and ATP
4) 11x4 meter community service banner
5) Epson Projector

Methods

This community service initiative at SMAN 1 Mengwi, Bali, sought to address critical challenges teachers face in implementing the Merdeka Belajar curriculum. Despite the school's strong academic reputation, educators struggled with designing structured learning outcomes (CP), objectives (TP), and learning flows (ATP), as well as integrating local wisdom into digital teaching modules. Recognizing the need for a collaborative approach, the program adapted Community-Based Participatory Research (CBPR) methods traditionally used in rural development to the educational context. The methodology prioritized teacher participation, ensuring solutions were grounded in real classroom needs. The stages of the CBPR are: Initial Observations, Program Development, Program Implementation, Program Output Preparation, and Program Evaluation.

Initial Observations

Initial observations were made to determine the situation and needs of the target school for program implementation. Observation is carried out using observation and interview techniques. Observations were carried out at SMA Negeri 1 Mengwi by observing each class's teaching and learning process. Furthermore, an interview was conducted with the principal of Wakasek Curriculum SMA Negeri 1 Mengwi. (1) Teachers at SMA Negeri 1 Mengwi need help in compiling learning outcomes, (CP) learning objectives (TP), and learning objectives flow (ATP). (2) Generally, teachers do not know how to structure modules well, how to integrate *student-centered* activities in modules, and how to create modules digitally to be attractive and accessible to students, (3) lack of teacher knowledge to find, collect and use various types of relevant and up-to-date learning resources for the creation of their learning modules, and (4) learning materials that are far from context. The environment around students will be difficult for students to understand.

DOI: https://dx.doi.org/10.30656/jpmwp.v9i1.9400

Table 1. Multiple choice pretest and post-test question

Number	Bloom's Aspects	Description
1	Remembering	Learning Achievement is...
2	Remembering	Learning Objectives are...
3	Understanding	Learning Objectives Flow is...
4	Remembering	The Role of Learning Modules is as...
5	Analyzing	Clear Learning Objectives in the Module Help to...
6	Understanding	In Formulating Learning Objectives, Behavioral Components Include...
7	Analyzing	The Benefits of Structuring Learning Objectives Flow are...
8	Understanding	Effective Learning Module Development Should Consider...
9	Applying	Learning Achievement Can Be Measured Through...
10	Analyzing	The Importance of Aligning Learning Achievements, Objectives, Learning Objectives Flow, and Learning Modules is...
11	Creating	In the Context of Formulating Learning Achievement, Provide a Concrete Example of Higher-Order Thinking Skills (HOTS).
12	Applying	In Developing Learning Modules Based on Bloom's Taxonomy, an Activity That Represents Analytical Skills is...
13	Analyzing	Provide an Example of a Learning Objective Targeting Evaluation Skills.
14	Analyzing	In the Learning Objectives Flow, why is it Important to Arrange Learning Objectives in a Structured Order?
15	Creating	Why is it Important to Integrate Various Learning Methods When Developing a Learning Module?

Table 2. Socialization and Training activities in community services

Activitives	Description	Dates	Outcome
Socialization	Conducted through seminars with topics such as "Socialization and Training on CP Preparation and Learning ATP" and "Socialization and Training for the Preparation of Digital Modules Independent Learning and insertion of Local Wisdom Material in Digital Modules."	May 16, 2023	Keynote speaker, PowerPoint, and news of community service activities
Training/ Workshop	Competency development activities were carried out for teachers, including hands-on training on CP, TP, ATP preparation, and the creation of digital modules. The Community-Based Participatory Research (CBPR) method and song-based edutainment were employed to enhance engagement and understanding.	May 17, 2023	teachers' understanding of the Merdeka curriculum module, community services video, Intellectual property rights (copyright), teacher module

Program Development

The Biology Education Study Program FKIP Unmas Denpasar community service team prepared the program based on observational findings. Furthermore, 15 multiple-choice pretest and posttest questions were prepared to determine teachers' understanding related to the preparation of CP, TP and ATP independent learning modules (Table 1).

Program Implementation

The implementation of the community services program of the Biology Education Study Program FKIP Unmas Denpasar is from March 2023 to July 2023. In its implementation, this program involves all lecturers of the Biology Education Study Program FKIP Unmas Denpasar, whose division is adjusted to the field of expertise of lecturers. Furthermore, in this Community Services program, 18 students were essential in assisting with various aspects of the activities, particularly in socialization, training, and documentation of service activities. This stage included socialization and training activities (Table 2).

After the training was completed, it continued with a discussion of questions and answers between community services participants and partners. Discussions are held so that partners can better understand the education provided. Through discussion, socialization is not just sharing knowledge but also can share experiences and problems that partners are facing.

Program Output Preparation

The preparation of outputs is carried out after the implementation of the program. The output prepared is adjusted to the predetermined program output plan.

DOI: https://dx.doi.org/10.30656/jpmwp.v9i1.9400

Evaluation Program

The community services committee evaluates program implementation. The evaluation aims to determine the implemented program's constraints, weaknesses, and advantages. The evaluation results will be a reference basis for the following community service implementation. In program evaluation, paired t-test techniques analyze teachers' understanding of CP, TP, ATP and Digital Module Preparation Training in local wisdom (Table 3).

Table 3. Evaluation of each activity in community services

Activitives	Outcome	Status
3a.Socialization	Keynote speaker, PowerPoint	Done
	News of community service activities	published
3b. Training/ Workshop	Teachers' understanding of the Merdeka curriculum module (evaluated through pretest and post-test)	Raised from 69,7% to 87.41%
	Community Services Video,	done
	Teacher module	done
	Intellectual property rights (copyright)	owned

RESULTS AND DISCUSSION

Results

The Community-Based Participatory Research (CBPR) program is implemented through 5 stages.. Each stage yielded specific outcomes that reflect the active involvement and collaboration of the community throughout the program.

Initial Observations

The initial observation was conducted on 3rd May 2023 in SMA Negeri 1 Mengwi. Despite its reputation for quality education, the school faces several critical challenges in adapting to the evolving demands of modern pedagogy, particularly within the framework of the Merdeka Belajar curriculum. These challenges are deeply rooted in the complexities of module development, integrating student-centered learning, digital literacy gaps, and incorporating local wisdom into teaching materials.

a. Structuring Modules Aligned with the Merdeka Belajar Curriculum
   Teachers at SMA Negeri 1 Mengwi encountered difficulties in designing well-structured teaching modules that align with the principles of the Merdeka Belajar curriculum. This curriculum emphasizes flexibility, creativity, and contextualized learning, requiring teachers to move beyond traditional lesson plans. However, many educators struggled to translate these ideals into coherent and effective modules, impacting the overall quality of instruction.
b. Integrating Student-Centered Activities
   A key component of modern education is fostering active learning through student-centered activities. Teachers have difficulty integrating these activities into their learning modules, even though these activities are essential for increasing student engagement and deepening their understanding. This limitation hindered the development of critical thinking, collabo-ration, and problem-solving skills among students, all vital for success in the 21st century. In making the module, teachers are trained to integrate AI and technology to improve students' inquiry process.
c. Creating Digitally Accessible Materials
   In today's digital age, where most students are "digital natives," the ability to create engaging and accessible digital learning materials is crucial. Unfortunately, many SMA Negeri 1 Mengwi teachers lacked the necessary digital literacy skills to design interactive and user-friendly digital modules. This gap became even more pronounced during the pandemic, as the shift to online and blended learning highlighted the urgent need for educators to adapt to digital platforms.
d. Limited Knowledge of Local Wisdom Resources
   Integrating local wisdom into teaching materials is essential for contextualizing education and fostering cultural awareness among students. However, teachers faced challenges identifying, collecting, and scientifically explaining relevant local wisdom resources. While they were aware of local traditions and practices, they struggled to connect these elements meaningfully to their subject areas, limiting their ability to enrich the curriculum with culturally relevant content.

Program Development (Tailored Approach)

Based on the initial observations, the Community Services team from the Biology Education Study Program at Universitas Mahasaraswati Denpasar designed a program specifically to address these challenges. The focus areas included:

a. CP (Learning Outcomes): Helping teachers understand how to define clear and measurable learning outcomes.
b. TP (Learning Objectives): Assisting teachers in breaking down broader learning outcomes into specific objectives.
c. ATP (Learning Objectives Flow): Guiding teachers on how to sequence learning objectives logically.
d. Digital Module Preparation: Training teachers on designing and implementing digital modules that

DOI: https://dx.doi.org/10.30656/jpmwp.v9i1.9400

incorporate local wisdom and are accessible to students.

This stage ensured the program was directly aligned with the needs identified during the initial observations.

Program Implementation

a. Socialization Activities

The implementation of the socialization of this program was carried out on 16 May 2023. During the socialization phase, teachers actively engaged in discussions about key issues such as:

1) Module Structure: How to organize modules effectively to meet the requirements of the Merdeka Belajar curriculum.
2) Platform Selection: Which digital platforms would best support creating and delivering digital modules.
3) Local Wisdom Integration: How to incorporate local wisdom into teaching materials in a way that is scientifically relevant and meaningful for students.

b. Training Activities

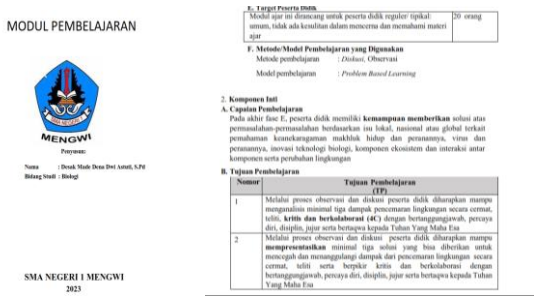
The implementation of the socialization of this program was carried out on 17 May 2023. The training sessions focused on practical aspects of module preparation, including CP, TP, ATP, and digital module design. Two innovative methods were used to enhance teacher engagement and comprehension:

1) Song-Based Edutainment: Songs were used as mnemonic tools to help teachers remember key concepts related to CP, TP, ATP, and digital module preparation. This method proved effective in keeping teachers focused and relaxed during the training.
2) Community-Based Participatory Research (CBPR): This participatory method involved teachers directly in designing CP, TP, and ATP within digital modules. It helped them better understand the material by applying it in real-time, a form of scaffolding, a teaching technique that supports learners as they build new skills.

Combining these methods significantly improved teacher participation and understanding during the training.

Program Output Preparation

A total of 38 SMA Negeri 1 Mengwi teachers were involved in this socialization and training program. The main output of this community service program is the draft independent learning module and increased teacher understanding related to CP, TP, and ATP. Teachers successfully created digital modules incorporating local wisdom, making the content more relevant and engaging for students. Teachers demonstrated enhanced skills in preparing CP, TP, ATP, and designing digital modules. This improvement was evident in their ability to effectively integrate local wisdom into their teaching materials. The main focus of this module is the alignment between the design of CP, TP, and ATP. For example, the module work of one of the teachers of SMAN 1 Mengwi can be seen in Fig. 1.


MODUL PEMBELAJARAN

MENGWI

SMA NEGERI 1 MENGWI
2023

Fig. 1. Example of one of the module works of SMAN Negeri 1 Mengwi

To assess the quality of the teacher module, a simple rubric is used that consists of aspects of completeness of structure, alignment of CP, TP, and ATP, as well as completeness of CP, TP, and ATP aspects. Other aspects of the module can be developed in the next service program. The structure and alignment between each component of CP, TP and ATP made by teachers in the module are quite good.

However, in terms of the completeness of the components of learning objectives, including aspects of Audience, Behavior, Condition, and Degree, it still needs to be improved. *"It is difficult to describe the learning objectives precisely, because we are not used to making learning objectives with ABCD principles." Interview result with Mrs. Sariasih (physics teacher).*

Based on the results of the analysis of the teacher module, it can be concluded that teachers still have weaknesses in using aspects of learning objectives correctly and adequately. On the other hand, multiple-choice pretest and posttest questions were used to assess teachers' understanding of the module components.

Evaluation Program

A total of 15 multiple-choice questions were used to measure teachers' understanding of the concepts of CP, TP, and ATP. Thus, the type of data obtained is nominal data. Using Bloom's Taxonomy cognitive aspects in the instrument helps teachers organize learning objectives, activities, and evaluation of learning outcomes in a more structured manner (Ravichandran & Virgin, 2024). Descriptive statistics and paired t-tests with SPSS 24 for Windows software were conducted to measure the program's effectiveness to compare teachers' understanding of

DOI: https://dx.doi.org/10.30656/jpmwp.v9i1.9400

the training before (pre-test) and after (post-test). The results are shown in Table 4 and Table 5.

Table 4. The results of teachers' material understanding of the independent learning module based on Bloom's Taxonomy criteria

No.	Bloom's Aspects	Mean ($\bar{X}$)		SD (S)		Total Mean ($\sum \bar{X}$)
		pre	post	pre	post	
1,2,4	Remembering	87.2	95,2	2.38	1.73	Mean Pre= 69.79
3,8	Understanding	82.4	90,4	2.64	1.99	
9.12	Applying	80.7	88,7	2.99	2.35	
7,14	Analyzing	77.3	85.3	3.72	2.74	Mean Post = 87.41
5,10,13	Evaluating	74.6	82.6	4.08	3.10	
11,15	Creating	74.6	80.1	4.15	3.36	

Table 5. Results of descriptive analysis of understanding of SMAN 1 Mengwi Teachers

Paired Samples Test

		Paired Differences					t	df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference Lower	Upper			
Pair 1	pretest - posttest	78.60	2.93420	.475	-5.306	-3.377	-91.22	37	.000

Moreover, there is a difference in average concept understanding between pre-test ($\bar{X}$=69.7) and post-test ($\bar{X}$=87.41). In other words, the level of understanding among SMA Negeri 1 Mengwi regarding CP, TP, and ATP Modul has reached 87.41%.

The results of the paired t-test analysis showed that p = 0.000< a = 0.05, so Ho was rejected, and H1 was accepted. Thus, it can be concluded that there are differences in teachers' understanding before and after the Training on the Preparation of CP, TP, ATP and the preparation of Digital Modules with the context of local wisdom. Moreover, the overall success rate of the socialization and training program has reached 100%. This is evident from the consistent participation of every teacher in the two programs.

Discussion

Socialization of CP, TP, ATP, and Digital Modules for Independent Learning and Insertion of Local Wisdom in Digital Modules

Community Services socialization activities were carried out by the Biology Education Study Program Service Team on May 16, 2023. Socialization at SMAN Negeri 1 Mengwi is carried out in two ways: socialization with the principal and his staff, and program socialization with all teachers in the field of study. Socialization to school principals aims to equalize perceptions about the structure of the Merdeka Belajar module which is good and correct. In addition, the socialization also revealed how the skills, initial knowledge, and readiness of teachers for the training program to be implemented (Siagian *et al.*, 2022; Syarifuddin *et al.*, 2021). This is based on the initiative of the principal and his staff, who want to deepen how to prepare Learning Outcomes and Free Learning Modules first to design strategic policies in schools for teachers. In particular, this is intended for Wakasek in the Field of Curriculum, who continuously monitors how inputs, processes, and learning products are used in schools. The documentation of socialization can be shown in Fig. 2.

Fig. 2. Dissemination of CP, TP, and ATP preparation programs and digital modules within the context of local wisdom

Furthermore, the participation of teachers of the Training Program for the Preparation of CP, TP, ATP, and Digital Modules, as well as the insertion of Local Wisdom, was very active in asking and answering questions given by the speakers. Qualitatively in terms of understanding the module's structure, teachers do not have a strong understanding of the ideal structure of the learning module. DN, one of the Biology teachers of SMAN 1 Mengwi, stated, *"I am confused with the structure of the existing Merdeka Learning module because it tends to vary in each best practice school I meet*." WD's opinion reinforces this: "*I still do not understand well whether one teaching module is used for the implementation of one learning objective or can several learning objectives?*". From the expressions of the two teachers, it can be concluded that teachers already know how to structure the independent learning curriculum module. The independent learning module consists of general information, core components, and appendices (Maulinda, 2022; Mulyani & Insani, 2023).

In the Merdeka curriculum, teaching modules are a substitute device for structured lesson plans, varied in terms of material, learning methods, and evaluation techniques, to achieve predetermined learning objectives or indicators (Maulinda, 2022). The module's purpose is to simplify teaching tools and reduce the burden on teachers in presenting content so that teachers play more of a role as learning facilitators. But in reality, SMAN 1 Mengwi is counterproductive. Teachers often forget the

DOI: https://dx.doi.org/10.30656/jpmwp.v9i1.9400

evaluation aspect, especially the assessment, a module component (Calamlam, 2021; Radville *et al*., 2022). It was reinforced by a discussion with a teacher of SMAN 1 Mengwi, LD revealed, "We had difficulty *compiling authentic assessments in the module because our knowledge was limited."*

From understanding CP, TP, and ATP, the main focus that needs further training is translating CP into ATP. DK revealed, *"I had difficulty lowering CP to ATP because I didn't know how ideal the learning objectives were*." The low ability to design learning objectives will affect the quality of learning (Syauqy, 2021). Generally, teachers include content too broadly in the conversion of CP, TP, to ATP (Arjihan *et al*., 2022b; Arjihan *et al*., 2022; Harfiani *et al*., 2023; Windayanti *et al*., 2023). Moreover, teachers must be more creative in integrating this into learning modules. In many cases, it is found that the role of schools is dominant in strengthening only Profil Pelajar Pancasila (Jannah *et al*., 2022).

From the aspect of understanding local wisdom, teachers of SMAN 1 Mengwi generally already have sufficient initial knowledge related to the context of local wisdom in everyday life, but need help in providing scientific explanations. PN revealed, *"It turns out that I only know the term local wisdom, sir, without finding out more about its meaning*". It shows that teachers need more motivation to find local wisdom material related to their field of study. The inclusion of local wisdom material in the module is essential for the development of student character and concern for their own culture, so that students are more "sensitive" to the plurality of local cultures and support meaningful learning. (Ghufronudin *et al*., 2018; Rahmatih *et al*., 2020; Sunaryo *et al*., 2017; Wafiqni & Nurani, 2019). Therefore, teachers need to master and implement this in their daily teaching with students.

Training on CP, TP, ATP, and Digital Module Merdeka Belajar, along with the insertion of Local Wisdom

The paired t-test analysis results show differences in teachers' understanding between before (pre-test) and after (post-test) Training on the Preparation of CP, TP, ATP and the preparation of Digital Modules with the context of local wisdom. This can be seen from the difference in the average pre-test score *of the teacher = 69,79, and the post-test* $\bar{X}$ *Score = 87.41.* $\bar{X}$ The increase in teachers' understanding during the training was due to several *treatments* carried out by the resource persons. The treatment in question uses singing methods and community-based participatory research (CBPR) methods in program implementation.

Using the song method when providing material explanations has proven effective in increasing teachers' understanding of CP, TP, ATP, and the Digital Merdeka Belajar Module (Fig. 3). The song method is an *edutainment* method that can provide relaxation to each teacher to stay focused in the training program (Ma'ruf *et al*., 2023; Rokhmawanto & Fatimah, 2020; Wardani *et al*., 2018). Previous meta-analysis research revealed that song creation in the transfer and transformation of knowledge could encourage *self-confidence* in teachers, in this case, resource persons (Murphy Odo, 2022). Furthermore, this method is the easiest because it does not require special media such as the *internet, software, hardware,* or other physical devices (In Khumairo *et al*., 2022). Research Crowther *et al*. (2020) proves that songs are mnemonic *tools that* help students to learn to remember, and the tendency of students to use songs with a duration of 17-54 seconds (jingles) to remember something.

Figure 3. Lecturer facilitation of resource persons in CP, TP, ATP, and digital merdeka learning modules and the insertion of local wisdom

CBPR is a collaborative research approach that emphasizes equal partnership between researchers and community members throughout the research process. The methodology is designed to address the criticisms of traditional research methods, which often left participants feeling exploited without getting any tangible benefits from their involvement (Robinson *et al*., 2013). Moreover, CBPR is an effective tool for community empowerment and long-term training capacity building, both for current participants and future generations of researchers (Yigletu *et al*., 2021). CBPR also allows for a deeper understanding of the community context, which is essential for developing relevant and effective educational interventions (Keller et al., 2021). Subsequently, building equitable partnerships requires trust, power sharing, and co-learning, all of which are emphasized by CBPR (Coombe et al., 2023). Although initially the CBPR method was used to increase the contribution of rural communities to formulate and plan policies, it turned out to be effective in increasing the understanding of CP, TP, ATP, and the Digital Module for Free Learning of teachers.

CP: ""At the end of phase E, students have the ability to provide solutions to problems based on local,

DOI: https://dx.doi.org/10.30656/jpmwp.v9i1.9400

national or global issues related to understanding the diversity of living things and their roles, viruses and their roles, biological technology innovations, ecosystem components and interactions between components and environmental changes".
TP: "Learners are able to describe the biodiversity of Indonesia in their respective places of residence through observation activities in the neighborhood, by correctly identifying at least 5 examples of biodiversity in a written report. "
ATP: "TP1. Description of biodiversity → TP2. Environmental observation and reporting → TP3. Presentation of Investigation Results → TP4. Extinction →TP5. Solutions" (Eka, Biology Teacher Module).

The participation of resource persons and the community services team directly in facilitating teachers to directly design CP, TP, and ATP in digital modules is one form of *scaffolding* in training. *Scaffolding* can facilitate student learning to strengthen students' understanding of a concept, overcome misconceptions, and increase the spirit of Shiva inquiry. In this context, the students in question are teachers of SMAN 1 Mengwi.

The socialization and training program successfully addressed key challenges faced by teachers at SMA Negeri 1 Mengwi. Teachers gained a deeper understanding of CP, TP, ATP, and digital module preparation, particularly in integrating local wisdom into teaching materials. The interactive methods enhanced teacher engagement and comprehension, including the song-based edutainment and CBPR approaches.

However, some limitations were observed during the program:

a. A significant number of teachers struggled with digital literacy, particularly in using digital module platforms.
b. Limited time for training may have restricted the depth of practical application.
c. Follow-up sessions are needed to ensure sustained improvement in individual module development.

These findings highlight the importance of ongoing support and professional development for teachers to bridge digital literacy and pedagogical skills gaps. The findings and reflections in implementing the program are needed for follow-ups for teachers to compile independent digital modules individually. This is based on the findings of the service team when implementing the program, namely the number of teachers who need to be more fluent in using the *digital module* platform.

CONCLUSION

The level of understanding among SMA Negeri 1 Mengwi regarding CP, TP, and ATP Modul has reached 87.41%. Moreover, the overall success rate of the socialization and training program participation has reached 100%. The community service program at SMA Negeri 1 Mengwi was a meaningful step toward addressing some of the key challenges teachers face in preparing Learning Outcomes (CP), Learning Objectives (TP), Learning Objectives Flow (ATP), and digital modules that incorporate local wisdom. The program was conducted in two stages: first, with the school principal and administrative staff, and second, with all subject teachers. Through this initiative, we found that while teachers already had a basic understanding of module structure and were aware of local wisdom in their respective fields, they struggled to translate this knowledge into practical tools like CP, TP, ATP, and digital modules. They also needed help understanding the scientific relevance of local wisdom and how to integrate it meaningfully into their teaching materials.

One of the most encouraging outcomes of the program was the significant improvement in teachers' understanding before and after the training. This was evident from the paired t-test results, which showed a marked increase in post-test scores compared to pre-test scores. Teachers' comprehension improved because of the interactive methods used during the training, such as the song-based edutainment approach and the Community-Based Participatory Research (CBPR) method. These techniques made the sessions engaging and helped teachers retain complex concepts more effectively. However, the program also revealed some areas that need further attention. For instance, many teachers, especially senior educators, still struggle with digital literacy. This limited their ability to utilize digital platforms for creating and delivering modules fully. Additionally, time constraints during the training meant some teachers may not have had enough opportunity to dive deeply into practical applications. Moving forward, we recommend extending the duration of training sessions, offering follow-up workshops, and providing continuous mentoring to help teachers refine their skills and address these gaps.

Incorporating local wisdom into digital modules remains a challenge, but it's also an opportunity. Teachers now recognize the importance of integrating cultural context into their lessons to make learning more relevant and engaging for students. They can take this understanding to the next level with additional support and resources and create materials that resonate with students' daily lives. Overall, this program successfully enhanced teacher competence and fostered meaningful, culturally relevant education. However, there's still work to be done. By addressing the limitations identified in this initiative, future programs can build on these achievements and ensure that teachers are even better equipped to inspire and educate the next generation of learners.

ACKNOWLEDGEMENTS

We sincerely thank the Institute for Research and Community Service (LPPM) of Universitas Mahasaraswati Denpasar for their financial support and facilitation of this community service program.

REFERENCES

Amseke, F., Daik, M., Sosial, D. L.-J. M. I., & 2021, undefined. (2021). Dukungan sosial orang tua, konsep diri dan motivasi berprestasi mahasiswa di masa pandemi covid 19. *Jurnal Muara Ilmu Sosial, Humaniora, dan Seni*, *5*(1), 241–250. https://doi.org/10.24912/jmishumsen.v5i1.9957

Arjihan, C., Putri, D., Rindayati, E., & Damariswara, R. (2022a). Kesulitan Calon Pendidik dalam Mengembangkan Perangkat Pembelajaran pada Kurikulum Merdeka. *PTK: Jurnal Tindakan Kelas*, *3*(1), 18–27. https://doi.org/10.53624/PTK.V3I1.104

Arjihan, C., Putri, D., Rindayati, E., & Damariswara, R. (2022b). Kesulitan Calon Pendidik dalam Mengembangkan Perangkat Pembelajaran pada Kurikulum Merdeka. *PTK: Jurnal Tindakan Kelas*, *3*(1), 18–27. https://doi.org/10.53624/PTK.V3I1.104

Arjihan, C., Putri, D., Rindayati, E., Damariswara, R., Putri, C. A. D., & Damariswara, R. (2022). Kesulitan Calon Pendidik dalam Mengembangkan Perangkat Pembelajaran pada Kurikulum Merdeka. *PTK: Jurnal Tindakan Kelas*, *3*(1), 18–27. https://doi.org/10.53624/ptk.v3i1.104

Astuti, E. R., & Zakaria, R. (2021). Hubungan Motivasi Belajar Dengan Prestasi Akademik. *Journal Health & Science : Gorontalo Journal Health and Science Community*, *5*(1), 222–228. https://doi.org/10.35971/gojhes.v5i1.10276

Aulia, M. A., & Rusmawati, D. (2020). Hubungan Antara Konflik Peran Ganda Dengan Motivasi Berprestasi Pada Mahasiswi Yang Sudah Berkeluarga Di Jombang. *Jurnal EMPATI*, *9*(1), 9–14. https://doi.org/10.14710/empati.2020.26913

Calamlam, J. M. M. (2021). The Development of 21st-Century e-Learning Module Assessment Tool. *Journal of Educational Technology Systems*, *49*(3), 289–309. https://doi.org/10.1177/0047239520953792

Coombe, C. M., Simbeni, S., Neal, A., Allen, A. J., Gray, C., Guzman, J. R., Lichtenstein, R. L., Marsh, E. E., Piechowski, P., Reyes, A. G., Rowe, Z., Weinert, J., & Israel, B. A. (2023). Building the foundation for equitable and inclusive research: Seed grant programs to facilitate development of diverse CBPR community-academic research partnerships. *Journal of Clinical and Translational Science*, *7*(1). https://doi.org/10.1017/cts.2022.495

Crowther, G. J., Wessels, J., Lesser, L. M., & Breckler, J. L. (2020). Is memorization the name of the game? Undergraduates' perceptions of the usefulness of physiology songs. *Advances in Physiology Education*, *44*(1), 104–112. https://doi.org/10.1152/ADVAN.00112.2019

Dewi, N. K. A. M. A., & Suniasih, N. W. (2023). E-Modul Ajar Kurikulum Merdeka Belajar Berbasis Kearifan Lokal Bali Pada Mata Pelajaran IPAS Kelas IV. *Mimbar PGSD Undiksha*, *11*(1), 91–99. https://doi.org/10.23887/jjpgsd.v11i1.58348

Ghufronudin, G., Zuber, A., & Demartoto, A. (2018). Representasi Pendidikan Karakter Berbasis Kearifan Lokal Melalui Pembelajaran Membatik. *Jurnal Analisa Sosiologi*, *6*(2). https://doi.org/10.20961/jas.v6i2.18020

Harfiani, D., Dasar, A. D.-J. I. S., & 2023, undefined. (2023). Mapping Science Learning in The 2013 Curriculum and Merdeka Belajar Curriculum. *Ejournal.Undiksha.Ac.Id*, *7*(2), 384–395. https://doi.org/10.23887/jisd.v7i2.58291

Huriyatunnisa, A. (2022). Penerapan Adaptasi Teknologi Bagi Guru Sekolah Dasar dalam Menunjang Pembelajaran Dalam Jaringan (Daring) di Masa Pandemi. *Jurnal Basicedu*, *6*(2), 3163–3173. https://doi.org/10.31004/basicedu.v6i2.2548

In Khumairo, K., Inayati, D., Asrining Tyas, P., & Brawijaya, U. (2022). Pre-Service and In-Service Teachers' Perceptions on the Use of English Children's Songs. *Acuity: Journal of English Language Pedagogy, Literature and Culture*, *7*(2), 236–247. https://doi.org/10.35974/acuity.v7i2.2720

Jannah, F., Irtifa, T., & Fatimattus Az Zahra, P. (2022). Problematika penerapan kurikulum Merdeka Belajar 2022. *Al YAZIDIY: Ilmu Sosial, Humaniora, Dan Pendidikan*, *4*(2), 55–65. https://ejurnalqarnain.stisnq.ac.id/index.php/AY/article/view/36

Kapitan, I. K., Gita, D., Kareri, R., Lidesna, A., & Amat, S. (2021). Pengaruh motivasi belajar terhadap prestasi akademik mahasiswa. *Journal.Uny.Ac.Id*, *21*(1). https://journal.uny.ac.id/index.php/epistema/article/view/34996

Kapitan, I. K., Kareri, D. G. R., & Amat, A. L. S. (2021). Hubungan Motivasi Belajar Dengan Prestasi Akademik Mahasiswa Fakultas Kedokteran Di Nusa Tenggara Timur. *Cendana Medical Journal (CMJ)*, 9(1), 64–71. https://doi.org/10.35508/cmj.v9i1.4937

Keller, J. D. G., Miller, C., Lasdulce, C., & Wohrle, R. G. (2021). Using a Community-Based Participatory Research Model to Encourage Parental Involvement in Their Children's Schools. *Children and Schools*, *43*(3), 149–158. https://doi.org/10.1093/cs/cdab015

Lutfiwati, S. (2020). Motivasi belajar dan prestasi akademik. *JAI-Idrah: Jurnal Kependidikan Islam*, *10*(1), 54–63. https://doi.org/10.24042/alidarah.v10i1.5642

Ma'ruf, A., Nur Hadi, M., & Syaifullah. (2023). Metode Edutainment sebagai Upaya dalam Meningkatkan Pemahaman Siswa Pembelajaran PAI di SMP Sunan Kalijogo Jabung Malang. *Jurnal Mu'allim*, *5*, 99–10. https://doi.org/10.35891/muallim.v5i1.3592

Maulinda, U. (2022). Pengembangan Modul Ajar Berbasis Kurikulum Merdeka. *Tarbawi*, *5*(2), 130–138. https://doi.org/10.51476/TARBAWI.V5I2.392

Mega. (2023). *Pengembangan e-modul berbasis flipbook maker dalam pembelajaran kearifan lokal di smp lkia pontianak* [IKIP PGRI Pontianak]. http://digilib.ikippgriptk.ac.id/id/eprint/1734/

Mulyani, H., & Insani, M. N. (2023). Kompetensi Guru Sekolah Penggerak Dalam Menyusun Modul Ajar Kurikulum Merdeka. *Jurnal Lingkar Mutu Pendidikan*, *20*(1), 1–10. https://doi.org/10.54124/jlmp.v20i1.95

Murphy Odo, D. (2022). Examining the influence of English songs on English L2 lexical learning: a quantitative meta-analytic review. *Language, Culture and Curriculum*, *35*(4), 386–403. https://doi.org/10.1080/07908318.2021.2022684

Oktaviani, I. (2022). *Pengembangan E-Modul (Electronic Module) Pembuatan Handsanitizer Berbasis Kearifan Lokal Pada Materi Koloid Kelas Xi SMA/MA*. https://digilib.uin-suka.ac.id/id/eprint/58759/

Pauddikdasmen. (2023). *Data Pokok SMAN 1 MENGWI - Pauddikdasmen*. Data Pokok Pendidikan Direktorat Jenderal Pendidikan Anak Usia Dini, Pendidikan Dasar Dan Pendidikan Menengah Kementerian Pendidikan, Kebudayaan, Riset Dan Teknologi. https://dapo.kemdikbud.go.id/sekolah/B45D6850D1FA162FEF6C

Radville, K. M., Larrivee, E. C., Baron, L. S., Kelley-Nazzaro, P., & Christodoulou, J. A. (2022). Online Training Modules for Teaching Assessment Skills to Graduate Student Clinicians. *Language, Speech, and Hearing Services in Schools*, *53*(2), 417–430. https://doi.org/10.1044/2021_LSHSS-21-00068

Rahmatih, A. N., Maulyda, M. A., & Syazali, M. (2020). Refleksi Nilai Kearifan Lokal (Local Wisdom) dalam Pembelajaran Sains Sekolah Dasar: Literature Review. *Jurnal Pijar Mipa*, *15*(2), 151–156. https://doi.org/10.29303/jpm.v15i2.1663

Ravichandran, K., & Virgin B, A. (2024). Bloom's Taxonomy Categories in the Economy of Literature Teaching-Learning Process. *International Research Journal of Multidisciplinary Scope*, *05*(03), 721–727. https://doi.org/10.47857/irjms.2024.v05i03.0827

Renggo, Y. R., & Rewa, K. A. (2022). Pelatihan Dan Penyedian Modul Microsoft Office Secara Online Untuk Peningkatan Kualitas Guru SDK Wolihi Di Masa Pandemic Covid 19. *Jurnal Panrita Abdi*, *6*(1), 42–50. https://doi.org/10.20956/pa.v6i1.12795

Robinson, D., Olson, M. M., Bischoff, R., Springer, P., & Geske, J. (2013). Community-Based Participatory Research: Where Family Therapists Can Make a Difference. *Advanced Methods in Family Therapy Research: A Focus on Validity and Change*, 282–297. https://doi.org/10.4324/9780203084526-27

Rokhmawanto, S., & Fatimah, S. (2020). Manajemen Pendidikan Edutainment di TPA Al Hikmah Kewangunan Petanahan. *An-Nidzam : Jurnal Manajemen Pendidikan Dan Studi Islam*, *7*(2), 16–28. https://doi.org/10.33507/an-nidzam.v7i1.343

Siagian, B. A., Situmorang, S. N., Siburian, R., Sihombing, A., Harefa, R. Y. R., Ramadhani, S., & Sitorus, A. (2022). Sosialisasi Pembelajaran Berdiferensiasi dalam Program Merdeka Belajar di SMP Gajah Mada Medan. *Indonesia Berdaya*, *3*(2), 339–344. https://doi.org/10.47679/ib.2022227

Simbolon, P., Stevan Mendrova, D., & Zega, A. I. (2020). Hubungan Motivasi Belajar dengan Prestasi Belajar Mahasiswa di STIKes St. Elisabeth Medan. *Jurnal Masohi*, *1*(1), 1. https://doi.org/10.36339/jmas.v1i1.289

Suardana, I. P., Yudana, M., & Gede Agung, A. A. (2018). Kontribusi Gaya Kepemimpinan, Kompetensi Profesional, dan Kompetensi Manajerial Kepala Sekolah Terhadap Motivasi Kerja Guru (Studi Tentang Persepsi Guru SMAN 1 Mengwi). *Jurnal Administrasi Pendidikan Indonesia*, *9*(1), 55–66. https://doi.org/10.23887/japi.v9i1.2736

Sunaryo, H., Zuriah, N., & Kusniarti, T. (2017). Model Adaptasi Nilai Kearifan Lokal dalam Pembelajaran Sastra Berkarakter. *Sosiohumanika*, *10*(1), 107–116. https://www.journals.mindamas.com/index.php/sosiohumanika/article/view/867

Syarifuddin, S., Nugroho, P. B., Fadhli, M., Murtalib, M., Mutmainah, M., Muchlis, M., Mikrayanti, M., Wirahmad, I., Sartika, D., Andang, A., Mulyadin, E., & Hadi, A. M. (2021). Sosialisasi Aplikasi Pembelajaran Jarak Jauh dan Pengembangan Bahan Ajar bagi Dosen, Guru, dan Mahasiswa di Era Pandemi Covid-19. *Bima Abdi: Jurnal Pengabdian Masyarakat*, *1*(1), 30–36. https://doi.org/10.53299/bajpm.v1i1.37

Syauqy, K. N. (2021). *Pengaruh Kemampuan Merancang Pembelajaran Terhadap Kualitas Pembelajaran di MTs dan MA Khazanah Kebajikan* [UIN Jakarta]. https://repository.uinjkt.ac.id/dspace/handle/123456789/61260

Wafiqni, N., & Nurani, S. (2019). Model Pembelajaran Tematik Berbasis Kearifan Lokal. *Al-Bidayah: Jurnal Pendidikan Dasar Islam*, *10*(2), 255–270. https://doi.org/10.14421/al-bidayah.v10i2.170

Wardani, P. D. K., Nurtamam, M. E., & Rozie, F. (2018). Pengembangan Lagu Edukasi Matematika dalam Pembelajaran Matematika dengan Menggunakan Metode Edutainment di Kelas V SDN Keleyan 1 Socah. *Seminar Pendidikan UMM 2018*, 1–7. https://osf.io/aq9pd/download

Wijayanti, N. P. A., Damayanthi, L. P. E., Sunarya, I. M. G., & Putrama, I. M. (2016). Pengembangan E-Modul Berbasis Project Based Learning Pada Mata Pelajaran Simulasi Digital Untuk Siswa Kelas X Studi Kasus Di Smk Negeri 2 Singaraja. *Jurnal Pendidikan Teknologi Dan Kejuruan*, *13*(2), 184–197. https://doi.org/10.23887/jptk-undiksha.v13i2.8526

Windayanti, W., Afnanda, M., Agustina, R., Kase, E. B. S., Safar, M., & Mokodenseho, S. (2023). Problematika Guru Dalam Menerapkan Kurikulum Merdeka. *Journal on Education*, *6*(1), 2056–2063. https://doi.org/10.31004/joe.v6i1.3197

Yigletu, S., Kosinski, K. C., Kuah, A., Alfaro, K., Holmes, A. C., & Tendulkar, S. A. (2021). "Collaboration Toward One Collective Goal": A Mixed-Methods Study of Short-Term Learning Outcomes and Long-Term Impacts Among Students Participating in an Undergraduate Community-Based Participatory Research (CBPR) Course. *Frontiers in Public Health*, *9*. https://doi.org/10.3389/fpubh.2021.694840