

## Improving Understanding in the Development of Teaching Modules in the Independent Curriculum through Training of Mathematics Teacher

**Karim, Chairil Faif Pasani, Taufiq Hidayanto\*, Kamaliyah, Asdini Sari,  
Muhammad Rayhan Ramadhan, dan Muhammad Alif Anwar**

Mathematics Education Departement, Faculty of Teacher Training and Education  
Universitas Lambung Mangkurat, Banjarmasin, Indonesia

[\\*taufiq.hidayanto@ulm.ac.id](mailto:*taufiq.hidayanto@ulm.ac.id)

**Abstract:** In implementing the "Independent Curriculum," one of the materials that need to be prepared by the teacher is the teaching module. However, since this is relatively new, the teachers who are members of the Association of Mathematics Teachers of Senior High School in Banjarmasin need to receive training regarding implementing the "Independent Curriculum" and preparing teaching modules. Therefore, a workshop for preparing mathematics teaching modules for mathematics high school teachers needs to be implemented. The purpose of this service is to increase the understanding of high school mathematics teachers in Banjarmasin regarding the "Independent curriculum" and to develop teachers' ability to compose teaching modules. This Community Service Method is implemented using the PAR (Participatory Action Research) approach. The cycles implemented are to know, to understand, to plan, to act, and to change. The results of the service show an increase in understanding regarding the implementation of the "Independent Curriculum" and the participants' ability to develop teaching modules in the "Independent Curriculum". This is indicated by an increase in the average percentage of teachers answering pre-test to post-test questions correctly from 71.39% to 83.22% and the collection of teaching modules that have been prepared by the participants after completing the workshop and mentoring by the community service team.

**Keywords:** high school mathematics; independent curriculum; teaching module; workshop

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### INTRODUCTION

The COVID-19 epidemic has affected various aspects of life. COVID-19 has greatly influenced health, the economy, and society, resulting in several deaths (Haleem et al., 2020). Furthermore, according to Pfefferbaum & North (2020) the COVID-19 pandemic has impacted

people's lifestyles, mental health, quality of life, and emotional and social conditions. Several schools and students in Indonesia, as well as in other countries throughout the world, have reported lower learning quality as a result of the COVID-19 epidemic.

Research on the impact of COVID-19 on education has been widely implemented. According to UNESCO research results (2019), more than 91% of students worldwide are affected by school closures caused by the COVID-19 pandemic and the application of social constraints. According to research, 1.5 million students worldwide lack access to basic education, which influences their psychological and physical health. Changes in routines, such as a lack of activities outside the home, disruptions in sleep cycles, and social constraints, have also been shown to have an impact on students' mental health. This disease leads to learning loss.

Learning loss is the loss of students' skills and knowledge due to a lack of access to education (Pratiwi et al., 2020). Moreover, according to (Huong & Jatturas, 2020), learning loss is "any specific or general loss of knowledge and skills or to reversals in academic progress, most commonly due to extended gaps or discontinuities in a student's education." The study's findings found that, of the 610 students tested, 111 had learning loss, 408 were at high risk of learning loss, and the remaining 91 had no learning loss. As a result, the government is developing a mitigation strategy for the COVID-19 pandemic, particularly in the educational sector.

COVID-19 pandemic mitigation is included in the Independent Curriculum. Independent Curriculum prioritizes the concept of "freedom of learning" for students, and it is designed to mitigate and recoup the impact of COVID-19 on the education system. One of the pillars of the Independent Curriculum's development is the use of technology and the competencies required in today's environment (Marisa, 2021). With the curriculum's growth into an Independent Curriculum, it is believed that it will serve as a new foundation for Indonesian education. This is consistent with the assertion Sanjaya (2008) that the

curriculum is a basis for education. The better the foundation is constructed, the stronger the structure it supports. To develop the education sector, the curriculum must be designed to a high standard. The curriculum must be continually developed to adapt to current situations while considering previous achievements/successes and evaluations. (Hanif, 2014; Mulyoto, 2013; Suarga, 2017).

According to Rahayu et al. (2022), the government gives schools the freedom to implement a Independent Curriculum. First, schools can incorporate some of the principles of Independent Curriculum into their current curriculum. Second, implement Independent Curriculum by utilizing the many learning resources that have been supplied. Third, create an Independent Curriculum by designing your own learning tools and devices. When using Independent Curriculum in the third choice, a teacher must create a teaching module as a learning aid. Teaching modules are one form of teaching tool teachers use to carry out learning to achieve Pancasila's learning outcomes and student profiles. The teaching module expands on the flow of learning objectives and is organized according to the phase or stage of student growth. Because teaching modules in Independent Curriculum are relatively new, teachers require training in composing them to get insight and direction on building teaching modules that may be used in classroom learning.

The problem is that teachers of the Banjarmasin High School MGMP members believe they still do not understand how to execute the Independent Curriculum and prepare teaching modules. To help teachers prepare mathematics teaching modules, the community service team from Lambung Mangkurat University's Mathematics Education Study Program provided technical training on the Independent Curriculum to Banjarmasin

High School Mathematics MGMP participants. This service aims to improve Banjarmasin High School Mathematics MGMP teachers' comprehension of Independent Curriculum and their ability to compile teaching modules. This service is anticipated to enhance participants' understanding of the Independent Curriculum and teaching modules and their ability to build teaching modules in compliance with the Independent Curriculum's requirements.

#### METHOD

The target of the community service was senior high school mathematics teachers in Banjarmasin who are members of the Mathematics Subject Teacher Working Group in Banjarmasin. Through MGMP, teachers could exchange ideas and information about current mathematics learning issues. Participants in the Banjarmasin High School Mathematics MGMP needed insight into teaching modules in the Independent Curriculum. Therefore, the method used in this service activity was the PAR (Participatory Action Research) approach method, followed by the following cycle in Figure 1.

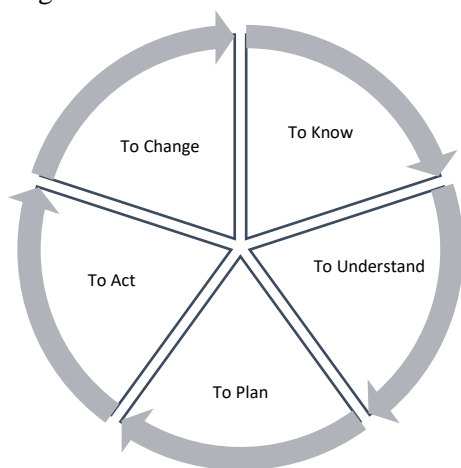


Figure 1 The PAR cycle (Afandi et al., 2022)

Based on the cycle in Figure 1, the activities carried out were:

#### To Know

At this stage, the service team approached the high school mathematics MGMP in Banjarmasin to comprehend the role of high school mathematics teachers in dealing with Independent Curriculum.

#### To Understand

At this stage, the service team started to explore the problems of high school mathematics teachers in Banjarmasin in dealing with Independent Curriculum.

#### To Plan

Based on the problems identified, the service team collaborated with the Banjarmasin Mathematics MGMP management to design and implement activities to address them.

#### To Act

The actions conducted were in the form of real-world activities aimed at problem resolution, and they were carried out in accordance with plans developed collaboratively by the service team and the Banjarmasin Mathematics MGMP management.

#### To Change

During this stage, the service team members conducted activity reflections to motivate and stimulate participants to solve their problems independently and sustainably.

Participants were given a pretest and a posttest to assess the service's effectiveness. The test consisted of multiple-choice questions administered via a Google Form. This service is considered successful if the average posttest result exceeds the average pretest result. This rise indicates that the participants' grasp of Independent Curriculum and teaching modules has increased, and they have been able to create teaching modules that meet the demands of Independent Curriculum.

#### RESULTS AND DISCUSSION

The implementation of the service follows the PAR method. The stages that were implemented are described below:

### **To Know**

At this stage, the service team conducted an in-depth search for the Banjarmasin High School Mathematics MGMP information. This activity was carried out actively through direct discussions (through activities involving the Banjarmasin High School Mathematics MGMP teachers) and online.

### **To Understand**

At this point, the service team identified the Banjarmasin Mathematics MGMP participants' concern: a lack of comprehension of the Independent Curriculum and development of teaching modules.

### **To Plan**

The service team, together with the Banjarmasin Mathematics MGMP management, planned the implementation of activities in the form of technical training, which aimed to increase participants' understanding of the Independent Curriculum and teaching modules, and participants were able to compile teaching modules according to the demands of kurikulum merdeka. The service team prepared materials related to the Independent Curriculum and teaching modules and prepared funding for the Mandatory Lecturer Program scheme, which was sourced from PNBP Lambung Mangkurat University. Meanwhile, the Mathematics MGMP board prepared the venue for the technical assistance.

### **To Act**

The action taken was in the form of technical guidance. The implementation of the technical assistance lasted for 32 hours, from July 28 to August 6, 2022, with one face-to-face meeting offline at SMA Negeri 4 Banjarmasin on July 28, 2022. Participants were given the opportunity to complete the task of preparing teaching modules after attending a series of materials provided

by the service team. The implementers of this activity consisted of four lecturers and two students as the service team of the Mathematics Education Study Program, FKIP, Lambung Mangkurat University Banjarmasin. The service participants were high school mathematics teachers and 72 Banjarmasin High School Mathematics MGMP participants. The service activity was held as a form of implementation of the collaboration between the Mathematics Education Study Program, FKIP, Lambung Mangkurat University Banjarmasin, and the Teacher Working Group and Subject Teacher Deliberation Team (KKG-MGMP) of Banjarmasin High School Mathematics.

The materials for the Technical Guidance on the Preparation of Teaching Modules on the Independent Curriculum for Participants of the Banjarmasin High School Mathematics MGMP are as follows:

- a. Opening and remarks
- b. Participants took a pretest for 20 minutes before the material was delivered.
- c. Delivery of the Independent Curriculum Structure materials by Dr. Karim, M.Si.
- d. Submission of material on the construction of learning outcomes, learning objectives, and flow of learning objectives delivered by Taufiq Hidayanto, M.Pd.
- e. Submission of material on the preparation of learning assessments delivered by Kamaliyah, M.Pd.
- f. Submission of material on the preparation of learning assessments delivered by Kamaliyah, M.Pd.
- g. Give posttest for 20 minutes after the material is delivered.
- h. Participants were assigned to compile teaching modules with free material according to the classes they taught in their respective schools.

The first material presented was the structure of the Independent Curriculum. The material presented includes a general understanding of the Independent Curriculum, its structure, and its characteristics. The presentation of the Independent Curriculum structure is shown in Figure 2.



Figure 2 Dr. Karim, M.Si., delivering independent curriculum structure material

The material continued with the delivery of Learning Outcomes, Learning Objectives, and Flow of Learning Objectives. The presentation of this material is shown in Figure 3.



Figure 3 Mr. Taufiq Hidayanto, M.Pd. Delivering CP, TP, and ATP material

The third material was the teaching module. This teaching module is new to the Independent Curriculum. The material presented relates to initial comprehension, the structure and components of the teaching module, and examples of teaching modules. The presentation of the third material is shown in Figure 4.



Figure 4 Mrs. Asdini Sari, M.Pd. Presenting the teaching module structure material

The last material presented was a learning assessment in the Independent Curriculum. This material was delivered from an initial understanding, various assessments that can be applied in the classroom, and examples. The presentation of this material is illustrated in Figure 5.



Figure 5 Mrs. Kamaliyah M.Pd. Presenting learning assessment material

The community service team also provided material files that participants could access in addition to the directly delivered material. Implementing community service in the form of technical training on preparing teaching modules on the Independent Curriculum for participants of the Banjarmasin High School Mathematics MGMP went well. Participants received a refresher study related to the Independent Curriculum. They could further explore the structure of the Independent Curriculum, the preparation of teaching modules that contain character and the profile of

Pancasila, and the preparation of learning assessments.

**To Change**

At this stage, the service team conducted an activity reflection as a follow-up to the analysis and evaluation of the participants' work module products. Through this reflection, it was expected that participants could implement their knowledge in developing teaching

modules in accordance with the Independent Curriculum on other materials according to the grade level they teach independently and sustainably.

The pretest and posttest included questions about the Independent Curriculum and teaching modules. The pretest and post-test questions were 10 in multiple choices via Google Forms. Table 1 presents the participants' accomplishments.

Table 1 Comparison of the number of correct answers in the pretest and posttest results

Question Number	Indicator	Pretest (%)	Posttes (%)	Description
1	Understand the meaning of the curriculum	73.6	89.1	increase
2	Analyze the principles of curriculum development	83.3	96.4	increase
3	Evaluate learning strategies in Independent Curriculum	55.6	66.7	increase
4	Understand learning outcomes	84.7	92.7	increase
5	Analyze the stages of learning in an Independent Curriculum	81.9	83.6	increase
6	Evaluate learners' involvement in learning	93.1	98.2	increase
7	Evaluate school choice in determining Independent Curriculum implementation	75.0	85.5	increase
8	Evaluate activities in designing learning	61.1	70.0	increase
9	Understand the dimensions of the Pancasila learner profile	75.0	85.5	increase
10	Evaluate the assessment used in the Independent Curriculum	30.6	74.5	increase
<b>Mean</b>		<b>71.39</b>	<b>83.22</b>	<b>increase</b>

Table 1 shows that 90% of the questions experienced an increase in correct answers given by participants from pretest to posttest. The mean number of participants answered correctly increased from 71.39% to 83.22%. This showed increased participants' understanding of the Independent Curriculum and teaching modules. In addition, all participants had also submitted the teaching module work they had compiled, which implies that teachers can compile teaching modules.

The results of this service are consistent with the service provided by Madang et al. (2022), which shows an increase in the capacity building of the Independent Curriculum for science teachers in Pagaram in the creation of teaching modules through training. This demonstrates that teachers require training in the execution of the Merdeka curriculum and the development of teaching modules as a tool for sharpening their comprehension. Teachers must prepare teaching modules in compliance with the needs of the Independent

Curriculum, particularly the freedom to create teaching materials based on students' learning styles and existing curricular restrictions (Isnawan et al., 2023; Setyawan's, 2023).

The benefits of this service activity were that participants improved their capacity for developing training modules with characters and the Pancasila profile. In line with this statement, the findings of Setiawan et al. (2022) service reveal that all teachers think that the teaching module is an important teaching tool that educators should employ. The Pancasila Student Profile can be realized or achieved. Another benefit was developing a link between the participating teachers and the Mathematics Education Study Programme teachers at FKIP ULM.

Two types of elements influenced the outcome of this service activity: supporting and inhibiting factors. The participants were highly passionate about listening to the material and completing the projects assigned by the service team. This was because the material gathered was novel, particularly the creation of teaching modules that featured characters and the profile of Pancasila. The service operations encountered time constraints, resulting in a one-day face-to-face implementation.

## CONCLUSION

Community service activities were completed, such as technical training on producing Independent Curriculum teaching modules for Banjarmasin High School Mathematics MGMP participants in 2022. The outcomes of this service demonstrated an increase in participants' grasp of the Independent Curriculum and teaching modules. In addition, participants could develop mathematical teaching modules based on the grade level they taught. All participants demonstrated this by collecting the teaching modules that they had developed. Based on the results of previous activities and service

participants' feedback, this activity should be sustainable to promote productivity and increase learning in high school classes.

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