

# Improving teachers' competencies in differentiated learning through a lesson study-based learning community at SMPN 1 Tulakan

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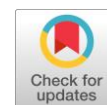
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## ABSTRACT

SMPN 1 Tulakan is one of the Sekolah Penggerak in Pacitan Regency. This school requires the assistance of a learning community and the implementation of differentiated learning. The objectives of this community service program are 1) to increase teacher understanding regarding learning communities, differentiated learning and lesson study. 2) implementing lesson study to activate the learning community of SMPN 1 Tulakan. 2) Increasing teacher competence in practicing differentiated learning through lesson study at SMPN 1 Tulakan. This training was carried out for 3 months June-August 2024. The participants were 32 teacher in SMPN 1 Tulakan. The approach used is participatory by involving teachers directly in theory and practice. This community service activity was carried out conductively. Teachers follow the training well. The results show that the teacher understands the learning community material. Teachers' understanding of study subjects has also increased. Teachers are able to apply the concept of differentiated learning and lesson study learning in the classroom according teacher or as an observer. The conclusion of this community service program is that teachers understand material related to learning communities, differentiated learning and lesson study. Teachers are able to implement lesson study to activate the learning community of SMPN 1 Tulakan. Teachers increase their competence in practicing differentiated learning through lesson study at SMPN 1 Tulakan.



## KEYWORDS

Differentiated learning  
Learning community  
Lesson study  
Teacher's competency



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## 1. Introduction

SMPN 1 Tulakan is one of the Sekolah Penggerak in Pacitan Regency. This school has good infrastructure and human resource support. The position of the school is located at the southern of East Java and is located in a mountainous area. SMPN 1 Tulakan is expected to become a model school for holistic implementation of the Kurikulum Merdeka in the Pacitan area. Sekolah Penggerak is an effort to realize the vision of Indonesian Education in realizing an advanced Indonesia that is sovereign, independent and has a personality through the creation of Pancasila students [1]–[3]. It's focuses on developing holistic student learning outcomes that include competence and character, starting with excellent human resources (principals and teachers). One of the superior programs in the Kurikulum Merdeka is differentiated learning. The Sekolah Penggerak program aims to improve the quality of education in schools with various strategies and innovations.

The results of observations at SMPN 1 Tulakan show that the teacher's ability to design differentiated learning is not optimal. Teachers have not explored innovative learning in the classroom. Students are less motivated in learning. Teachers have not explored many solutions when the class is not conducive. Teachers have not had many discussions with peers regarding solutions to learning problems in the classroom. ideally, improving the learning process can be done through the learning community forum. Learning community activities at SMPN 1 Tulakan are not optimal. the learning community has not been active and developed in discussing problems, solutions, innovations in learning. This community service

program is focused how to improve teachers' pedagogical skills in designing innovative learning and differentiated learning through activities in the learning community.

The academic forum programmed at the Sekolah Penggerak is an active learning community. A learning community is a group of educators and education personnel in one school who study together and collaborate regularly with clear and measurable goals to improve the quality of learning so that it has an impact on student learning outcomes [4]. Learning communities consist of within-school, inter-school and online learning communities. SMPN 1 Tulakan also has a learning community, but its activities do not explore school problems much and are less active. There are also not many good practice activities carried out. Based on interviews and discussions with learning community managers, SMPN 1 Tulakan requires academic support to assist learning community activities in developing differentiated learning.

Curriculum changes cause teachers to adjust their competencies, especially pedagogical competencies [5]–[7]. One of the strategies adopted to achieve this goal is improving pedagogical competencies of teacher is various training and mentoring [8], [9]. Differentiated learning is aimed at increasing students' desire and readiness to learn, from students' desire and readiness to learn, it will increase students' creative thinking abilities [10]–[12]. The characteristics of innovative learning are that the learning environment invites students to learn, the curriculum has clearly defined learning objectives, there is continuous assessment, the teacher responds to or responds to students' learning needs, and classroom management is effective [13]–[16]. However, teachers still have difficulty designing and implementing learning that is relevant to the characteristics of students. As a result, student learning activities become passive. Various school efforts to understand the concept of differentiated learning, such as training to introduce the PMM platform, workshops, and IHT at the school level, have still not shown significant results on teachers' skills in implementing differentiated learning. This is caused by teachers only getting material theoretically and no direct practice. Teachers need facilitators to help understand the material. Teachers who take part in IHT and workshops are not comprehensive, and have not yet informed other teachers. So intensive assistance activities are needed in theory and practice of learning innovation from experts. Improving the quality of teacher learning is very necessary to produce meaningful learning [17], [18].

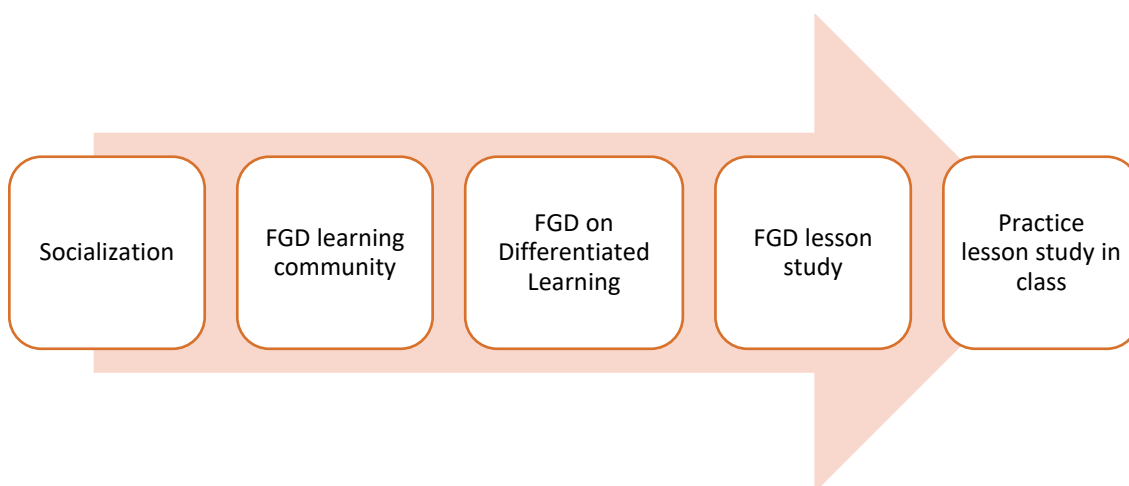
This lesson study is an approach that can be taken to activate the learning community at SMPN 1 Tulakan. This lesson study involves the principal, teachers, students and will be accompanied by academics from the Universitas PGRI Madiun community service team. Lesson study is a model for developing teacher competency based on collaboration between teachers [19], [20]. Lesson study is a coaching model for teaching staff through collaborative learning assessments with subject teachers carried out on an ongoing basis based on the principles of collegiality and mutual learning to build a learning community. Lesson study is carried out by a group of teachers who are aware of the need to increase competence and innovation in teaching [20].

Lesson study training at SMPN 1 Tulakan is carried out by carrying out the plan, do and see stages. Lesson Study can function as an effort to implement in-service training programs for teachers [21]. Through lesson study, you can also form a learning community for teachers in a continuous learning system of learning planning, implementation and reflection [22], [23]. These efforts are carried out collaboratively and sustainably [24]. This lesson study-based community service activity was developed in the form of a teacher learning community workshop and a limited trial of the planning, implementation and reflection process on teaching and learning.

Lesson study can have a positive impact on improving teachers' professional abilities [25]. Increasing abilities is not only about professionalism, but can also increase pedagogical competence [26]. Teachers will be trained on how to design innovative and differentiated learning. Teachers are also expected to be able to produce innovative work that can be disseminated to other schools. The estuary of this increase in teacher competency is an increase in student learning outcomes at SMPN 1 Tulakan. The implementation of differentiated learning in teaching practice can be seen from students' responses in class [27]. Lesson study can also encourage teachers to discuss alternative solutions to improve learning and solve the problems [28]. The novelty of this community service activity is the implementation of the lesson study concept to improve teachers' pedagogical skills in implementing differentiated learning. this activity also encourages SMPN 1 Tulakan to activate its learning community as a forum for developing teacher competence. The objectives of this community service program are 1) to increase teacher understanding regarding learning communities, differentiated learning and lesson study. 2) implementing lesson study to activate the learning community of SMPN 1 Tulakan. 2) Increasing teacher competence in practicing differentiated learning through lesson study at SMPN 1 Tulakan.

## 2. Method

This community partnership activity was carried out for 4 months from July to October 2024 at SMPN 1 Tulakan. Participants in this training were 32 teachers. The resource person was a team of 3 lecturers and 3 students from Universitas PGRI Madiun. This activity uses teacher-centered participatory approach. It was actively involving teachers in both theoretical and practical components by involving teachers directly in implementing lesson study in the learning community. There are 5 stages of activities, consisting of 1) Socialization of the community partnership program; 2) Focus Group Discussion (FGD) learning community material; 3) FGD on Differentiated Learning materials; 4) FGD lesson study material; 5) Practice lesson study (Fig 1).



**Fig. 1.** The stages of community services program

Evaluation of program achievements is carried out through observation sheets and questionnaires by teachers. There are 4 evaluation instruments, namely a questionnaire for understanding learning community material, a questionnaire for understanding differentiated learning material, a questionnaire for understanding lesson study material, a lesson study practice observation sheet. The results of the questionnaire and observation sheets were analyzed descriptively qualitatively to determine the success of the community partnership program at SMPN 1 Tulakan.

## 3. Results and Discussion

The implementation of the community partnership programs by the UNIPMA team at SMPN 1 Tulakan generally ran smoothly and conducive. The attendance rate of participants is 90-100%. Activities run continuously and according to schedule. The community partnership programs implemented at SMPN 1 Tulakan is very relevant to the needs of partners. Partners are Sekolah Penggerak that must pilot innovative learning to be transmitted to other schools. The existence of this activity really supports various good practices at SMPN 1 Tulakan in implementing the Kurikulum Merdeka. The explanation of each stage is as below.

### 3.1. Socialization of community partnership programs

The first step taken in this program is to socialize the program to partners. At this stage, the team leader provides an explanation to partners about the program objectives, the benefits of the program, agreement on program implementation, and agreement on activity schedules. The socialization was carried out on June 22 2024 online as in Fig 2. This socialization was attended by 25 teachers from SMPN 1 Tulakan. This activity aims to equalize perceptions of program implementation so that it runs smoothly and conducive. As a result of the activity, all participants understood the flow of the activity and were ready to take part in learning community training and differentiated learning, and implementation of lesson study. The impact of this activity is that teachers are motivated to activate the learning community at SMPN 1 Tulakan through lesson study practice. As many as 95% of teachers are willing to support this community service program.

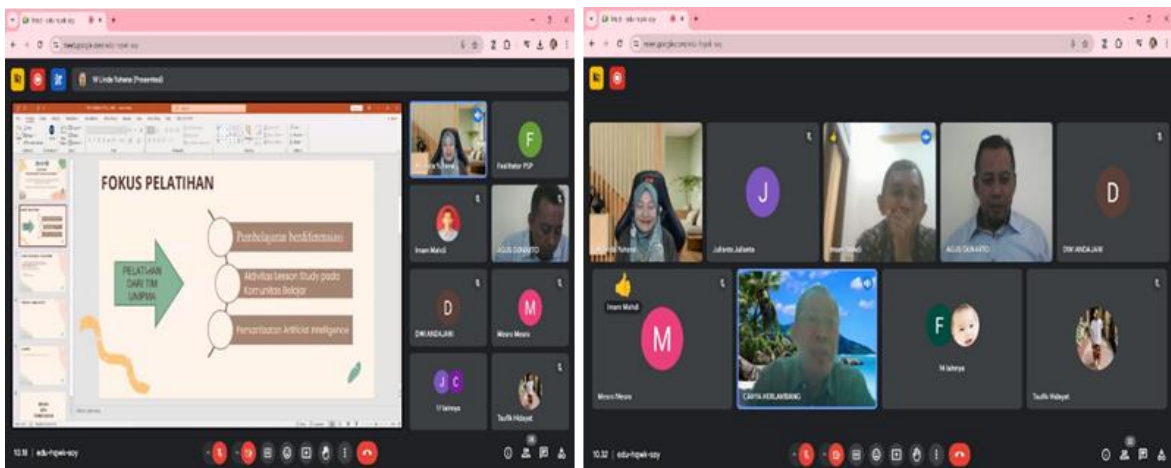


Fig. 2. Online socialization of PKM

### 3.2. FGD learning community

The FGD learning community was held on July 20th 2024 at SMPN 1 Tulakan. This activity was attended by 32 teachers. The FGD discussed the importance of learning communities as an effort to improve teacher competence and a forum for discussing learning topics and findings during learning. Activity at FGD learning community as Fig. 3. A learning community is a group consisting of several people who have the same interest in learning and sharing with each other [29]. Learning communities function to facilitate members who may lack the skills or confidence to learn. The learning community is a forum for conveying exemplary leadership, learning with educators and education staff from the management process, developing creativity in solving problems, and providing healthy working environment conditions that can improve the quality of education [30].



Fig. 3. FGD learning community with UNIPMA teams

The learning community in the Kurikulum Merdeka consists of internal, inter-school and online learning communities (PMM). After receiving the learning community material, 83% of the teachers' was very understanding and 17% said they understood. Teachers understand the essence of the learning community, its roles and functions, as well as the activities carried out within it. Teachers are also able to develop follow-up plans on how to activate the learning community at SMPN 1 Tulakan. Teachers' understanding and awareness of the importance of learning communities is the main capital for developing competencies in educational units. Teachers are committed to making the SMPN 1 Tulakan learning community a forum for routine self-development activities and a means of sharing good practices. Furthermore, this activity will also be developed into an inter-school and online learning community through PMM. This activity, teachers at SMPN 1 Tulakan are active in implementing various good practices through learning communities. Teachers through learning communities are continuously able to produce learning innovations that are disseminated to other teachers.

### 3.3. FGD on Differentiated Learning

The second FGD was about differentiated learning materials. The main resource person for this training is the PKM teams. This FGD was held on July 29 2024 at SMPN 1 Tulakan. UNIPMA teams are tasked with documenting training and assisting participants who have difficulty designing differentiated learning that suits their knowledge area and improve Pedagogical competence. It is very important because teachers must understand the character of students, especially psychological development. Teachers must arrange lesson materials, activities, daily tasks that are completed in class and at home, and final assessments based on students' readiness to learn the subject matter, what interests or things students like in learning, and how to deliver lessons that fit the learning profile [31], [32]. Teachers must design learning, implement learning, and assess learning outcomes objectively [33]. The FGD aims to improve teachers' pedagogical skills in designing innovative, differentiated learning as Fig. 4. This activity was attended by 32 teachers at SMPN 1 Tulakan. The resource person conveyed the main concepts of innovative learning and differentiated learning. Participants took part in the training actively and enthusiastically. Participants are divided into 3 groups to discuss the learning design that will be carried out. Differentiated learning is divided into 3, namely differentiation of material/content, process and product.



Fig. 4. FGD Differentiated Learning in SMPN 1 Tulakan

The PKM team provides intensive assistance in compiling differentiated learning-based teaching modules. Teachers practice modifying teaching modules according to team direction. Differentiated learning based on the Pancasila student profile is a learning approach used in implementing the current independent curriculum. Teachers are expected to be able to implement differentiated learning to facilitate students' learning needs according to their level of ability and help achieve the national education vision, namely students who have a Pancasila profile [34]–[36]. The results of material achievement are that 90% of teachers really understand and 10% understand differentiated learning material. The results of observations by the PKM team also showed that 32 teachers were able to develop teaching modules with differentiated learning. This community service activity has an impact on smpn 1 tulakan teachers being able to design and implement differentiated learning in the classroom.

Teachers are expected to be able to understand the learning profile in order to determine appropriate strategies in facilitating learning activities. Teachers have a fairly central role, apart from having to be competent in managing learning, they also have to be good at creating media that can facilitate every student's learning activity. The hope is that no student will not understand the lesson being taught. It is hoped that with this FGD there will be an increase in teacher skills in supporting the effectiveness of learning to achieve the expected goals. Teachers can facilitate a diversity of potential differences, where each student's learning needs can be met.

### 3.4. FGD lesson study

The FGD on lesson study material was held on July 30 2024 at SMPN 1 Tulakan. Lesson Study is carried out in 3 stages, namely plan, do, and see in the form of ongoing activities. This FGD also formed model teachers, observers and reflection guides. This activity is the initial stage before the teacher practices lesson study in class as an activity in the learning community as Fig. 5. The results of the questionnaire on achieving understanding of the concept of lesson study showed that 87% of teachers really understood it and 13% of teachers understood the process of implementing lesson study. Thapan also formed 3 groups of teachers, each of which will be accompanied by 1 lecturer and 1 student from PGRI Madiun University.

Lesson study requires collaboration between teachers for implementation in the classroom and efforts to improve the learning process [37]. The next stage is the practice of lesson study in class in each group.



Fig. 5. FGD lesson study in SMPN 1 Tulakan

### 3.5. Practice lesson study

The lesson study practice will be carried out on July 30 2024. The stages carried out are plan, do and see. Each group divides tasks as a model teacher and observer. Model teachers are tasked with practicing innovative and differentiated learning in the classroom. Observers are tasked with observing student activities and the learning process. In the plan stages, 3 teaching models are obtained which will be put into practice in class. As a result of the activities, all groups were able to prepare plans well by integrating lesson study. Implementation (do) is also carried out well in class. The teacher implements his learning plan in class systematically, accompanied by an observer. The learning process and student learning outcomes are vital components in lesson study [38]. Teachers and observers carry out their duties well. The see (reflection) stage is carried out guided by the PKM team and records events during the learning and analysis process. With this process, teachers are able to provide follow-up plans for what is implemented in class as Fig. 6. In general, as many as 90% of teachers are able to apply the concept of differentiated learning and lesson study in class according to their role as model teachers or as observers. Improved learning quality indicates a good learning community. Learning becomes more active and is able to motivate students. Learning becomes joyful, meaningful and student centered.



Fig. 6. Lesson study assistance (plan, do, see) in SMPN 1 Tulakan

In general, the community partnership program at SMPN 1 Tulakan is in accordance with the aim of implementing lesson study to activate the learning community. This activity also increases teacher competence in differentiated learning through lesson study at SMPN 1 Tulakan. Mentoring strategies are relevant to school conditions and are carried out in a structured manner. Differentiated learning by applying one of several approaches is not enough if done once. Familiarization of treatment is necessary for teachers and students to adapt to changes in the implementation of previous learning. So, to improve teacher competency abilities, it is also necessary to get used to implementing differentiated learning. Differentiated learning also aims to improve their understanding and skills in applying learning concepts that focus on individual student differences as well as educational approaches that pay attention to children's rights [39].

The challenges of this community service activity are time management and organizing learning innovations. The FGD process is difficult to carry out during the teacher's busy schedule. Teachers also need guidance in preparing differentiated and innovative teaching modules that lead to digitalization. Practical teaching activities in the classroom also require readiness from model teachers and observers. The solution to this problem is scheduled time management for lesson study activities. Teachers are also asked to commit to carrying out activities continuously.

The implementation of lesson study at SMPN 1 Tulakan is carried out jointly with other teachers. Lesson Study is a collaboration-based teacher professional development strategy [40], [41]. The existence of a learning community can accommodate a group of teachers to develop learning together, one teacher is assigned to carry out the learning, the other teacher observes student learning. This process is carried out during learning. Learning community activities also facilitate teachers discussing and conducting questions and answers about the learning carried out, revising and compiling the next lesson based on the results of the discussion. Lesson study activities at SMPN 1 Tulakan is a model of teacher professional development through teaching and learning (learning assessment) collaboratively with a cyclical and sustainable system based on the principles of collegiality and mutual learning to build a learning community, so it is relevant to be applied. In the future, SMPN 1 Tulakan can be sustainability of the program, being able to carry out lesson study activities in the learning community to increase teacher competency and improve student learning outcomes.

#### 4. Conclusion

The conclusion of this community service program is that teachers understand material related to learning communities, differentiated learning and lesson study. Teachers are able to implement lesson study to activate the learning community of SMPN 1 Tulakan. Teachers increase their competence in practicing differentiated learning through lesson study at SMPN 1 Tulakan. This can be seen from the teachers' achievements in understanding the learning community material, 83% really understand and 17% say they understand. Teacher achievement in understanding learning material is divided into 90% who really understand and 10% who understand. The results of the questionnaire on achieving understanding of the lesson study concept show that 87% of teachers really understand and 13% of teachers understand. In general, as many as 90% of teachers are able to apply the concept of differentiated learning and lesson study in the classroom according to their role as exemplary teachers or as observers.

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#### Declarations

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