Differentiation Learning Training in Projects as an Implementation Strategy for the Merdeka Curriculum at Yas'a Sumenep Middle School

Mochammad Yasir[1]*, Y Yamin[1], Wiwin Puspita Hadi[1], P Purnomo[2]

Department of Natural Science Education, Faculty of Education, University of Trunojoyo Madura, Bangkalan, Indonesia
[2]SMP Yas'a, Sumenep, Indonesia

*Corresponding Email: yasirtrunojoyo@gmail.com

*Orcid: https://orcid.org/ 0000-0001-7284-9810

Abstract. One way of student-centered learning is by implementing differentiated learning. Although this differentiated learning is not new, teaching and learning activities are still rarely implemented, including in the Yas'a Sumenep Middle School, so there is a need for community service in the form of differentiation learning training in projects as a strategy for implementing the Merdeka Curriculum at Yas'a Sumenep Middle School. The purpose of this activity is (1) to provide knowledge to educators and stakeholders at Yas'a Sumenep Middle School about differentiation learning and projects; (2) to train the skills of Yas'a Sumenep Middle School educators in developing differentiation learning and projects to improve the quality of learning. The method in this activity includes (a) expository; (b) question and answer; (c) discussion; (d) demonstrations; (e) FGD. The results of community service activities obtained that knowledge of differentiation learning and projects were in the high category of 57 people and as many as 3 people in the medium category, as well as increasing skills in developing differentiation learning and projects in the high category of 52 people and as many as 8 people. The results of these activities can be concluded that the differentiation learning training activities in the project as an implementation strategy for the Merdeka Curriculum at Yas'a Sumenep Middle School can provide knowledge to educators and stakeholders about differentiation learning and projects in the Merdeka Curriculum, as well as to train skills educators in developing differentiation learning and projects to improve the quality of learning.

Keywords: Differentiation learning, Merdeka Curriculum, Project

1 Introduction

Science learning is a systematic learning process to study facts, concepts, principles, and scientific discoveries in nature. Science learning is contextual constructive integrative which provides direct learning experiences to students, and guides students to have the ability to learn science, understand science concepts and scientific literacy to be applied in solving everyday life problems [1]. Therefore, it is necessary to present active, innovative, creative and fun science learning in order to arouse the interest and attention of students to be able to actively discover the concepts, principles, theories and facts of science that are being developed [2].

Science learning in the Merdeka Curriculum has two elements, namely understanding science related to higher-order thinking skills and process skills as an effort to hone thinking skills in investigations or research [3]. The Merdeka Curriculum strengthens the orientation of character and competency development by simplifying content and providing flexibility for students. However, in reality the teacher is often fixated on the target of completing the material delivered to students, without paying attention to the process and meaningful understanding in learning.

One method of student-centered learning is by implementing differentiated learning. Differentiated learning is a form of effort in a series of learning that pays attention to the needs of students in terms of learning readiness, student learning profiles, interests and talents [4]. There are three approaches to differentiated learning, namely from content, process and product. 1) Differentiation of content is what students learn, related to curriculum and learning materials. 2) Process differentiation is a way for students to process ideas and

information, which includes how students choose their learning style 3) Product differentiation, namely students show what they have learned [5]. Even though this differentiated learning is nothing new, the implementation of teaching and learning activities is still rarely done, including in the Yas'a Sumenep Middle School environment.

Yas'a Sumenep Middle School is a school that has implemented the Merdeka Curriculum. This school is located in the city of Sumenep on the basis of an Islamic boarding school which conducts student-centered learning by integrating natural science material content, local wisdom typical of Sumenep as context, and Islamic values as modalities and strengthening student character. The difficulty experienced during the implementation of the Merdeka Curriculum at SMP Yas'a was a lack of understanding regarding differentiation learning and designing projects for students. Therefore, the author carries out community service in the form of Differentiation Learning in the Project as a Strategy for Implementation of the Independent Curriculum at Yas'a Sumenep Middle School. The objectives of this activity are (1) to provide knowledge to educators and stakeholders at Yas'a Sumenep Middle School about differentiation learning and projects in the Merdeka Curriculum; (2) to train the skills of Yas'a Sumenep Middle School educators in developing differentiation learning and projects to improve the quality of learning.

2 Method

This community service activity took place on Tuesday, 27 June 2023 at 09.00-12.00 WIB at Yas'a Sumenep Middle School. The target of the training is 60 teachers and stakeholders at Yas'a Sumenep Middle School. The training methods used in this community service activity are as follows: (a) expository; (b) question and answer; (c) discussion; (d) demonstrations; (e) Focus Group Discussion (FGD). The expository is carried out by providing material explanations about differentiation learning theory and projects. Questions and answers were held between presenters and teachers and stakeholders at Yas'a Sumenep Middle School about differentiation learning and projects by giving real examples. To sharpen knowledge of differentiation and project learning, this training constructs differentiation learning and project learning as tasks to be demonstrated and presented. The training participants exchanged opinions through active and interactive discussions to construct differentiation and project learning. The results of the task are in the form of differentiation learning and projects that have been made, then demonstrated and presented in front of the class. After conducting demonstrations, the trainees conduct FGDs to strengthen the acquisition of differentiation and project learning reinforcement and the skills to develop differentiation and project learning. Data collection methods used interviews, observation, and documentation, then the data were analyzed qualitatively according to the Miles & Huberman model [6].

Evaluation of program implementation and program sustainability after the completion of the implementation of community service activities in the field in the form of: the participation of educators and stakeholders at Yas'a Sumenep Middle School in program implementation, the strategic position of the community around the school (District and Sub-District) as supporting elements, integration and togetherness with educators and stakeholders of Yas'a Sumenep Middle School, while improving the skills of developing differentiation learning and projects seen from the success of educators and stakeholders of Yas'a Sumenep Middle School in the performance of designing, developing, and implementing differentiation learning and projects to improve the quality of learning.

3 Results and Discussion

Differentiation learning training and projects use: (a) expository; (b) question and answer; (c) discussion; (d) demonstrations; (e) Focus Group Discussion (FGD). The training steps are presented in **Table 1.**

TABLE 1. Differentiation Learning Training Steps and Projects

| 1) Expository | 2) Question and Answer | 3) Discussion |

4) Demonstration   5) FGD

In differentiation learning training and projects, working groups are formed. Each working group raised a phenomenon that occurs in the school environment that contains problems. The issues raised were chosen by the working group itself according to the modality of the students depending on their interests. Some raised issues regarding environmental pollution, limited infrastructure, and Sumenep's local wisdom being extinct. Every problem raised by each working group is sought for a solution. The solution to these problems becomes a project undertaken by each working group. Of the several issues that are raised differently, there will be different differences in content (concept of material), processes (steps of completion), and products (results of work) [7] [8]. Of course, in the implementation of the project, each group designs a plan and arranges a work schedule through group discussions.

The instructor monitors to assist and ensure that the group is working according to the planned steps. Several kinds of solutions such as recycling waste as a way to overcome environmental pollution, creating new tools to overcome limited infrastructure, and media education as a solution to the extinction of Sumenep's local wisdom are carried out by each group. These solutions are made and then tested the results in a lesson. The results of the trial are described in diagrams/framework charts, the content of the material studied, the process of how it works, and the products produced. Charts/diagrams in the form of posters are presented to provide reinforcement, share experiences connecting projects made with science learning in junior high schools and how to teach/teach students as an evaluation of experience.

The results of this training activity significantly increase the knowledge of educators and stakeholders at Yas'a Sumenep Middle School about the concepts and theories of differentiation learning and projects in the Merdeka Curriculum in a broad and deep manner. Overall, 60 educators and stakeholders at Yas'a Sumenep Middle School have increased their knowledge of differentiation learning and their projects. The categories of increasing knowledge of differentiation learning and the projects of educators and stakeholders at Yas'a Sumenep Middle School are presented in Figure 1.
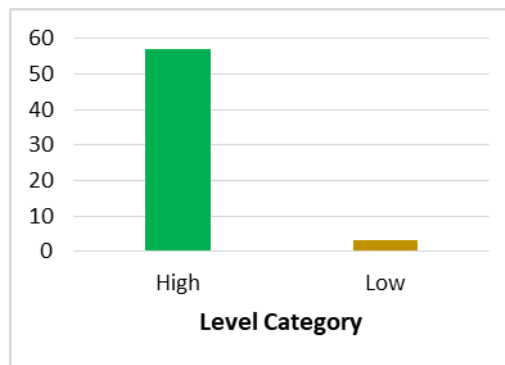

Figure 1. Categories of Knowledge Enhancement Learning Differentiation and Project Educators and Stakeholders Yas'a Sumenep Middle School

From **Figure 1.** it can be seen that the increase in knowledge of differentiation learning and the project of educators and stakeholders at Yas'a Sumenep Middle School is in the high category of 57 people and moderate as many as 3 people. This shows that educators and stakeholders at Yas'a Sumenep Middle School really understand the concepts and theories of differentiation learning and projects that are explained, taught, and experienced in projects through assignments. The task of the project in the form of making recycled waste products as a way to overcome environmental pollution, creating new tools to overcome limited infrastructure, and media education as a solution to the extinction of Sumenep's local wisdom indicates that educators and stakeholders at Yas'a Sumenep Middle School are actively involved and collaborate constructively integratively in group work to apply the concepts and theories of differentiation learning in the projects being worked on.

The process of involving educators and stakeholders at SMP Yas'a Sumenep in group discussions makes

each person who does not understand know about the correct theoretical and practice concepts about differentiation learning and projects so that they can help educators and stakeholders construct their own knowledge. This is in accordance with constructivist theory and the learning characteristics of the Independent Curriculum which guides students to be actively and independently involved in their learning process, to be able to find sources of information to be able to solve problems and to have the ability to think in constructing their knowledge, to integrate local wisdom in learning [9] [10].

The use of the learning environment in collaborative work groups supports the differentiation of learning. Collaborative working groups are indeed formed by taking into account learning readiness, interests and learning profiles. Learning readiness is seen from the initial potential of each student according to the abilities of each student. Interest seen from motivation in learning. The learning profile is seen from the learning style, cognitive style, learning environment support according to the needs of each student. This is done so that when learning students are not frustrated and feel they have failed in learning and the experience they gain [11] [12] [13].

The learning environment used in collaborative group work is also supported by the principles and elements of differentiation learning. In differentiation learning there are principles, namely learning climate, quality curriculum, continuous assessment, responsive teaching, and leadership and classroom routines. A learning climate is needed to form relationships and interconnections between students so that they are aligned with each other and have a single perception of tasks in collaborative group work with each person having task responsibilities. A quality curriculum is determined by the clarity of achievement goals to shape student understanding and achieved by challenging tasks with critical thinking. Continuous assessments are carried out in a formative manner to obtain input and suggestions for improving subsequent learning. Responsive teaching as a quick response to the results of an ongoing assessment of the process and learning outcomes is carried out by modifying the next lesson plan. Educators, in this case teachers also need firmness and leadership spirit to organize learning and manage classes well as routine activities in class [14].

Differentiation learning also has elements that must exist as a series of perfectionism and learning differences. Elements in differentiation learning include (a) content, (b) process, (c) product, and (d) learning environment. Content contains material that will be taught by educators (teachers) and methods that will be used by educators (teachers) to teach the material, as well as material that will be learned by students and ways for students to learn the material. Process as a procedure of meaningful activities carried out by students not only based on quantitative (amount), but also quality (quality). The product as the end result of learning is in the form of summative assessment results adjusted to measurable criteria and assessment rubrics. The learning environment in differentiation learning regulates the class arrangement, student personality, and the physical social situation in which students learn [15] [16]. All elements in differentiation learning must be under the control and control of the teacher.

Differentiation learning training and projects for Yas'a Sumenep Middle School educators and stakeholders, apart from aiming to provide knowledge about differentiation and project learning, also train the skills of educators and stakeholders at Yas'a Sumenep Middle School in developing differentiation learning and projects to improve the quality of Madura science educators. Differentiation learning and projects developed by educators and stakeholders at Yas'a Sumenep Middle School are learning scenarios in the form of lesson plans. In developing differentiating learning scenarios and projects, skills are needed. The skills needed include: (a) basic teaching skills; (b) pedagogical skills; (c) learning needs analysis skills.

The results of this training activity also significantly increase the skills of educators and stakeholders at Yas'a Sumenep Middle School in developing differentiation learning and projects to improve the quality of learning. Overall, 60 educators and stakeholders at Yas'a Sumenep Middle School have improved their skills in developing differentiation and project learning. The categories for increasing skills in developing differentiation learning and teacher and stakeholder projects at Yas'a Sumenep Middle School are presented in figure 2.
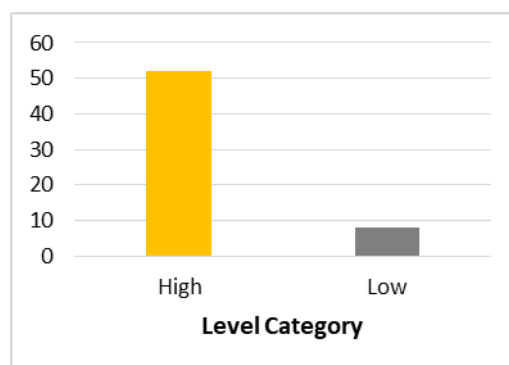

Figure 2. The Skills Improvement Category Develops Differentiation Learning and Projects For Educators and Stakeholders at Yas'a Sumenep Middle School

From Figure 2. it can be seen that the increase in skills to develop differentiation learning and the project of educators and stakeholders at Yas'a Sumenep Middle School is in the high category of 52 people and medium as many as 8 people. This shows that the educators and stakeholders of Yas'a Sumenep Middle School are well versed in the practice of developing differentiation learning and projects as a result of deepening the theory of differentiation and projects described earlier. The results of project work on tasks according to the solution to the problems of each collaborative working group are in the form of making recycled waste products as a way to overcome environmental pollution, creating new tools to overcome limited infrastructure facilities, and media education as a solution to the extinction of Sumenep's local wisdom, then developed in science learning. Science learning is developed using certain learning models/approaches according to the characteristics of the material being taught. Students, and student learning environment thus characterizing learning differentiation [17].

Development of differentiation learning and projects in collaborative working groups as one of the strategies for implementing the Merdeka Curriculum. To encourage flexibility in differentiated learning, the initial achievement set per year is converted into learning outcomes based on stages arranged according to the stages of student development. This change is based on the importance of flexibility, learning targets that are not too dense, and the need to design appropriate learning based on the level of student achievement (teaching at the right level). The design of learning outcomes per stage is based on the understanding that even though they are the same age, the level of student achievement is not uniform.

Learning differentiation refers to the variety of services provided by the different characteristics of learning participants. When students arrive at school, they differ widely in abilities, experiences, aptitudes, interests, language, culture, learning styles, and many other factors. As a result, it is unfair if the teacher only provides the subject matter and grades students in the same way for all students in the class. Teachers must pay attention to student differences and provide services that meet student needs. Teachers must understand and realize that there is more than one way, method, or strategy for learning a subject matter when using differentiated learning. The teacher must arrange the lesson materials, activities, daily tasks completed in class and at home, and the final assessment is based on the students' readiness to learn the subject matter, what interests or things students like in learning, and how to deliver lessons according to the learning profile students it teaches [18].

Teachers must be able to become masters of differentiated instruction to meet students' needs, restore or accelerate instruction, and to provide learning and growth opportunities for all students [4]. Wulandari [19] argues that differentiated learning basically brings together elements of differentiated learning and student diversity. This means that each learning element (content, process, product, and learning environment) can be differentiated based on learning readiness, interests, and student learning profiles that are different from one another. Fulfillment of student learning is one of the basics of the learning process in student nature. Furthermore, differentiation can help Pancasila Student Profiles in developing profiles of faith, independence, mutual cooperation, global diversity, critical and creative reasoning. So that learning is differentiated for independent student learning in the classroom.

Based on the foregoing, the purpose of this Community Service has succeeded in providing knowledge to educators and stakeholders at Yas'a Sumenep Middle School about differentiation learning and projects in the Merdeka Curriculum and the skills of Yas'a Sumenep Middle School educators in developing differentiation learning and projects to improve the quality of learning.

4 Conclusion

The results of these activities can be concluded that the differentiation learning training activities in the project as an implementation strategy for the Merdeka Curriculum at Yas'a Sumenep Middle School can provide knowledge to educators and stakeholders at Yas'a Sumenep Middle School about differentiation learning and projects in the Independent Curriculum, as well as to train skills educators at Yas'a Sumenep Middle School in developing differentiation learning and projects to improve the quality of learning.

Acknowledgment

References

[1]   Sutarto, Prihatin, J., Hariyadi, S., & Wicaksono, I. (2021). Development of student worksheets based on STEM approach to improve students' critical thinking skills. *Journal of Physics: Conference Series*, *2104*(1). https://doi.org/10.1088/1742-6596/2104/1/012009.

[2]   Indrawati, Mahardika, I. K., Prihatin, J., Supeno, Astutik, S., Sudarti, & Wicaksono, I. (2021). The effect of the group investigation-guided inquiry (GI-GI) learning model to improve students' collaboration and science process skills. *Journal of Physics: Conference Series*, *2104*(1). https://doi.org/10.1088/1742-6596/2104/1/012027.

[3]   Kemdikbudristek. (2022). *Pedoman penerapan kurikulum dalam rangka pemulihan pembelajaran*. Jakarta: Kemdikbudristek.

[4]   Tomlinson, Carol A. (2017). *How to differentiate instruction in academically diverse classrooms*. VA: ASCD.

[5]   Westbroek, H.B., Rens, L.v., Berg, E.V., Janssen, F. (2019). A practical approach to assessment for learning anddifferentiated instruction. *International Journal of Science Education*, 42(6): 955–976. https://doi.org/10.1080/09500693.2020.1744044.

[6]   Miles, M.B & Huberman, A.M. (2014). *Qualitative Data Analysis, A. Methods Sourcebook, Edition 3*. USA: Sage Publications.

[7]   Yanti, N. S., Montessori, M., & Nora, D. (2022). Pembelajaran Ips Berdiferensiasi Di SMA Kota Batam. *Ranah Research: Journal of Multidisciplinary Research and Development*, *4*(3), 203–207. DOI: 10.46306/lb.v3i3.180.

[8]   Wahyuni, A. S. (2022). Literature Review: Pendekatan Berdiferensiasi Dalam Pembelajaran IPA. *Jurnal Pendidikan Mipa*, *12*(2), 118–126. https://doi.org/10.37630/jpm.v12i2.562.

[9]   Masgumelar, N.K., & Mustafa, P.S. (2021). Teori Belajar Konstruktivisme dan Implikasinya. *GHAITSA: Islamic Education Journal*, 2 (1): 49-57.

[10]   Permendikbud Nomor 3 Tahun 2020 Tentang Kebijakan Merdeka Belajar-Kampus Merdeka (MBKM).

[11]   Suprayogi, M.N., Valcke, M., Godwin, R. Teachers and their implementation of differentiated instruction in the classroom. *Teaching and Teacher Education*, 67(8): 291-301. https://doi.org/10.1016/j.tate.2017.06.020.

[12]   Pozas, M., Letzel, V., Schneider, C. (2019). Teachers and differentiated instruction: exploring differentiation practices to address student diversity. *Journal of Research in Special Educational Needs*, 20(3): 217-230. https://doi.org/10.1111/1471-3802.12481.

[13]   Lindner, K.T., & Schwab, S. (2020). Differentiation and individualisation in inclusive education: a systematic review and narrative synthesis. *International Journal of Inclusive Education*, 1(1): 1-21. https://doi.org/10.1080/13603116.2020.1813450.

[14]   Eikeland, I., & Ohna, S.E. (2021). Differentiation in education: a configurative review. *Nordic Journal of Studies in Educational Policy*, 8(3): 157-170. https://doi.org/10.1080/20020317.2022.2039351.

[15]   Bondi, R. S., Dahnke, C., & Zusho, A. (2019). How does changing "One-Size-Fits-All" to differentiated instruction affect teaching? *Review of Research in Education*, 43(1), 336–362. https://doi.org/10.3102/0091732X18821130.

[16]   Graham, L. J., De Bruin, K., Lassig, C., & Spandagou, I. (2021). A scoping review of 20 years of research on differentiation: Investigating conceptualisation, characteristics, and methods used. *Review of Education*, 9(1), 161–198. https://doi.org/10.1002/rev3.3238.

[17]   Yasir, M & Wulandari, A.Y.R. (2020). Teaching Madura Local Content Literacy on Preservice Science Teacher Using LWIS Model. *Jurnal Pena Sains,* 7(2): 103-112. https://doi.org/1921107/jps.v7i2.8445.

[18]   Qomari, M. N., Lestari, S. A., & Fauziyah, N. (2022). Learning Trejectory pada Pembelajaran Berdiferensiasi Materi Keliling Bangun Datar Berdasarkan Perbedaan Gaya Belajar. *Jurnal Pemikiran Pendidikan*, *28*(2), 29–41. https://doi.org/10.30587/didaktika.v28i2(1).4399.

[19]   Wulandari, A. S. (2022). Literature Review: Pendekatan Berdiferensiasi Solusi Pembelajaran dalam Keberagaman. *Jurnal Pendidikan Mipa*, *12*(3), 682–689. https://doi.org/10.37630/jpm.v12i3.620.