

TRAINING ON DIFFERENTIATED LEARNING STRATEGIES WITH MERRDEKA FLOW FOR CHEMISTRY TEACHERS IN PALU CITY

Afadil^{1*}, Siti Nuryanti², Anang Wahid M. Diah³, Yuli Nurmayanti⁴, Sitti Rahmawati⁵

Program studi Pendidikan Kimia FKIP, Universitas Tadulako

* Corresponding author: ^{1*} afadil@untad.ac.id

Abstract

The development of the implementation of the independent curriculum today requires learning with a new paradigm to be realized through differentiated learning strategies so that each student learns according to their needs, culture, and stage of development. MGMP Chemistry in Palu City realizes the importance of making various efforts so that the chemistry learning process runs both in terms of delivering learning materials and implementing practicum in the laboratory is a tangible manifestation of differentiated learning. The current problems are (1) teachers are still confused about interpreting differentiated learning strategies as part of a new paradigm of learning through student-centered learning practices, (2) teachers have not been able to apply the unity of the learning cycle starting from competency mapping, process planning, and implementation of learning assessments, (3) the ability of teachers to formulate learning designs and assessments according to the characteristics of participants' needs Education is still lacking, and (4) teachers still experience obstacles in the realization of the Pancasila Student Profile through learning. The training participants were 30 people who were teachers of chemistry subjects who were members of the Chemistry MGMP group of SMA Kota Palu. This Community Service activity aims to provide an understanding of the principles and application of differentiated learning which includes differentiation of content, processes, and products in chemistry subject matter at the high school level or the same level as the MERRDEKA flow. Activities that have been carried out in the form of workshops, training, and mentoring are carried out with a participatory model. The resulting output targets are scientific publications, differentiated learning guidebooks, and IPR.

Keywords: Differentiated Learning, MERRDEKA Flow, Chemistry Teacher.

INTRODUCTION

Differentiated learning (PB) is nothing new in education. Concern for students in paying attention to students' strengths and needs is the focus of attention in the New Testament. Accommodating learning profiles

student learning needs. The New Testament requires educators to devote attention and take action to meet students' special needs. PB allows teachers to see learning from multiple perspectives (Marlina, 2019). Meanwhile, according to Tomlinson (2000), differentiated

learning is an effort to adjust the learning process in the classroom to meet the individual learning needs of students.

New Testament is a cyclical process of finding out about students and responding to their learning based on differences. According to Ojo (2023), when teachers continue to learn about the diversity of their students, professional, efficient, and effective learning will be realized. PB is an adjustment to students' interests, learning preferences, and readiness to achieve improved learning outcomes. The New Testament is not individualized learning. However, it is more inclined to learn that accommodates students' strengths and learning needs with independent learning strategies (Slavin, 2008).

When teachers respond to student learning needs, it means that teachers differentiate learning by adding, expanding, and adjusting time to obtain maximum learning outcomes. Differentiated learning is essentially learning that views that students are different, dynamic, and cultured (Latif, 2020). Therefore, according to UNESCO MGIEP (2017), schools must have a plan for differentiated learning, including (1) reviewing the current curriculum by student strengths and weaknesses, (2) designing school plans and strategies that are by the curriculum and learning methods that can be used to meet student needs, (3) explaining the form of teacher support in meeting student needs, and (4) periodically review and assess the achievement of school plans.

The development of the implementation of the independent curriculum currently requires learning with a new paradigm to be realized through differentiated learning strategies, so that each student learns according to their needs, culture, and stage of development (Asfina, 2017). To realize this, according to Majelis Luhur Persatuan Tamansiswa (2013), good collaboration between principals, teachers, students, parents, and all components of the school is needed.

The stages of implementing the new paradigm learning are realized through the Mobilizer School Program. Based on data on the number of Senior High Schools or sederajat that have joined the Driving School Program (PSP), currently only 3 (three) schools, or 5.4% of 56 schools in Palu City. The schools are SMAN 4 Palu, SMANOR Palu, and SMAN 7 Palu. This means that 94.6% of high school education units and a degree require collaboration in preparation for the Implementation of the Independent Curriculum (IKM). This requires serious efforts in the application of differentiated learning which can be done through existing Subject Teacher Deliberation (MGMP).

MGMP Chemistry in Palu City realizes the importance of making various efforts so that the chemistry learning process runs both in terms of delivering learning materials and implementing practicum in the laboratory is a tangible manifestation of differentiated learning. The MGMP Kimia group consists of 40 chemistry teachers spread across high school both public, and private, and Madrasah Aliyah status to share information with all members to carry out the learning process well.

Various teaching materials available have been owned by members of the chemistry MGMP, teaching materials (e-books), learning modules, practicum modules (e-modules), and various other forms of e-learning. However, the obstacle is how to deliver these teaching materials to students easily and according to the expected learning objectives. Learning objectives will be easier to achieve if teachers understand well the concepts and forms of implementation of differentiated learning in the classroom. This form of differentiation can be through the differentiation of content, processes, and products. Based on the results of

interviews with the chairman of MGMP and several of its members, it was explained that the limitations of understanding were very disturbing and affected the achievement of the learning objectives of each meeting.

The Palu City Chemistry MGMP has an important role in responding to government policies related to the implementation of the independent curriculum which is planned to be widely implemented this school year. Various programs have been launched by the Ministry of Education and Culture to respond to the program. The application of this differentiated learning strategy requires the understanding of teachers as implementers of learning who can distinguish the learning principles that need to be done and those that must be left behind in learning. Various challenges that must be improved include (1) teacher perceptions of new paradigm learning through learner-centered learning practices, (2) teacher understanding of the unity of cycles starting from competency mapping, process planning, and implementation of learning assessments, (3) the ability to formulate learning designs and assessments by the characteristics of student needs, and (4) the realization of the Pancasila Student Profile through learning.

One of the efforts used to help succeed in the implementation of new paradigm learning in education units is carried out through collaboration between universities and education units. The form of collaboration is carried out through training/mentoring related to differentiated learning strategies by covering the differentiation of content, processes, and products. This can work well because, at Tadulako University, especially FKIP, there are expert trainers/facilitators of driving schools who can assist MGMP using the MERRDEKA flow. Based on the analysis of the situation, the service team felt called to carry out a community service activity, entitled **"Training on Differentiated Learning Strategies with MERRDEKA Flow for Chemistry Teachers in Palu City."**

METHOD

The training was carried out at the secretariat of the MGMP Chemistry group of SMA Kota Palu located on Jl mokolembake No. 1, Lere Village, West Palu District. The training time is 1 day. Before the implementation of the training, it begins with preparation, socialization, field surveys, obtaining permits for the implementation of training at related agencies and Tadulako University, implementing training, and mentoring.

Solutions offered in training implementation

The detailed plan of training activities is presented in Table 1.

Table 1 Chemistry MGMP Group Training Plan of SMA Kota Palu

No	Activity Description	Purpose	Goal
1	Socialization	To obtain accurate information and data in connection with service activities.	Related agencies, MGMP Kimia Group SMA Kota Palu
2	Field survey	To see the real conditions in the field adjusted to the program to be implemented.	MGMP Chemistry Group of SMA Kota Palu and understanding and forms of application of differentiated learning
3	Training activities	Improving the knowledge, skills, and attitudes of the Chemistry MGMP group of SMA Kota Palu related to differentiated learning strategies.	MGMP Chemistry Group of SMA Kota Palu
4	Technology Package	Produce modules/work instructions to facilitate the Chemistry MGMP Group of SMA Kota Palu in implementing differentiated learning strategies.	MGMP Chemistry Group of SMA Kota Palu
5	Cooperation Management	Increase cooperation between universities and educational units in the development of differentiated learning strategies	Palu City High School Chemistry MGMP Group and UNTAD Service Team

Participants and training procedures

The participants who will be included in this training are 30 people who are teachers of chemistry subjects who are members of the Chemistry MGMP group of SMA Kota Palu.

Table 2 Training Materials and Resource Persons

Training/Reference Materials	Narasumber/Kepakaran
1. The Role of Chemistry in Learning New Paradigms and Implementing the Independent Curriculum	Prof. Dr. Hj. Siti Nuryanti, M.Si. (Professor of Chemistry)
2. Principles and applications of differentiated learning in chemistry subjects in schools	Dr. Afadil, S.Pd., M.Si. (Driving School Expert Trainer/Chemistry Education Expert)
3. Preparation of differentiated learning modules/guides.	Drs. Anang Wahid M. Diah, M.Si., PhD.

4. Cooperation Management

(Coordinator of Independent Learning
Independent Campus UNTAD/Professor of
Chemistry)
Yuli Nurmayanti, S.Pd., M.Sc.
(Chemistry Education Expert/Senior Teacher
of Al-Azhar Palu)

Tools and Materials Used

The tools used to support the implementation of this training are (1) laptops of each participant, (2) androids of each participant, and (3) ATK equipment. While the materials used include: (1) a chemistry e-module and (2) a chemistry e-book.

Partner Participation in the Implementation of Training Activities

The active participation of partners largely determines the success of the implementation of this training. The form of participation is that participants are actively involved in the process of providing the necessary equipment and materials, being involved as a whole in the process of education, training, and the use of information technology by taking into account the direction of the service implementation team. This is so that after this activity is completed, each participant can be independent in developing differentiated learning modules/guides.

Forms of Mentoring and Strengthening

The assistance and strengthening of the service team for the Chemistry MGMP group of SMA Kota Palu is part of the results of this training. The targets mentioned above are expected to be achieved through various forms of assistance and strengthening from various parties. Partner participation after the training will continue to be monitored. Therefore, the service team collaborates with related agencies and the head of the Chemistry MGMP of SMA Kota Palu to keep communicating and discussing the development of differentiated learning modules/guides and provide alternative solutions if there are obstacles faced by partners. This is also input for service members and local governments to improve the ability to innovate in compiling differentiated learning modules/guides.

RESULTS ACHIEVED

Training Implementation

The implementation of the service began with socialization with related agencies, MGMP Kimia Kota Palu. This socialization aims to provide information to relevant agencies regarding service so that participants know the purpose of implementing the program by the implementation team so that there is no misinformation. Furthermore, after the submission of a comprehensive program plan, it continued with the provision of training related to the theme of service, namely Training on Differentiated Learning Strategies with MERRDEKA Flow for Chemistry Teachers in Palu City.

The training was held at SMAN 4 Palu. In the implementation of the training, the participants involved were members of the Chemical MGMP of the city of Palu. The number of participants who participated in this training was 30 people.

The pattern used to realize definition learning is using the MERRDEKA flow.

MERRDEKA flow is an acronym consisting of 8 (eight) units, namely: (1) Noble of self, (2) **Concept exploration**, (3) **Collaboration space**, (4) **Guided reflection**, (5) **Contextual demonstration**, (6) **Elaboration of understanding**, (7) **Connection between materials**, and (8) **Real action**. In general, this MERRDEKA pattern can be described as follows:

1) Start of yourself

In this unit, mentoring is carried out to explore participants' initial understanding of independent and contextual learning principles and practices based on experiences and observations in their respective schools. In this session, participants will activate their self-understanding related to education. Participants will be asked to recall and re-analyze the learning experiences experienced and observed, including the challenges faced regarding understanding differentiated learning.

2) Concept Exploration

In this unit, the companion adds and provides references/materials and knowledge related to differentiated learning. After finishing studying these references, the next step that must be done is to summarize the learning results of the participants. Present points of thought that participants think are important. Then, think about how these findings help participants answer problems in learning.

3) Collaboration Space

In this section, the companion explains what things have been experienced and believed. Mentors provide and process feedback to gain new understanding and learning solutions from participants. Participants were asked to increase references and increase knowledge about differentiated learning, more active in a discussion forum. This discussion aims to: (1) develop a shared understanding of the principles of differentiated learning and the challenges faced in their respective schools, (2) develop an open-minded attitude (*open-minded*) and mutual respect, and (3) Mutual exposure to personal views and responses to other participants' exposures.

4) Guided Reflection

In this section, the companion reflects on the differentiated learning process through discussion and feedback provided and uses his new understanding to improve the learning process that will be implemented in their respective schools.

5) Contextual Demonstration

In this session, the companion will see the correlation and connect the understanding of differentiated learning with real conditions in the field/school. Participants are asked to communicate an understanding of differentiated learning principles relevant to the needs and challenges facing their respective schools. This is so that the concept and application of differentiated learning can be more contextual to the needs or challenges faced by each school.

6) Elaboration of Understanding

This unit is a companion to dig deeper into participants' insights about differentiated learning so that they have a mature understanding according to the context of practice that occurs in their respective schools.

7) **Connections Between Materials**

In this section, the companion can relate learning outcomes with the anxieties that exist in participants related to differentiated learning.

8) **Real Action**

In this final section, the companion designs new ideas related to learning practices that differentiate according to their role as a companion.

Training materials include The Role of Chemistry in New Paradigm Learning and Implementation of the Independent Curriculum, Principles and applications of differentiated learning in chemistry subjects in schools and Preparation of differentiated learning modules/guides.



Figure 1 Training Implementation Preparation of differentiated learning modules/guides.

Practical Work on Preparing Digital Teaching Materials

Practice Preparation of differentiated learning modules/guides. Starting with dividing participants into 4 groups, with each group accompanied by a service implementation team and field personnel. Activities carried out in practical work are participants guided/accompanied starting from the Role of Chemistry in New Paradigm Learning and Implementation of the Independent Curriculum, Principles, and applications of differentiated learning in chemistry subjects in schools. Furthermore, guided Develop differentiated learning modules/guides All these activities are carried out in such a way as to make it easier for trainees to do this on an ongoing basis.



Figure 2 Practice of preparing differentiated learning modules/guides accompanied by the Service Team

Mentoring

Mentoring activities are carried out to ensure that the material/technology delivered to partners can be implemented properly so that the results obtained can achieve the target.



Figure 3. Photo with teachers who are members of the Palu City Chemistry MGMP

The output that has been achieved is a differentiated learning module/guide from MGMP Kimia partners in the city of Palu. The implementation of service until the end of the 2023 activity year at the Palu City Chemistry MGMP partners which is carried out at SMAN 4 Palu, is to continue the mentoring program to the target community of the program, especially for the Palu City Chemistry Subject Teacher Conference (MGMP), to be able to apply differentiated learning module/guide preparation technology that has been previously conveyed and the target group (teachers who are members of MGMP Chemistry) can be independent in making differentiated learning modules/guides. all activities are carried out thanks to good cooperation between the MGMP team and partners. Other activities, namely making reports and service articles, have been submitted and published in the service journal "Abdi Dosen"

CONCLUSION

Service activities for partners of the Chemistry Teacher Deliberation (MGMP) in the city of Palu in compiling differentiated learning modules/guides have been carried out well thanks to good cooperation with various parties. This is illustrated by the output in the form of differentiated learning modules/guides that participants have made from the results of this training and service assistance.

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