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Implementation of Sekolah Penggerak Programme to Address Chemistry Teachers Competency on Design PjBL-based Digital Teaching Materials in Padang

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Abstract
Teaching materials for Sekolah Penggerak should be prepared based on a creative thinking learning model such as project-based learning (PjBL). However, based on the needs and situation of teachers towards the implementation of PjBL-based learning, implementation of PjBL in learning is still low, since the teachers in Padang need the advance training of preparation in PjBL learning material. The Community service activities have been carried out to provide experienced chemistry teachers in developing teaching materials based on Project-Based Learning. The implementation methods carried out in this activity are: (1) Analyzing the needs and situation of teachers towards the implementation of PjBL-based learning through questionnaires distributed, (2) Submission of material to service participants related to the PjBL learning model and syntax in this learning model explained by the speaker, then (3) Teachers are given the task of compiling and designing chemistry LKPDs using the PjBL model, (4) Teachers will present the results of the LKPD design compiled, and (5) evaluation of activities. The results of the service activities carried out can provide experience and understanding for chemistry teachers in Padang city regarding the PjBL learning model. Participants who attended this service activity could prepare chemistry teaching materials using the PjBL model so that teachers could be more innovative and creative. This activity service can provide motivation for teachers to prepare teaching materials in accordance with the demands of the Kurikulum Merdeka, especially in the implementation of project-based learning.

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INTRODUCTION

The Kurikulum Merdeka is one of the options that education units can choose in the 2022/2023 and 2023/2024 school years. This curriculum emphasizes learner centered learning with a focus on strengthening character. The independent curriculum was first implemented in 2021, with several schools in various provinces becoming Sekolah Penggerak. The Sekolah penggerak program is a school that has undergone various stages of selection at the national level and is administratively qualified to implement the independent curriculum. (Nursalam, et al., 2023). The Sekolah Penggerak program is implemented in stages and still requires structured assistance to schools that have graduated from the Sekolah penggerak program. (Sumarsih et al. 2022).

The main focus of the Sekolah Penggerak is to implement the independent curriculum with the aim of improving holistic learning to realize the Pancasila learner profile. The hope is that with

the implementation of the Pancasila learner profile, Indonesian students are expected to be able to become creative human beings in the 21st century and have a contribution in developing Indonesia, as well as being resilient in facing global challenges. (Dewi, 2023). For the success of all that is the goal of education in Indonesia today, of course, the role of a teacher who is able to be a Sekolah Penggerak in taking action to produce positive things for students is needed. (Restu Rahayu et al. 2021).

An independent learning teacher is a teacher who is creative, innovative and skillful in carrying out learning with students. Guru Penggerak, the teachers that teach in Sekolah Penggerak, should be able to build and develop relationships between teachers and schools with the wider community and play the role of a learner as well as a driving force within a school. (Sibagariang et al. 2021). Being a Guru penggerak is expected to be able to adapt learning to current technological developments by presenting learning materials online. Teachers are also expected to be able to carry out learning with a model that can increase the creativity of students in accordance with the demands of the independent curriculum. (Surahman et al 2022). In Sekolah Penggerak, as an implementation of an independent curriculum, teachers are required to be able to direct learning with Problem Based Learning (PBL) and Project Based Learning (PjBL) learning models.

Guo et al. (2020) explained that PjBL is meaningful learning because its orientation is to complete contextual-based projects. Based on this definition, this learning model requires creative and innovative teachers in order to carry out learning that can create new generations who have creativity and critical thinking.

Learning models with PjBL at this time is certainly familiar to us in the world of education, especially in the application of the current Kurikulum Merdeka, but even so, teachers in the city of Padang, especially chemistry teachers, are still lacking preparation in carrying out learning with this PjBL model. Before carrying out learning in the classroom, of course, it requires teaching materials or learning media, but for teaching materials used by Padang city chemistry teachers, especially with the PjBL model, it is still very limited. So that, the community service of Training and Preparation of digital teaching materials to support project-based learning in Sekolah Penggerak for chemistry teachers in Padang is carried out to solve the problem.

Since the digital learning is one of the choice of accelerate the successnes of Kurikulum Merdeka, the preparation of digital teaching materials is important for teachers. However most of teachers barely prepare the digital teaching materials. This is known from the results of filling out the community service questionnaire that was distributed. The purpose of filling out this questionnaire is to find out how the level of need for community service is carried out.

Based on the results of the questionnaire distributed to the Padang city chemistry MGMP participants which was conducted on August 11, August 18 and August 25, 2023 which was attended by 48 participants, it can be analyzed that 85% of the chemistry teachers still do not understand the PjBL model. Teachers are less familiar with this learning model because it is quite rarely applied to learning with the previous curriculum because the work of this learning model is also quite complicated and requires new creativity and innovation for teachers before being implemented with students. From the questionnaire, it was also found that the percentage of chemistry teachers who had never compiled teaching materials using the PjBL model was only 5% and the percentage of chemistry teachers who who had taught with teaching materials using the PjBL model was 2%. Most of teacher, 85% said they need the training in preparation of digital teaching materials to support project based learning in sekolah penggerak.

The results of the service questionnaire given to participants in the chemistry MGMP activities show that chemistry materials have been taught by several teachers using the PjBL model. The

chemistry materials that have been taught by MGMP participant chemistry teachers in these community service activities are molecular form chemistry, petroleum, acid base, reaction rates, green chemistry and chemical bonds while for other chemical materials have never been taught using the PjBL model. While teaching materials for chemistry materials that have been prepared by chemistry teachers in the city of Padang using the PjBL model are green chemistry materials and electrolyte and non-electrolyte solvents.

Based on the results of the needs questionnaire distributed to the participants of the community service activities carried out, it appears that this service is important for chemistry teachers in Padang city to prepare themselves in preparing teaching materials using the PjBL model to match the expectations of the independent curriculum. In this activity, chemistry teachers participating in MGMP are not only given theoretical knowledge but also given training on how to develop these teaching materials after listening to the delivery of material from resource persons who are very helpful regarding in-depth explanations of the PjBL model. It is hoped that community service with the theme "Training and Development of Digital Teaching Materials that Support Project-Based Learning in Mover Schools for Chemistry MP Teachers in Padang City" can provide benefits for every participant who attends the service activity.

METHOD

The Service activities are carried out in the form of training through lecture methods by resource persons, discussions and direct practice in making chemistry teaching materials using the Project Based Learning model. This community service activity was carried out for 3 meetings, starting from August 11 with the topic of basic concepts of project based learning, August 18 with the topic of practice on preparation of project based learning teaching materials and August 25, 2023 with the topic of digitalized of teaching material using *liveworsheet application*. The activity was held in the chemistry standard room FMIPA Universitas Negeri Padang. This community service activity was carried out together with all Padang city chemistry teacher participants who participated in the Padang city chemistry MGMP. The number of participants who attended this activity on the first day was 48 participants, the second day was 41 participants and the third day was 38 participants.

The mechanism of the implementation of the service carried out starts from the explanation of the material by the resource person, the discussion between the speaker and the service participants, the preparation of the chemical LKPD design using the PjBL model, the presentation of the LKPD design results prepared by the teacher and the final reflection or discussion on the results of the LKPD presentation prepared by the teacher. The process of preparing LKPD using the PjBL model is carried out in groups, therefore in the second and third meetings the service activities are carried out in groups. In this service activity, an evaluation of activities is also carried out which aims to see how the strengths and weaknesses of the activities are carried out. The measuring instrument used to determine the understanding and needs of the training conducted is a questionnaire. The questionnaire distributed to chemistry teachers contains the level of understanding in the implementation of learning in chemistry material using the PjBL model.

RESULTS AND DISCUSSION

The activity aims to help solve the problems currently being faced by chemistry teachers, especially for chemistry teachers in Padang city. This community service activity has the theme of training and developing digital teaching materials to support project-based learning in driving schools for MP chemistry teachers in Padang city. Through the activities carried out,

teachers can get new knowledge about the PjBL learning model through the speaker's explanation of the PjBL learning model, the syntax used in the PjBL model and how to develop teaching materials using the PjBL model. In the service activities carried out, teachers not only obtain material in theory but also practice how to prepare teaching materials using the PjBL model.

This community service implementation activity was carried out by a community service team with the head of the service implementer, Okta Suryani, S.Pd., M.Sc., Ph.D together with team members Trisna Kumala Sari, M.Si., Ph.D, Dr. Riga, S.Pd., M.Si and Admi Salma, M.Pd and assisted by several chemistry students FMIPA UNP. The students who participated in the service activities were: Sriwahyuni Naibaho, Yana Lendarwati, Yulinda Sari, Nafisah Yulia Rahmad, Nurul Natasya, Aglin Velly, Harris Prayudha, Rismi Verawati, and Abdul Rahman. This activity was carried out for three meetings with each meeting there was a presentation of material by speakers who came from UNP chemistry lecturers. The resource persons as presenters in the service activities carried out were Prof. Dr. Mawardi, M.Si, Eka Yusmaita, M.Pd and Faizah Qurrata Aini, M.Pd.

The activities carried out at the first meeting, namely on 11 August 2023, were also officially opened by the community service team as well as remarks from the head of the community service implementer, namely Mrs. Okta Suryani, S.Pd., M.Sc., Ph.D. Furthermore, remarks from the head of the research and community service center (LP2M) of Padang State University by Prof. Dr. Mawardi, M.Si and remarks from the chairman of the Padang city chemistry MGMP by Mrs. Dewi Surya Indravita, S.Pd., M.Si. The following is documentation of the first meeting of community service activities together with the Padang city chemistry MGMP which is listed in figure 1 below.

Figure 1. The 1st meeting: workshop of Project Based Learning (PjBL) the learning process in accordance with the demands of the Kurikulum Merdeka

At the first meeting, the next activity carried out was the delivery of material regarding the Project Based Learning (PjBL) learning model presented by Prof. Dr. Mawardi, M.Si. Prior to the delivery of this material, the service team distributed questionnaires to MGMP activity participants to see how the teachers' level of understanding of the PjBL learning model was and what the conditions of teaching materials used during classroom learning were, especially for schools that had implemented the independent curriculum or as driving schools. The questionnaire distributed can also provide information to the service team on what chemical materials have been applied to this PjBL model.

Based on the results of the analysis of the questionnaires distributed, it appears that there are still schools that have not become driving schools, but even though these schools have not

become driving schools it is not a problem because in the future all schools in Indonesia are expected to become driving schools but it is carried out gradually. So this service activity has a good positive impact on teachers who have not taught at the driving school because they will have better preparation before teaching at the driving school later so that teachers can create new things for students. This is in accordance with research conducted by (Sijabat et al. 2022), stated that being a driving teacher will later become a leader in every learning process so that a teacher is expected to carry out learner-centered learning so that the resulting graduates are not only academically intelligent but have noble character in accordance with the values of Pancasila. Therefore, to arrive at the expected teachers in the driving school program, it is necessary to conduct continuous and collective training on teacher self-development.

The material presented at the first meeting in the service activities covered the learning process in accordance with the demands of the Kurikulum Merdeka, especially with the implementation of learning with the PjBL model. The presentation of material by the speaker about the introduction of the PjBL model and how to implement learning with this model. PjBL is a learning model that is carried out by making projects as the final result of learning, by making projects that students can improve their critical thinking skills and creativity and create new innovations in themselves.

The second meeting of community service activities was held on August 18, 2023 which was attended by 41 participants from chemistry teachers who participated in the Padang city chemistry MGMP. This activity was carried out in the form of delivering the second material by Mrs. Eka Yusmaita, M.Pd regarding the learning syntax of the PjBL model and conducting training to develop teaching materials using the PjBL model. In the implementation of this activity, participants were formed into groups because in the second meeting activities and the third meeting training there will be direct training to develop project-based teaching materials. In the second meeting the speaker will explain in detail what are the stages of the PjBL model and how the characteristics of the chemical material will be arranged using the model.

The following is an example of documentation of the 2nd meeting when conducting discussions between groups can be seen in Figure 2 below.

Figure 2. The process of practicing the preparation of project-based learning teaching materials by the teachers

Service activities at the second meeting in addition to the presentation of material by the resource person, participants were also directed to compile teaching materials or make teaching material designs using the PjBL syntax that had been previously presented. Participants will conduct discussions together with the group team that has been previously selected and make

the design of the teaching materials on the cardboard paper that has been provided by the committee beforehand. The third meeting activity was closed by giving assignments to participants for 6 days before the implementation of the third meeting activities, starting from August 19 to August 25, 2023 to design project based teaching materials. The results of the group project assignments from the participants will be presented at the third meeting of the next service activity.

CONCLUSION

Informal education in short class as the used method has fulfilled the objective of this community service. This training can increase teachers' understanding of the Project Based Learning (PjBL) learning model and can provide experience for chemistry teachers to be able to develop chemistry teaching materials using the PjBL model. It is hoped that using this model can provide new innovations for teachers to be able to carry out learning that can improve the skills of students, so that teachers can prepare teaching materials in accordance with the demands of the independent curriculum in driving schools. To continue the result of this community service, we suggest other opportunities for the next community service, there is the training of the validation process of the prepared Project-Based Learning teaching materials.

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BIBLIOGRAPHY

Afriyanti, D., Kroeze, C., & Saad, A. (2016). Indonesia palm oil production without deforestation and peat conversion by 2050. *Science of The Total Environment*, 557–558, 562–570. https://doi.org/10.1016/j.scitotenv.2016.03.032

Dewi, Radeni Sukma Indra, and Mudrikah Mudrikah. 2023. "Analisis Implementasi Kurikulum Merdeka Pada Sekolah Penggerak Di SDN 1 Selorejo Kecamatan Dau Kabupaten Malang." Jurnal Simki Pedagogia 6(2):500–511. doi: 10.29407/jsp.v6i2.327.

Guo, Pengyue, Nadira Saab, Lysanne S. Post, and Wilfried Admiraal. 2020. "A Review of Project-Based Learning in Higher Education: Student Outcomes and Measures." International Journal of Educational Research 102(May):101586. doi: 10.1016/j.ijer.2020.101586.

Kusumaningtyas, Aisyah Tiara, Omay Sumarna, and Sjaeful Anwar. 2023. "Creative Thinking Skill Indicators in PjBL-Based Reaction Rate Student Worksheets." 9(8):6503–9. doi: 10.29303/jppipa.v9i8.4347.

Nursalam, Nursalam, Sulaeman Sulaeman, and Ridhwan Latuapo. 2023. "Implementasi Kurikulum Merdeka Melalui Pembelajaran Berbasis Proyek Pada Sekolah Penggerak Kelompok Bermain Terpadu Nurul Falah Dan Ar-Rasyid Banda." Jurnal Pendidikan Dan Kebudayaan 8(1):17–34. doi: 10.24832/jpnk.v8i1.3769.

Restu Rahayu, Rita Rosita, Yayu Sri Rahayuningsih, Herry Hernawan, Prihatin. 2021. "Jurnal Basicedu." Jurnal Basicedu 5(4):2541–49.

Sibagariang, Dahlia, Hotmaulina Sihotang, Erni Murniarti,) Smk, and Pariwisata Paramitha. 2021. "Peran Guru Penggerak Dalam Pendidikan Merdeka Belajar Di Indonesia." Jurnal Dinamika Pendidikan 14(2):88–99.

Sijabat, Oslen Parulian, Maria Marta Manao, Asima Rohana Situmorang, Agusmanto Hutauruk, and Simon Panjaitan. 2022. "Mengatur Kualitas Guru Melalui Program Guru Penggerak." Journal of Educational Learning and Innovation (ELIa) 2(1):130–44. doi: 10.46229/elia.v2i1.404.

Sumarsih, Ineu, Teni Marliyani, Yadi Hadiyansah, and Asep Herry Hernawan. 2022. "Analisis Implementasi Kurikulum Merdeka Di Sekolah Penggerak Sekolah Dasar." 6(5):8248–58.

Surahman, Rahmani, Redha, Radiana, Usman, Ardianus Saputra. 2022. "Kata Kunci :" 03(04):376–87.