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Teacher's Perception of Environment Project-Based Collaborative Learning as Strengthening Implementation Curriculum of Merdeka

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Abstract: Collaborative learning based on the environment project as a differentiating model from the implementation of the curriculum of Merdeka. This study aims to obtain teacher perceptions before and after workshops on collaborative learning based on the environment project as a practice of implementing an curriculum of Merdeka in schools. Teacher perceptions are very important in increasing competency in facilitating differentiated learning of their students as 21st-century learners. This study uses an exploratory study through a qualitative approach. This research involved 19 teachers of social and exact sciences at SMAN 3 Sampang. The teachers cover the fields of Geography, Economics, Sociology, History, Mathematics, Biology, and Chemistry. Teachers were as key informant. Data were collected from October 2022 using instruments developed. The data consisted of 17 questions about project-based collaborative learning as a strengthening implementation curriculum of Merdeka. Data collection was carried out through deep interviews, observation, and filling out questionnaires. The instruments used are based on indicators of collaborative learning based on the environment project and guidelines for implementing the curriculum of Merdeka made by the Ministry of Education and Culture. The results of this study indicate that there is a significant increase in teachers' perceptions of collaborative learning based on the environment project as a strengthening implementation of the curriculum of Merdeka, which has increased from before and after participating in learning workshops. As many as 84% of teachers have mastered the flow of the project-based collaborative learning model and as many as 74% of teachers have understood the strengthening implementation of the curriculum of Merdeka. This indicates that there has been a significant change in the mastery and understanding of the exact and social teachers in applying the differentiated learning model as a form of strengthening implementation curriculum of Merdeka. In the future, it is necessary to continue training programs or workshops on the strengthening implementation of the curriculum of Merdeka with a focus on other indicators.

Kata Kunci: teacher perception; collaborative learning; project environment; strengthening implementation; curriculum of merdeka

INTRODUCTION

The teacher's role is very important in the sustainability of the education ecosystem in the 21st century and society 5.0 to support learning outcomes. The teacher as a lesson planner (Pratikno, Hermawan, & Arifin, 2022), have a new pedagogic strategy (Astuti, 2018; Purwoko, Andayani, Muntar, & Diartha, 2017), and professional design skills (Leksono, Rustaman, & Redjeki, 2013); increase 21st skills (Bialik & Fadel, 2015) where the teacher's function is very strategic for education. The teacher's role is strengthened by stakeholder collaboration, partnerships, and government policies (Daga, 2022). So, there is a need to strengthen the role of teachers through training or policies to improve capabilities and abilities in learning. At the beginning of the implementation curriculum of Merdeka has reaped a lot of controversy. The preparation curriculum of Merdeka was considered too hasty and did not refer to the results of studies that had been mature based on the evaluation results of the Revised 2013 Curriculum and paid little attention to the readiness of the education units and teachers. In fact, this curriculum includes several important changes in terms of substance, implementation, and evaluation. Nonetheless, the curriculum of Merdeka is still being implemented in stages starting in the 2021/2022 school year in certain educational units. The Ministry of Education and Culture explained that there is a need for significant curriculum changes to deal with learning lagging and gaps during the COVID-19 pandemic (Kementerian Pendidikan, Kebudayaan, Riset dan Teknologi, 2022).

Strengthening implementation of the curriculum in the 21st century requires the participation of teachers in terms of preparation. Innovation in teacher learning is determined by the level of material preparation (Haryani, Coben, Pleasants, & Fetters, 2021). Preparing assessments in the 21st century learning is one of the teacher readiness strategies to navigate and connect learning materials (Haviz, Lufri, & Maris, 2020). In learning readiness, of course, the teacher experiences obstacles. Imperfect socialization, planning timing, compiling tools, and an unclear assessment system are obstacles for teachers in implementing the new curriculum (Retnawati, 2016). So, these obstacles must be overcome immediately so that the expected learning outcomes of the curriculum of Merdeka can be exceeded. The learning outcomes in the end can produce students who have the profile character of Pancasila students.

The environment project is one of the strategies in learning outcomes to provide strengthening of the Pancasila student profile. Learning curriculum strategies are needed to improve the quality of education (Barlian, Solekah, & Rahayu, 2022), independent action is needed to strengthen the profile of Pancasila students (Leny, 2022), Using the environment as a project is an act of free learning in nature (Ikhsan, Kurnianto, Apriyanto, Nurdin, & Bachtiar, 2019); outdoor study (Fagerstam, 2012). The environment provides space for student practice to finding solutions to problems. The environment is used by teachers to design STEM learning within the framework of multidisciplinary subjects so that they can comprehensively improve student skills (Rusydiyah, Indarwati, Jazil, Susilawati, & Gusniwati, 2021). Designing multidisciplinary learning in collaboration between subject teachers can save time (Roschelle & Teasley, 1995) and show significant results in strengthening the student profile of Pancasila as a form of implementing differentiated and independent learning.

Environmental project-based collaborative learning for teachers of social and

exact sciences as an strengthening implementation of an curriculum of Merdeka, namely differentiated learning. The collaborative model is an alternative for teacher learning to improve learning outcomes (Susanti, Prasetyo, & Nasution, 2017); collaboration give strengthening understanding of environment (Prastiyono et al., 2021). The curriculum of Merdeka provides space and time for teachers to develop learning using collaborative projects (Latip, Rahmaniari, Purnamasari, Abdurrahman, & Lestari, 2022). The curriculum of Merdeka provides space and time for teachers to develop learning using collaborative projects (Sabandar, Martoprawiro, & Unhalu, 2015). Students need different learning conditions between scientific and social learning experiences to form scientific character (Aini et al., 2019). Thus, collaborative learning is believed to be able to realize the goals of the environment project in strengthening differentiated learning.

In previous studies, many researchers have found teachers' perceptions of learning aspects such as teacher perceptions regarding the use of learning applications (Azizah, Hastuti, & Rahman, 2021); online learning processes (Suryani & Tripalupi, 2021); learning crisis recovery (Nugraha, 2022). However, not much has specifically discussed collaborative learning and how it is perceived to implement through an environment project for teachers of social and exact sciences as an implementation curriculum of Merdeka. Thus, the novelty of this research lies in the collaboration between Social Sciences and exact sciences teachers in collaborative learning based on environmental projects producing a multi-perspective view that is capable of bringing extraordinary results in the field. This study presents the perceptions of teachers in SMAN 3 Sampang, Madura after collaborating on flood impact content in Sampang City into the strengthening implementation of an curriculum of Merdeka in social and exact sciences subjects. Teacher perceptions and understanding will be positively correlated with student learning outcomes as differentiated learning leaders.

METHODS

The research method uses an exploratory study through a qualitative approach. An exploratory study is an initial research that aims to get an overview of a topic that will be studied further (Sugiyono, 2017). This research involved 19 teachers of social and exact sciences at SMAN 3 Sampang. The teachers cover the fields of Geography (4 people), Economics (3 people), Sociology (2 people), History (3 people), Mathematics (2 people), Biology (2 people), and Chemistry (3 people). Teachers were as informant key. There are several reasons regarding as informant key. First, social sciences and exact sciences teachers can teach content with an emphasis on environmental projects. Second, teachers of social and exact sciences have same character using collaborative-based learning. Data was collected from October 2022 using instruments. The instruments used to determine the teacher's ability to understand collaborative learning as a strengthening of the implementation curriculum of Merdeka are open and closed questionnaires. The open questionnaire contains questions about understanding the concept curriculum of Merdeka, how to teach it and the development of collaborative learning in high school. The closed questionnaire aims to find out the teacher's sources of information in obtaining the concept of environment project-based learning, and how difficult it is to understand and teach the model. In addition, the closed questionnaire also contains teacher professional development in receiving training on philosophy, teaching techniques, assessments and global and local issues related to environmental projects. The data consisted of 17 questions about project-based collaborative learning as an curriculum of Merdeka implementation (Barlian et al., 2022; Roschelle & Teasley,

1995; Rusydiyah et al., 2021). The data were analyzed, presented, and interpreted descriptively, then compared with previous similar results that had been revealed elsewhere.

The dimension of teacher perception measured in this study is mastery of material based on indicators of collaborative learning based on the environment project as a form of curriculum of Merdeka implementation. To collect data in the field, the research variables are translated into indicators. In detail, the indicators and instruments used are as follows.

Table 1. Range of Teacher Mastery Test Scores Against the Flow of the Environment Project-Based Collaborative Learning Model

Category	Score Range
Very good Mastery	81-100
good of Mastery	61-80
Enough of Mastery	41-60
Lack of Mastery	21-40
Not good Mastery	0-20

Source: Modification (Sugiyono, 2017)

Table 2. Environment Project-Based Collaborative Learning Stages

Stages
Set learning goals and project theme
Develop collaborative strategies and plan activities
Undertake collaborative projects and agree on problem-solving outcomes
Present results and conclude
Evaluate project results

Source: Modification (Sugiyono, 2017)

Table 3. Category of Teacher Understanding-Based Strengthening Implementation Curriculum of Merdeka

Category Understanding	Score Range
Deeply understand	81-100
Understanding	61-80
Simply understand	41-60
Lack of understanding	21-40
Do not understand	0-20

Source: Modification (Sugiyono, 2017)

Table 4. Indicators of Strengthening Implementation Curriculum of Merdeka

Indikator	Nomor soal
Understand the guidelines for the implementation the curriculum of Merdeka	A1,A2,A3,A4, A5
Understanding Learning Outcomes	B1,B2,B3,B4,B5
Developing learning objectives (TP) and learning objectives flow (ATP)	C1,C2,C3,C4,C5
Designing Teaching Modules	D1,D2,D3,D4,D5
Develop collaborative Project Learning	E1,E2,E3,E4,E5, E6,E7,E8,E9,E10
Make Diagnostic, Formative, and Summative Assessments	F1, F2, F3,F4,F5

Source: Modification (Sugiyono, 2017)

RESULTS AND DISCUSSION

Results

The results of teacher mastery of the environment project-based collaborative learning flow can be seen in graph 1. Based on graph 1, the results of teacher mastery are seen in the conditions before and after participating in the following environment project-based collaborative learning workshops.

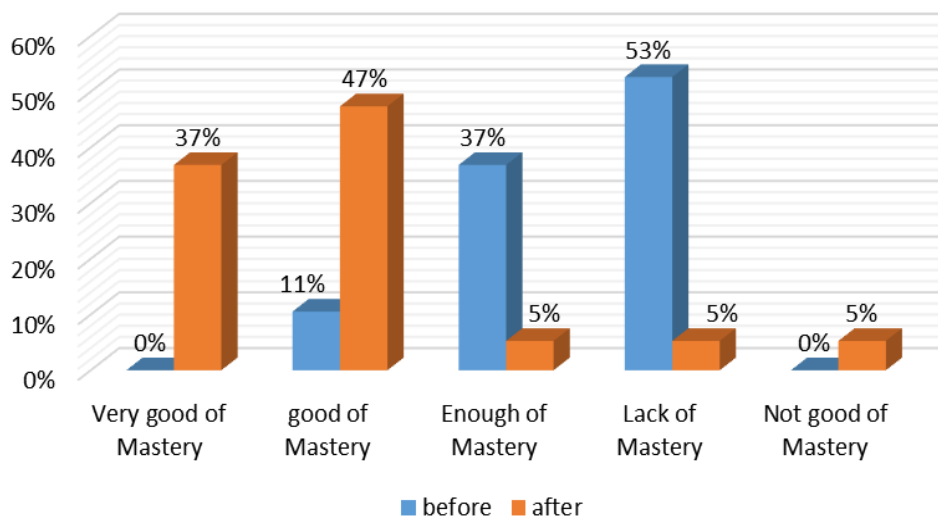


Chart 1. Mastery of Project Collaborative Learning Flow

Based on chart 1, it can be seen that the difference in the percentage of teacher mastery perceptions of the project collaborative learning flow before and after the learning workshop is quite unequal. In graph 1 it can be seen that before the learning workshop was held, 53% of the teachers had little control over the flow of project collaborative learning. However, after conducting learning workshops, teacher mastery increased. 37% said they mastered it and 47% said they mastered the project collaborative learning flow as a form of implementing an curriculum of Merdeka by carrying out differentiated learning.

The results of the pre-test, post-test, and Gain scores on the mastery of project-based collaborative learning flow as an strengthening implementation curriculum of Merdeka can be seen in Graph 2. Based on Graph 2, an overview of the results of the teacher's pre-test, post-test, and gain scores can be seen when before and after participating in an environment project-based collaborative learning workshop as the strengthening implementation of the following curriculum of Merdeka (IKM).

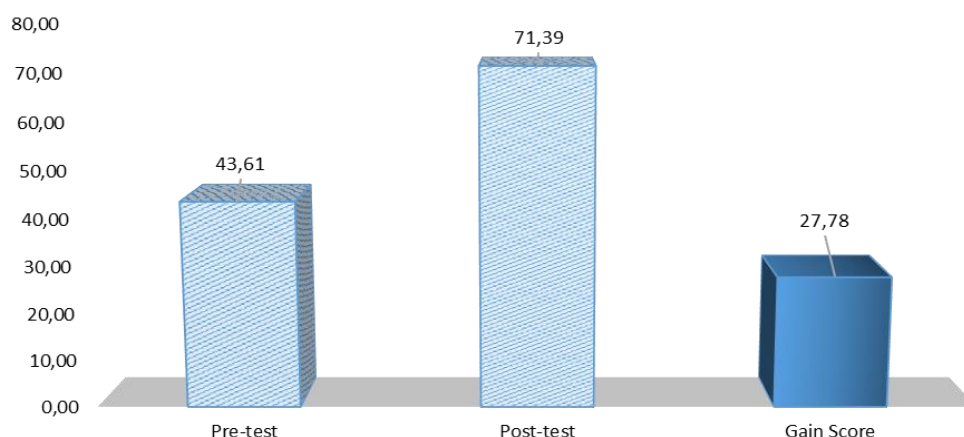


Chart 2. Results Before and After the Workshop on Project Collaborative Learning Materials

Based on chart 2, it can be seen that there is a significant difference in the results before and after the collaborative learning project environment-based project workshop. The graph shows that before the learning workshop was held, the teachers got an average score of 43.61 points. However, after conducting learning workshops, the teacher's average score increased. The teachers got an average score of 71.39 points, with an increase in the gain score of 27.78 points.

Furthermore, the results of teachers' understanding based on indicators of strengthening implementation curriculum of Merdeka can be seen in Graph 3. Based on Graph 3, an overview of teachers' understanding based on indicators of curriculum of Merdeka implementation can be seen when after participating in a learning workshop as an strengthening of the following curriculum of Merdeka.

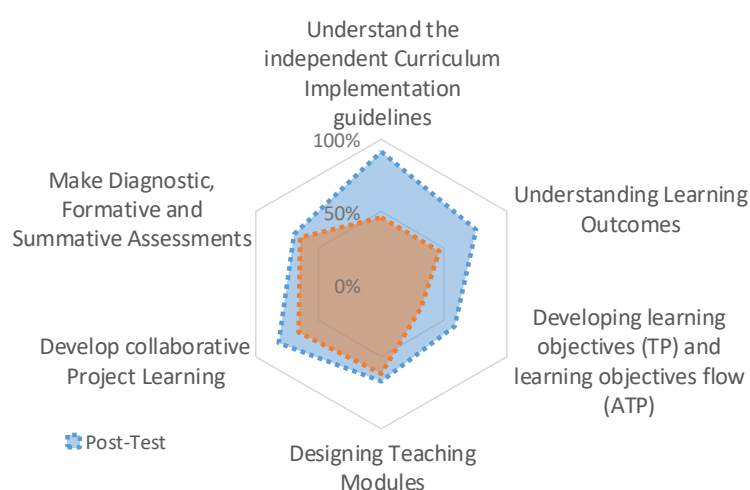


Chart 3. The results of the teachers' understanding were based on material indicators before and after participating in an environment project-based collaborative learning workshop

Based on graph 3, it can be seen that there are differences in the level of understanding of the teachers based on the material indicators for implementing the curriculum of Merdeka. In the graph, it can be seen that the indicator understands the material (> 81%) lies in the teachers understanding the curriculum of Merdeka implementation guide by 92% and compiling learning projects by 82%. However, indicators of sufficient understanding of the material (41-60%) lie with the teachers developing learning objectives (TP) and learning objectives flow (ATP) by 58%.

Discussion

Referring to the research data, it can be seen that this study it is illustrated how the teacher's perception of 1) mastery of the project-based collaborative environment model and 2) understanding of the material for strengthening implementation on the Curriculum of Merdeka.

Mastery of The Project-Based Collaborative Environment Model

The collaborative environment project-based model is not immediately accepted by teachers. In the opinion of most teachers, they have never practiced collaboration between exact and social teachers. This learning merger or collaboration is the first to be carried out at SMAN 3 Sampang. Then, most of the teachers still do not understand the strengthening implementation of the curriculum of Merdeka. The implementation of the curriculum has never been done before either by the central government, the local education office, or supervisors. Collaborative model learning activities based on the environment project as a form of implementing the curriculum of Merdeka at SMAN 3 Sampang initiated by the tridharma activities of the Surabaya State University provide studies and ideal forms of implementation in the field. Lecturers providing direction and guidance for project-based environmental collaborative learning practices carried out by Social Sciences and exact sciences teachers (see figure 1).



Figure 1. Teacher Collaborative Learning Practice with Field Lecturer

Currently environmental project-based learning in Indonesia has been included in the learning outcomes of the curriculum of Merdeka. The learning outcomes of all subjects are explained in detail the stages of learning both process skills and conceptual understanding (Degeng & Mandagi, 2019). The description of the stages can be seen in the subjects of geography, history, sociology, economics, physics, biology, and so on such as "at the end of the phase, students are able to identify, understand, process and analyze, and evaluate effectively...describe ideas, and publish them ". To be able to achieve these competencies, it is necessary to have teachers who are professional in

teaching environmental project-based so that in the end awareness about conservation in Indonesia will be realized. Most of the teachers stated that the teacher's mastery of the project environment-based collaborative learning flow had not been implemented properly. However, all teachers were enthusiastic about following the process in the field. The process carried out by the teacher to a new material is a form of natural adaptation (Suryani & Tripalupi, 2021). Through workshops, teacher knowledge and competence in mastering a learning model increases (Purwoko et al., 2017). In addition, the involvement of teachers directly in the environment produces learning experiences in making a project (Susilawati, Khoiri, Wijayanto, Masturi, & Xaphakdy, 2018). Collaborative learning can provide opportunities to lead to successful learning practices. As a technology for learning (technology for instruction), collaborative learning involves active participation of students and minimizes differences between individuals. Collaborative learning has added to the momentum of formal and informal education from two forces that meet, namely: (1) practical realization that life outside the classroom requires collaborative activities in real world life; (2) foster awareness of social interaction in an effort to realize meaningful learning.

Teachers at SMAN 3 Sampang gained new experience in going into the field by implementing collaborative learning based on an environment project with case studies analyzing the impact of flooding. The direct observation activity was carried out on the banks of the Kemuning River near the school. A direct view of field objects can make important material in learning (Haryani et al., 2021). Field lecturers accompanying social sciences and exact sciences teachers to collect interview data with residents (see figure 2).



Figure 2. The practice of Data Collection by Teachers with Field Lecturers

The collaborative learning model based on the environment project can improve the ability of exact and social teachers to work together and collaborate. Environmental-based project learning is a responsive innovation from post-COVID19 pandemic conditions (Wicaksono, Lubis, Suprpto, & Ulimaz, 2021), the effect of the project based model on environment learning and environmental literacy in relation to creative thinking skills (Salym, Soekamto, & Osman, 2022); alternative learning (Susanti et al., 2017), Implementation *skill* STEM (Rusydiyah et al., 2021), literation project (Suryandari, Fatimah, Sajidan, Rahardjo, & Prasetyo, 2018). The collaborative method is one of the efforts to synergize teacher resources so that several learning outcomes are completed in one activity. Collaborative methods are effectively carried out in environmental conditions

that can influence the same learning outcomes (Sabandar et al., 2015). The teacher's learning environment creates a social environment characterized by a democratic environment and a scientific process (Sumarmi, 2015). The main responsibility of teachers is to motivate students to work collaboratively and think about the social problems that take place in learning. In addition to solving problems in collaborative groups, students learn democratic principles from day to day through interaction between peers. In a social context, theoretically collaborative learning functions as a democracy laboratory for students to become democratic citizens by interacting around useful issues through forming a vision of a good society.

The implementation of an environment project-based collaborative learning model by the teacher also has obstacles. The obstacles faced were still in the form of technical ones, namely compiling learning tools. Teachers who take part in field activities as research subjects find it difficult to compose learning instruments independently because of the role and function of being a person who is given knowledge, not making an idea (Krissandi & Rusmawan, 2015). Making learning tools as research subjects, teachers feel not confident, effective, and efficient (Retnawati, 2016). The teacher acts as a source of student learning. The results of group work are reported as material for class discussion. In this class discussion, the involvement of higher order thinking from students is prioritized. Evaluation of activities is carried out through the accumulation of individual work effort during the investigation (El Rizaq, 2021). Important concepts in the group-investigative approach are: avoiding evaluation using tests, prioritizing learning by doing, building intrinsic motivation, prioritizing student choices, treating students as responsible people, open questions, encouraging mutual respect and mutual assistance, building self-concept positive. So, to overcome these obstacles, teachers are expected to continuously attend various pieces of training and workshops to obtain a comprehensive and complete understanding of the learning model in the curriculum of Merdeka. Peer assessment is an assessment by fellow educators of the planning and implementation of learning carried out by the educator concerned. This is aimed at building a culture of mutual learning, cooperation and mutual support. Assessment by the teacher aims to build a reflective culture, which is an activity carried out to encourage continuous reflection on the learning process and become an integral part of the learning process itself. After educators reflect and get input from colleagues, educators will continue to improve the quality of teaching which leads to the quality/quality of students.

Understanding of The Material For Strengthening Implementation on The Curriculum of Merdeka

Some teachers stated that their understanding of the implementation of the curriculum of Merdeka was not optimal. Referring to the data, it was found that understanding the indicators for preparing learning objectives (TP) and the flow of learning objectives (ATP) as well as designing teaching modules had not been maximized. However, the results of this less-than-optimal understanding of teachers always have the will to make changes. A strong desire for a process of change in the strengthening implementation of an curriculum of Merdeka is urgently needed (Rahayu, Rosita, Rahayuningsih, Hernawan, & Prihantini, 2022). In the 2013 curriculum, the ATP, which has the same meaning as this syllabus, has been prepared by the government, while the ATP in the curriculum of Merdeka, the teacher must arrange himself. For teaching modules that have the same meaning as lesson plans, but have different characters teachers get new things again with every change in learning tools. This is the reason why teachers still do not have

experience in compiling ATP and teaching modules. The government sets Learning Outcomes (CP) as targeted competencies and learning objectives (TP) can be developed by teacher. However, TP and ATP is not concrete enough to guide daily learning activities. TP and ATP needs to be broken down into more operational and concrete learning objectives, which are achieved one by one by students until they reach the end of the phase. In the Merdeka Teaching Platform, the government provides examples of learning objectives, learning implementation plans or what is often known as RPP, and teaching modules. In other words, every educators need to use learning goal lines and lesson plans to guide their teaching; but they do not have to develop it themselves. Changes that occurred in the curriculum of Merdeka from the 2013 curriculum are still a scourge for teachers, especially in devices (Barlian et al., 2022). Understanding ATP and teaching modules comprehensively, takes time, so the workshops that were conducted only a few times were still not able to produce maximum results. The strengthening implementation of the curriculum of Merdeka in the field must be carried out in a structured, systematic, and massive manner to get maximum results (Pratikno et al., 2022).



Figure 3. a) Collaborative Learning Planning b) Field Project Briefing

In ideal conditions, mastering collaborative models based on environmental projects and understanding the material for strengthening implementation curriculum of Merdeka is a necessity. Every change that occurs must be interpreted by teachers as a form of effort to improve the quality of education (Usman & Eko Raharjo, 2013). Changes in learning also need to be supported by the development of innovations carried out by teachers so that learning outcomes are passed (Noviar, 2016). The implementation of the curriculum of Merdeka is believed to be able to recover from the learning crisis of the COVID-19 pandemic so that schools and teachers as the foremost stakeholders must be able to meet the government's expectations (Nugraha, 2022), planning to improve the quality of education (Maghfiroh & Sholeh, 2022), produce teacher cooperation and student profiles of Pancasila (Sumarsih, Marliyani, Hadiyansah, Hernawan, & Prihantini, 2022), effectively create a learning environment that helps students' literacy (Ikhsan et al., 2019). Thus, the strengthening implementation of the curriculum of Merdeka in schools is a priority for the progress of learning.

Implementation of changes in education policy, including curriculum, is a complex process. The government looked that curriculum implementation is a long learning process so that educators and educational units are given the opportunity to implement the Independent Curriculum according to their respective readiness. Just as students learn according to their readiness and achievement stages, educators and educational units also

need to learn to implement of the curriculum of Merdeka according to their respective readiness, and gradually become more proficient in using it. the stages of curriculum implementation as well developed to assist educators and educational units in setting targets for the implementation of the curriculum of Merdeka.

The readiness of educators and educational units certainly varies, therefore this implementation stage is designed so that each educator can confidently try to implement the curriculum of Merdeka. The self-confidence in question is the belief that educators can continue to learn and develop their own abilities to do their best in implementing the curriculum. The ability to continue learning is an important capital for educators, including in implementing the curriculum. He does not have to immediately be fluent in applying it, but through stages. That education units can start implementing them at a lower stage compared to other education units, but their implementation still adheres to the principles of designing a curriculum that is based on the philosophy of freedom to learn and leads to strengthening predetermined competencies and characters.

The results of this study are relevant to the results of studies conducted by Meilinda et al., (2017) about the perceptions of prospective science teachers and science teachers about climate change, Rusydiyah et al., (2021) regarding the STEM learning environment: perceptions and implementation skills of prospective science teachers, Purwoko et al., (2017) regarding efforts to increase teacher competence through the collaboration of subject teacher forums (MGMP) and prospective teacher education institutions (LPTK), Aini et al., (2019) on Indonesian teachers' perceptions of scientific projects: differences between natural and social science groups. However, there has not been much research on natural and social science teachers' perceptions of environment project-based collaborative learning as an strengthening implementation curriculum of Merdeka. Thus, collaborative learning as an curriculum of Merdeka implementation for exact and social teachers is a new finding in this study. Given that learning outcomes can be pursued effectively and efficiently through collaboration between fields of study. Collaboration between Social Sciences and exact sciences teachers in environment project-based collaborative learning produces a multi-perspective view that is capable of bringing extraordinary results in the field. The two fields complement each other in terms of scientific views. Increased understanding is triggered by the interaction of the two fields so that the learning process becomes integrated. This is what the school hopes for, social studies and exact sciences teachers to be able to become examples of differentiated learning for other colleagues.

CONCLUSION

This study concludes that the teacher's perception of collaborative learning based on the environment project as an strengthening implementation of the curriculum of Merdeka has increased from before and after attending the learning workshop. As many as 84% of teachers have mastered the flow of the project-based collaborative learning model and as many as 74% of teachers have understood the strengthening implementation of the curriculum of Merdeka. This indicates that there has been a significant change in the mastery and understanding of the exact and social teachers in applying the differentiated learning model as a form of strengthening implementation curriculum of Merdeka. However, it was found that the teacher's understanding was not maximal in the indicators for preparing learning objectives (TP) and the flow of learning objectives (ATP) and designing collaborative teaching modules based on environmental projects. There needs to be a continuation of training programs or

workshops in the future that are specific to the preparation of learning objectives (TP) and the flow of learning objectives (ATP) as well as designing project-based collaborative teaching modules.

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