

Implementation of The Independent Curriculum Teaching Module in Strengthening The Pancasila Profile

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Abstract: The purpose of this research is to produce teaching modules that are effective in strengthening the student profile of Pancasila through an active learning approach. The research method used is R&D (Research and Development) with the ADDIE model (Analyze, Design, Development, Implementation, Evaluation). Data were collected through learning style questionnaires and experiments in experimental and control classes. The questionnaire was used to measure the mutual cooperation dimension, while the test was used for students' critical thinking. Data analysis was carried out quantitatively using descriptive statistics to describe the learning outcomes of students before and after the application of teaching modules. Hypothesis testing was conducted using the Wilcoxon test to determine significant differences between the experimental and control groups. The results show that the application of teaching modules based on the Merdeka Curriculum can increase students' interest in learning and critical thinking skills in the experimental class compared to the control class. The experimental group's posttest score was significantly higher than the control group. The development of teaching modules based on the characteristics of students has proven to be valid and effective in achieving learning objectives. This can be seen from the increase in affective (mutual cooperation & critical thinking dimensions) and cognitive (formative assessment results) values.

Keywords: teaching module, the student profile of Pancasila, Merdeka Curriculum, mutual cooperation, critical thinking

1. INTRODUCTION

The national education system law emphasizes that education is a conscious and planned effort to create a learning atmosphere that allows students to actively develop their potential. Education does not only focus on cognitive aspects, but also on affective and psychomotor aspects. The education system is expected to accommodate all dimensions of learning, which are reflected in the Pancasila profile in the Merdeka Curriculum, as a basis for building character, competence, and becoming lifelong learners of Indonesian students.

The Independent Curriculum is an effort by the Indonesian government to improve the education system, as a response to the COVID-19 pandemic. According to [Yasdin \(2023\)](#), the term "curriculum" comes from the word *curren*, which means a plan to achieve educational goals. The Merdeka Curriculum is a development of the emergency curriculum that aims to overcome learning loss due to the absence of learning in schools during the pandemic. [Dewey \(1900\)](#) stated that curriculum changes are not only driven by individual desires, but also as a response to changes in society. This change is in line with the

principle of relevance, which adapts educational outcomes to the needs of society ([Majir, 2018](#)).

The Merdeka Curriculum is a curriculum developed by the Indonesian Ministry of Education and Culture, aimed at providing competency-based education and character building. This curriculum focuses on developing the skills needed by students to face the challenges of the modern era, as well as improving academic achievement. In addition, the Merdeka Curriculum aims to create students who are open-minded, critical, and innovative.

In the Independent Curriculum, the Pancasila profile is a reference for developing the character and competence of students, and is a translation of the national education goals ([BSKAP Kemendikbudristek, 2022](#)). To instill character education, three components are needed: thoughts about behavior, feelings about the importance of doing good, and the application and habituation of doing good as a character attribute that is to be formed ([Sani & Kadri, 2016](#)). Implementation of character education also requires habituation and role modeling.

Based on research conducted by [Aulia Pramita Sari et al., \(2023\)](#); [Ayub et al., \(2023\)](#); [Budiono et al., \(2023\)](#); [Maruti et al., \(2023\)](#); [Saputra et al., \(2023\)](#); [Sutisnawati et al., \(2023\)](#), the implementation of the Pancasila profile is widely applied in co-curricular activities. In fact, the Pancasila profile strengthening activities in co-curricular activities are only 2 semester credit units, while intracurricular activities are more than 100 semester credit units. So it is necessary to get used to strengthening.

Based on this, education does not only function to improve the nation's intellectuality, but also to develop the character of students into human beings with character and intellectuality, especially during learning activities. The Pancasila profile for students needs to be focused on learning activities because students spend most of their time in the school environment. In addition, there are negative impacts from the rapid development of globalization and digitalization, such as the emergence of pragmatism and hedonism.

In addition, differentiated learning is one of the approaches contained in the Independent Curriculum, which recognizes individual differences in students and provides learning

experiences that are appropriate to their learning styles, ability levels, needs and interests. According to [Labudasari et al., \(2023\)](#) differentiated learning does not mean making completely different learning plans for each student. However, it involves the use of different strategies and approaches to ensure that each student gets the support they need to achieve academic success and personality development.

If we pay attention, there are still misconceptions about the application of differentiated learning where students only learn according to their respective learning styles which can be found in several differentiated learning tutorials on Youtube. Where in the video we find that students only learn according to their respective learning styles. However, according to [Somantri et al., \(2024\)](#), the differentiated learning approach actually aims to provide variation in the learning process according to interests, profiles and learning styles.

This misconception of the practice of focusing solely on a single learning style contradicts the motivational principles of interest theory, which argue that student engagement increases when they are given the opportunity to explore topics from multiple perspectives ([James, 1899](#)). In line with the VARK model, differentiation should be dynamic; teachers should not only cater to students' learning preferences but also challenge them to develop their abilities through a variety of learning modes. [Barbe & Swassing \(1979\)](#) explain that the goal of education is not simply to label students, but rather to help them become more efficient in using various modalities. They support the idea that students who can utilize more than one sensory pathway will be more successful in learning.

The curriculum change raises several problems. Based on research conducted by [Aan Setiawan, \(2024\)](#), [Herlina et al., \(2023\)](#) & [Kohar et al., \(2024\)](#) in the implementation of the Independent Curriculum, teachers have difficulty compiling teaching modules and difficulty designing learning evaluations that are in accordance with the new curriculum. Learning planning or teaching modules in the Independent Curriculum are very important in almost every aspect of daily learning in the classroom. According to [Serdykov \(2002\)](#) a good learning plan is the basis for successful student learning,

accurate assessment, and effective classroom management. Teachers need guidelines to design quality learning plans. The development of quality learning plans requires good planning, rational organization and management, and is also an important goal in the professional development of every teacher.

Based on the background above, the researcher is interested in conducting research on, "*Implementation of the Independent Curriculum Teaching Module in Strengthening the Pancasila student profile*".

2. RESEARCH METHOD

This study uses a research and development method or often referred to as R & D, which is a research method used to produce certain products and test the effectiveness of the products made ([Sugiyono, 2017](#)). According to [Sugiyono \(2017\)](#) development research aims to find, develop and validate a teaching module product that is in accordance with the principles of learning & assessment and to strengthen the Pancasila profile. In this study, data were obtained through questionnaires and experiments. The R & D model used in this study is the ADDIE model (Analyze, Design, Development, Implementation, Evaluation).

This research was conducted in January & February 2024/2025 academic year. The data analysis technique used was descriptive quantitative (learning styles, learning interests, dimensions of critical thinking and collaborative skills) and a comparative test to assess initial abilities and effectiveness (posttest).

The data collected in this study are quantitative data obtained from the learning style & learning interest questionnaire, dimensions of mutual cooperation & critical thinking, and learning outcomes. The learning style questionnaire refers to the learning style instrument according to [Chislett & Chapman \(2005\)](#), which consists of fourteen questions. Where option A represents visual tendencies, option B represents auditory tendencies, and option C represents kinesthetic tendencies. Learning style is determined by the highest score from options A, B, and C.

Meanwhile, the learning interest indicator is measured using a questionnaire referring to the indicators according to [Slameto \(2015\)](#).

Table 1. Learning Interest Indicators

No.	Indicators
1	Having a persistent tendency to pay attention and remember something that is learned continuously
2	There is a feeling of liking and enjoyment for something that interests him
3	Gaining pride and satisfaction in something you are interested in
4	Manifested through participation in activities and events

The dimensions of critical thinking are measured using a test instrument, with indicators according to Ennis (1991) in [Ariyana et al., \(2018\)](#) are as in the table below.

Table 2. Critical Thinking Dimension Indicators

No.	Stages of Critical Thinking	Criteria
1	<i>Focus</i>	Identify key issues or problems
2	<i>Reason</i>	Provide a logical reason or explanation for the problem
3	<i>Inference</i>	Drawing conclusions supported by strong evidence or reasons
4	<i>Situation</i>	Understanding the context or situation surrounding the problem
5	<i>Clarity</i>	Explaining information or ideas clearly and easily understood
6	<i>Overview</i>	Looking at problems from multiple perspectives to gain a deeper understanding

Meanwhile, to assess the dimensions of mutual cooperation, a questionnaire was used with indicators determined based on the [BSKAP Kemendikbudristek \(2022\)](#).

Table 3. Sub-Elements of the Mutual Cooperation Dimension (Collaborative Elements)

No.	Sub Elemen
1	Cooperation
2	Communication to achieve common goals
3	Positive interdependence
4	Social coordination

The developed teaching module was assessed for its validity. This research was conducted at MTs Husnul Khotimah 2 Kuningan on the material of the Human Circulatory System. The subjects in this study were assessed by pedagogical experts and education practitioners using a qualitative validation sheet of the teaching module that was in accordance with the principles of learning and assessment.

Table 4. Learning & Assessment Principles Indicators

No.	Principle
1	Minimum component completeness
2	Essential and meaningful
3	Continuous
4	Contextual
5	Simple
6	Supporting components
7	Critical thinking competencies and characters

If the results of the validation of the teaching module contain notes from pedagogical experts and education practitioners, then the teaching module is revised to suit the researcher's needs.

3. RESULTS AND DISCUSSION

The development research conducted resulted in a product in the form of a teaching module to strengthen the Pancasila profile by paying attention to the characteristics of students in the Human Circulatory System material.

Based on the results of the analysis of learning styles and learning interests, the following data was obtained.

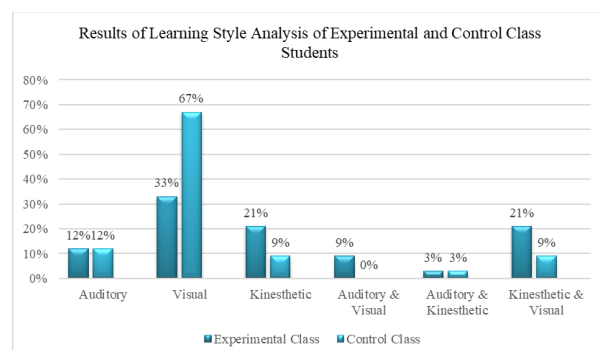


Figure 1. Learning Style Diagram of Experimental and Control Class Students

Based on the data from the chart above, visual learning styles were the most dominant in both groups. However, there was a significant difference: in the control class, the percentage reached 67%, while in the experimental class it was only 33%. Students in the experimental class tend to have a more diverse distribution of learning styles than those in the control class. The experimental class had a much higher percentage of kinesthetic (21%) and kinesthetic & visual (21%) learning styles compared to the control class (only 9% each). The experimental class was the only group that had a combination of auditory & visual learning styles (9%). Both classes had identical percentages of pure auditory (12%) and combined auditory & kinesthetic (3%) learning styles. This indicates that the tendency toward sound-based learning is quite stable across both groups.

Overall, the control class was heavily dominated by visual learners, while the experimental class was more varied, with a stronger tendency towards kinesthetic and combination (multimodal) learning styles.

Meanwhile, for the results of students' learning interests in the experimental and control classes, the following results were obtained.

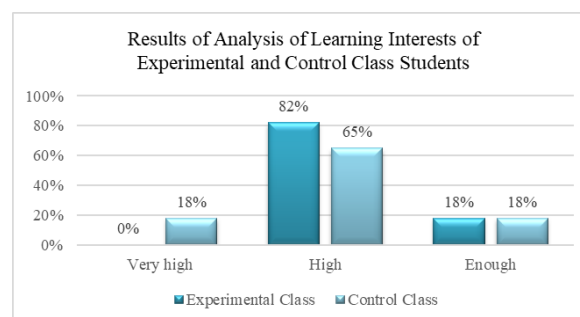


Figure 2. Learning Interest Diagram of Students in the Experimental and Control Classes

The majority of students in both classes had a high interest in learning. The experimental class had a higher percentage of high interest, at 82%, compared to the control class at 65%. Surprisingly, 0% of students in the experimental class were in the Very High category. Conversely, 18% of students in the Control Class were in the Very High category. Both classes had exactly the same percentage of students in the Enough category, at 18% each. Overall, the

Experimental Class had a more stable and strong concentration of interest in learning at the "High" level (reaching an absolute majority of 82%). The Control Class had a wider distribution of interest, where although interest was generally lower than the Experimental Class in the "High" category, they did have a small group of students with "Very High" interest.

After analyzing learning styles and learning interests, then analyzing learning outcomes, identifying competencies & content, and formulating learning objectives, the results obtained are as in the following table.

Table 5. Analysis of Learning Achievements

Element	Description of Learning Outcomes
Understanding Biology	At the end of phase D, students are able to conduct analysis to find the relationship between organ systems and their functions as well as abnormalities or disorders that appear in certain organ systems (digestive system, circulatory system, respiratory system and reproductive system).
Process Skills	1. Observing 2. Questioning and predicting 3. Planning and conducting investigations 4. Processing, analyzing data and information 5. Evaluating and reflecting 6. Communicating results

Table 6. Identification of Competencies and Content

Indicators	Descriptions
Competence	Students carry out analysis to find the relationship between organ systems and their functions as well as abnormalities or disorders that appear in the circulatory system organ system.
Cognitive Level	C ₁ , C ₂ , C ₃ , C ₄ , C ₅ , C ₆
Content & Dimensions of Knowledge	1. Blood components (Factual) 2. Circulatory organs (Factual) 3. Types of blood circulation (Factual & Procedural)

Indicators	Descriptions
4.	Diseases of the circulatory system (Factual & Conceptual)
5.	Efforts to maintain a healthy circulatory system (Conceptual & Procedural)

Table 7. Formulating Learning Objectives

No.	Descriptions
1	Describe the function of blood
2	Describe the characteristics of each component of blood
3	Explaining the function of each component of blood
4	Explaining the relationship between place of residence and the number of red blood cells in the blood
5	Describe the blood clotting process
6	Describe the characteristics of blood types A, B, AB, and O
7	Describe the characteristics of the heart and blood vessels
8	Identify the difference between arteries and veins
9	Explaining the relationship between blood measurement results and blood vessel conditions
10	Describe the process of blood circulation in humans
11	Describes several factors that influence heart rate frequency.
12	Describes disorders and abnormalities in the circulatory system and efforts to prevent and overcome them.

Design Result

After analyzing the characteristics of students, learning achievements and objectives, it is continued by determining the cognitive and affective domains that are evidence of achieving the desired learning objectives. Researchers determine the cognitive domain listed in the learning achievements and objectives, while the affective domain refers to the Pancasila profile, namely the dimensions of mutual cooperation and critical thinking.

Researchers compiled this teaching module starting from mapping students' learning styles and interests, which were then accommodated through the Problem-Based Learning (PBL) model to trigger critical thinking skills in solving real problems, and integrated with the Jigsaw II

technique to build a collaborative space that strengthens the character of mutual cooperation.

The teaching module is compiled using the full version, consisting of three main components, namely general information, core components, and appendices (Wahyudin et al., 2024). The strategy used by researchers in strengthening the dimension of mutual cooperation by using the Jigsaw II model. According to (Abdullah, 2017; Prasetyo Utomo, 2018) states that the use of the Jigsaw II model can encourage interaction and collaboration between students, foster a spirit of cooperation & passion in learning, increase learning motivation, mutual respect between students, provide opportunities for ideas openly and train students to communicate effectively. This is in line with the dimension of mutual cooperation and for teaching materials as well as learning media, researchers compile student worksheets. Based on the results of the analysis, data was obtained that students generally have a visual learning style, so the student worksheets made contain pictures, colors and charts. To facilitate the audio learning style, peer teaching in the original and expert groups, as well as reinforcement by the teacher at the end of the learning or together with students. Meanwhile, to facilitate the kinesthetic learning style, this can be done through presentations and demonstrations in the home and expert groups.

Meanwhile, strengthening critical thinking profiles by implementing the Problem-Based Learning (PBL) model has proven effective, efficient, and successful in improving critical thinking skills. This is consistent with research conducted by Aisyah & Gumala (2025) who conducted a literature review of 30 articles on PBL and critical thinking skills. Meanwhile, the implementation of the Jigsaw II model can not only improve collaboration skills but also increase learning motivation, teamwork, and self-confidence. This is supported by research conducted by Salsabila et al. (2025), who conducted a systematic literature review of 34 journals on the Jigsaw model.

When implementing the Jigsaw II model, researchers compiled LKPD as a form of scaffolding to construct critical thinking dimensions and strengthen mutual cooperation. The type of scaffolding used aims to invite student participation (inviting students) and verify and

clarify student understanding (verifying and clarifying student understandings) (Kurniasih, 2012). While when implementing the Problem Based Learning (PBL) model, students are facilitated with contextual problem-based LKPD covering disorders of the circulatory system including hypertension, hypotension, coronary heart disease & stroke.

Development Results

After the researcher designs the teaching module by considering the characteristics of the students (learning styles & learning interests), it is continued with validation of the teaching module by pedagogical experts and educational practitioners based on aspects of learning principles & assessment.

Table 8. Results of the Teaching Module Assessment Sheet by Pedagogical Experts

No.	Principle	Validation Expert I
1	Completeness of components minimum	There are clear and measurable goals, steps and assessments.
2	Essential and meaningful	Already meets SMART criteria The objectives are in line with CP, free from SARA, there are meaningful questions & appropriate triggers It has been arranged in a coherent, systematic and appropriate manner according to time allocation, has facilitated high-level thinking, & has included activities that are centered on students. Carrying out initial cognitive and non-cognitive assessments, in accordance with learning objectives. Measurable indicators have emerged.
3	Continuous	The learning sequence is systematic & logical There are already key questions to reflect on learning activities & in line with learning activities
4	Contextual	There are no alternative activities that can be

No.	Principle	Validation Expert I
		implemented in different school environments The teaching module is designed based on learning styles The teaching module does not yet include local wisdom
5	Simple	Teaching modules/RPP use language & terms that are easy to understand
6	Supporting Components	The selection of learning sources/media is in accordance with the objectives of the material and the characteristics of the students.
7	Critical thinking competencies and characters	The teaching module uses two learning models

Table 9. Results of the Teaching Module Assessment Sheet by Educational Practitioners

No.	Principle	Validation Expert II
1	Minimum component completeness	Yes, it's clear.
2	Essential and meaningful	It is appropriate and in harmony The skill aspect is not clearly stated There are already good starting questions It is appropriate that remedial repeats the material and enrichment activities need to be clarified. It's clear and visible
3	Continuous	Already exists
4	Contextual	Already exists but does not accommodate according to needs
5	Simple	It's clear and easy to understand
6	Supporting Components	Yes, but the activity needs to be clarified
7	Critical thinking competencies and characters	Yes, have used

Implementation Results

Based on the results of the implementation of the teaching module by the model teacher at MTs Husnul Khotimah 2 Kuningan, the following data were obtained.

a. Trial Result

Before the teaching module was implemented in the experimental and control classes, the model teacher conducted trials in several different classes. This was done to determine the advantages and disadvantages of the Merdeka Curriculum teaching module that was prepared. Based on the trial results, there were several inputs from the model teacher, including:

- 1) Improvement of the layout of student worksheets as a form of scaffolding to strengthen critical thinking
- 2) Adding reference sources for problem-based worksheets due to students' limited access to the internet
- 3) Need to use simulators and virtual labs on the blood type and transfusion sub-materials.

b. Results of the Pretest Values of the Experimental Class and Control Class

Based on the results of the Mann Whitney test, the asymp. sig value (2-tailed) $0.168 > 0.05$, so there is no significant difference in the initial abilities of students in the experimental and control classes.

c. Post Pretest

After conducting the pretest, the experimental class implemented a learning scenario using a teaching module by considering the characteristics of the students. While the control class used a learning plan without considering the characteristics of the students.

d. Results of Posttest Scores for Experimental Class and Control Class

Based on the results of the Mann Whitney test, the Asymp. Sig (2-tailed) value is $0.001 < 0.05$, so there is a significant difference in the abilities of students in the experimental and control classes after the treatment.

- e. Analysis of the Influence of the Implementation of Teaching Modules in Strengthening the Pancasila Profile on Learning Outcomes

Based on the results of the hypothesis test on the influence of the implementation of teaching modules on learning outcomes, the following data was obtained.

Table 10. Wilcoxon Test Results

	Posttest - Pretest
Z	-5.100 ^b
Asymp. Sig. (2-tailed)	.001

a. Wilcoxon Signed Ranks Test

b. Based on negative ranks.

Based on the results of the hypothesis test on the influence of the implementation of teaching modules on learning outcomes, the following data was obtained.

- f. Gain Normality Test

The gain test aims to determine the increase in knowledge of the material that has been taught. The following are the results of the gain test in the experimental class.

Table 11. Experimental Class N-Gain Test

	Descriptive Statistics				
	N	Min	Max	$\bar{x}$	Std. Dev
Ngain Score	34	.11	1.00	.6452	.25672
Ngain %	34	11.11	100.00	64.521	25.6721
Valid N (listwise)	34				

Based on the gain test, the N-Gain score was 0.6452 with the “moderate” category. Meanwhile, the effectiveness category of N-Gain obtained a score of 64.5211 with the “quite effective” category.

- g. Calculating Effect Size

Effect size is defined as an estimate of the strength of the influence of one variable on another variable (Grizzard & Shaw, 2017). Based on the Cohen's Effect Size formula, the ES value is 1.572488 with the criteria of having a "high" effect.

- h. Critical Thinking and Mutual Cooperation Dimensions

The experimental class was given treatment with the implementation of teaching modules that were adjusted to the characteristics of students, such as learning styles and interests, as well as learning and assessment principles. Meanwhile, the control class received treatment without considering the characteristics of students or the principles of learning and assessment. After that, the results of critical thinking and mutual cooperation skills were obtained between the experimental class and the control class. The following is a chart of the results of critical thinking and mutual cooperation skills as follows.

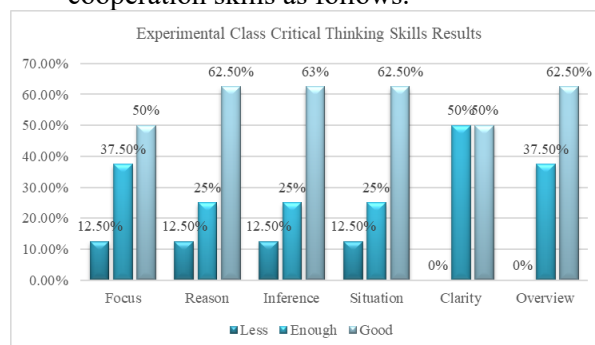


Figure 3. Results of Critical Thinking Skills of the Experimental Class

This indicates that most students are able to provide clear and logical reasons (reason), draw conclusions based on strong evidence (inference), understand the context of the problem in depth (situation), and are able to take perspectives from various relevant viewpoints (overview). In the focus indicator, as many as 50% of students achieved the Good category, while 37.50% were in the enough category. Half of the students were very proficient in identifying the main issue or problem specifically and clearly. However, there was still a significant portion (37.50%) whose issue identification was still general or not specific enough.

The clarity indicator was evenly distributed, with 50% in the Good category and 50% in the Enough category. No students (0%) were in the Poor category. Although no students failed to explain their ideas, half the class still had ambiguities in their explanations. Based on the

rubric, the "Enough" group was quite clear in their explanations, but there were still parts that were ambiguous or difficult to fully understand.

The experimental class demonstrated very positive critical thinking performance. Students' primary strengths lay in their Inference and overview skills, enabling them to construct evidence-based arguments and view problems from multiple perspectives. Clarity, which allows for further improvement, ensures that every explanation is clear and free of ambiguity.

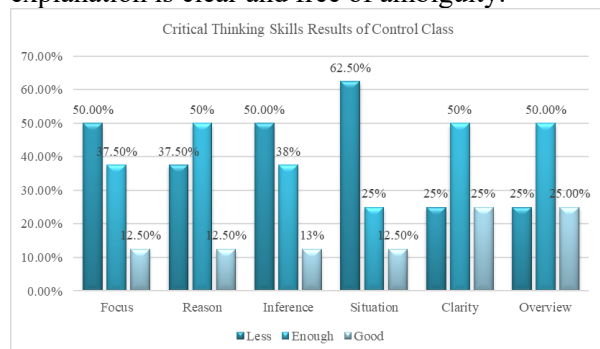


Figure 4. Results of Critical Thinking Skills in the Control Class

Overall, the graph shows that most students in the control class are still at the "less" and "enough" levels. Very few students reach the "good" category, with the highest percentage being only 25% for the Clarity and Overview aspects. In the focus indicator, 50% of students are in the "Less" category. Based on the rubric, half of the students were unable to identify the main issue in the given problem. Only 12.50% were able to identify the problem clearly and specifically. In the reason indicator, the dominance is in the "enough" (50%) and "Less" (37.50%) categories. The majority of students are able to provide reasons, but according to the rubric, these reasons are not in-depth or even relevant/logical. The ability to provide logical and relevant reasons consistently remains low. In the inference indicator, 50% of students are in the "Less" category. Most students have difficulty drawing conclusions. Based on the rubric criteria for a score of 1, the conclusions they make are often not supported by strong evidence or reasons. In the situation indicator, the highest "Less" figure is 62.50%. This is the weakest aspect. The majority of students do not understand the context or situation surrounding the problem. They have

difficulty seeing the big picture of the case being studied. On the clarity indicator, 50% of students are in the "enough" category and 25% are in the "Good" category. Compared to other aspects, students are quite capable of explaining their ideas. However, for 50% of students (in the "Enough" category), their explanations are still considered ambiguous or unclear even though they are understandable. On the overview indicator, 50% are in the "enough" category. Half of the class has begun to be able to see the problem from multiple perspectives, but has not yet reached the stage of taking various relevant viewpoints in depth (a good score).

The critical thinking skills of the control class still need significant improvement, particularly in the situation and focus aspects. Students tended to rush into answers without understanding the context of the situation and failed to specifically identify the main problem.

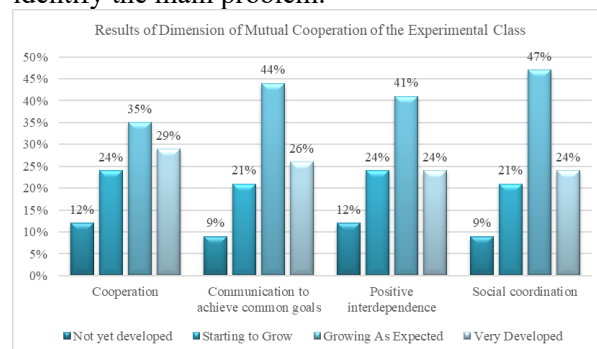


Figure 5. Results of Dimension of Mutual Cooperation of the Experimental Class

In the cooperation indicator, the majority of students (35%) were in the Developing as Expected category, followed by 29% in the Very Developed category. The majority of students were able to coordinate their own actions with others to carry out group activities and provide encouragement to teammates. 29% of students were even able to build teams and manage cooperation independently according to the specified targets. In the communication indicator to achieve common goals, the highest achievement was in the Developing as Expected category at 44%. In the Positive Interdependence indicator, the majority of students (41%) were in the Developing as Expected category. This indicates that many students have demonstrated group activities by recognizing the strengths and

weaknesses of each member so they can help each other meet their needs. In the social coordination indicator, this aspect was the aspect with the highest Developing as Expected percentage, at 47%. Nearly half of the students in the experimental class were able to divide roles and coordinate actions within the group to remain aligned to achieve common goals.

The experimental class showed very positive results, with the majority of students (ranging from 35% to 47%) achieving the "Developing as Expected" stage in each sub-element. Furthermore, the number of students remaining at the "Not Developing" stage was very low (below 13%), indicating that the intervention in this class was effective in building collaboration skills.

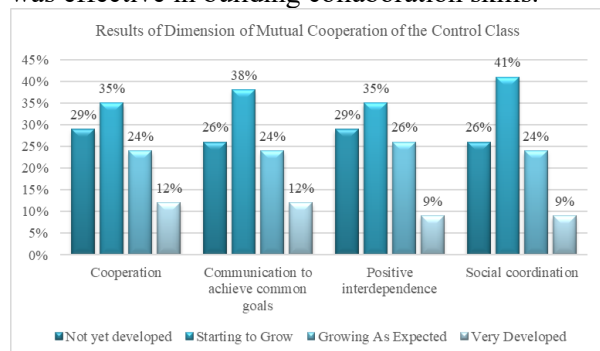


Figure 6. Results of Dimension of Mutual Cooperation of the Control Class

In the cooperation indicator, the majority of students are at the Starting to Grow stage (35%), followed by the Not Yet Developed stage (29%). Only 12% have reached the Very Developed stage. Most students are only able to demonstrate positive expectations to others in the school environment. Many students are still in the early stages, where they only display actions that are in line with group expectations, but are not yet able to align actions independently or build a team to achieve the specified target. In the communication indicator to achieve common goals, the highest achievement is in the Starting to Grow category, at 38%. The group that has developed according to expectations is at 24%. Students in this dominant category are able to understand information from various sources and convey messages using symbols/media effectively. However, they have not consistently used this communication to improve the quality of interpersonal relationships or use complex

communication strategies to solve problems (the Very Developed stage). In the positive interdependence indicator, there is a fairly balanced distribution between Starting to Grow (35%) and Not Yet Developed (29%). The percentage of students in the Highly Developed category is the lowest compared to other sub-elements, at only 9%. This indicates that most new students are at the stage of realizing that everyone needs others. They have not yet reached the stage of being able to demonstrate group activities that show that each member has complementary strengths/weaknesses (As Expected), let alone aligning the group's capacity collectively (Highly Developed). In the social coordination indicator, this sub-element showed the highest score in the Starting to Grow category, reaching 41%. However, the Highly Developed score is still low at 9%. The dominance of the "Starting to Develop" stage indicates that students have begun to be able to align their actions according to their roles and consider the roles of others. However, they still have difficulty in dividing roles independently and maintaining continuous alignment of actions to achieve common goals.

Overall, this control class was dominated by students in the Starting to Grow stage. Their collaborative skills were emerging, but still rudimentary.

Evaluation Result

At this stage, the aim is to determine the achievement of student learning objectives. The percentage category refers to [Anggraeni et al., \(2022\)](#) there are four indicators, including: 1). If the student's learning outcomes are $\leq 40\%$, then the student has not achieved the learning objectives so that remedial work is needed in all parts, 2). If the student's learning outcomes are between 40% and 65%, then the student has not achieved completeness, 3). If the student's learning outcomes are between 65% & 85%, then the student has achieved completeness & does not need remedial work, and 4). If the student's learning outcomes are $> 85\%$, then the student has achieved completeness, more enrichment and challenges are needed.

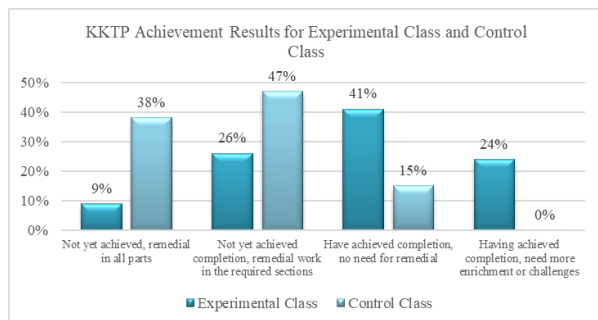


Figure 7. KKTP Achievement Results for Experimental Class and Control Class

In the control class, 38% of students needed total remedial work, while in the experimental class only 9%. This shows a significant decrease in the number of students who are far behind. The control class had 47% of students in the category of not yet achieved mastery, remedial in certain areas, while in the experimental class only 26%. As many as 41% of students in the experimental class were in the position of having achieved mastery, not needing remedial work, much higher than the control class which was only 15%. Most striking is the highest category of having achieved mastery, needing enrichment/challenge. In the experimental class, there were 24% of students who had exceeded the target, while in the control class 0% (not a single student reached the enrichment stage).

The experimental class had a significantly higher success rate in achieving the KKTP (65% completed) compared to the control class (only 15%). The experimental class's methods were able to push students to the "enrichment" level, which was completely unattainable in the control class. The experimental class managed to drastically reduce the number of students requiring remedial learning compared to the conventional method (control class).

There are several reasons why the experimental class achieved significant results, namely the teaching module was designed by considering students according to the design thinking theory where the teaching module is centered on students' needs and motivations (IDEO LLC, 2012), pluralization achieves two important goals: when a topic is taught in various ways, it will reach more students (Gardner, 1993), and the learning process of the experimental class was assisted by student worksheets as scaffolding

to reach the zone of proximal development (Rogoff & Wertsch, 1984).

4. CONCLUSION

The development of biology teaching modules, based on the learning and assessment principles of the Independent Curriculum, while taking into account the characteristics of students' learning styles and interests, has proven to have very high pedagogical and practical validity. The use of the ADDIE model ensures that every component of the module, from learning objectives to evaluation instruments, aligns with national learning outcomes.

Cognitively, this teaching module has proven effective in improving student learning outcomes on the Human Circulatory System. This is evidenced by the significant difference in posttest scores between the experimental and control classes ($p = 0.001$) and the high Effect Size (1.57). The applied active learning model is able to transform abstract biological concepts into more meaningful functional understanding for students.

In terms of character, the integration of the Jigsaw II model and PBL significantly strengthened the profile of Pancasila learners. Students demonstrated marked improvement in critical reasoning skills, particularly in inference and holistic perspective-taking. Furthermore, the collaborative dimension developed rapidly, with students demonstrating independence in social coordination and collaborative communication that far exceeded those achieved in conventional classrooms.

As strategic recommendations for educators and policymakers: First, educators should begin integrating character indicators explicitly into lesson plans or intracurricular modules, rather than relying solely on separate P5 projects. Second, the use of scaffolding in the form of structured student worksheets (LKPD) should become standard practice in biology learning to help students reach their zone of proximal development. Third, there is a need for diversification of learning media, including virtual simulations or virtual laboratories, especially for materials that are difficult to observe directly, such as blood types and transfusions.

The novelty of this research lies in the module design, which combines dynamic

differentiation with two active learning models (Jigsaw II and PBL) to strengthen character in regular science classes. Further research is recommended to explore the effectiveness of this module on other biology materials with a high level of difficulty, as well as to integrate elements of local wisdom to enrich the context of student learning. Sustainable implementation of this model is expected to shape a generation of Indonesian students who are not only academically intelligent but also have strong character, in accordance with the noble values of Pancasila.

5. REFERENCES

- Aan Setiawan. (2024). Problematika Guru Dalam Menerapkan Kurikulum Merdeka Belajar Di Sd Islam Terpadu Tahfidzulqur'an Lembang. *AL-MUTSLA*, 6(1), 281–291. <https://doi.org/10.46870/jstain.v6i1.1091>
- Abdullah, R. (2017). Pengaruh Penerapan Model Pembelajaran Kooperatif Tipe Jigsaw Pada Mata Pelajaran Kimia Di Madrasah Aliyah. *Lantanida Journal*, 5(1), 13. <https://doi.org/10.22373/lj.v5i1.2056>
- Aisyah, F. N., & Gumala, Y. (2025). Implementasi model problem-based learning (PBL) sebagai upaya meningkatkan kemampuan berpikir kritis peserta didik sekolah dasar: Literature review. *Papanda Journal of Mathematics and Science Research*, 4(1), 1–14. <https://doi.org/10.56916/pjmsr.v4i1.1027>
- Anggraeni, Y., Ginanto, D., Felicia, N., Andiarti, A., & Hartini, Y. (2022). *Panduan Pembelajaran dan Asesmen*. Badan Standar, Kurikulu, dan Asesmen Pendidikan Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi Republik Indonesia.
- Ariyana, Y., Pudjiastuti, A., Bestary, R., & Zamroni. (2018). *Buku Pegangan Pembelajaran Berorientasi pada Keterampilan Berpikir Tingkat Tinggi Program Peningkatan Kompetensi Pembelajaran Berbasis Zonasi*. Direktorat Jendral Guru dan Tenaga Kependidikan Meneterian Pendidikan dan Kebudayaan.
- Aulia Pramita Sari, Zumrotun, E., & Nina Sofiana. (2023). Implementasi Proyek Penguatan Profil Pelajar Pancasila (P5) di Sekolah Dasar. *Qalam : Jurnal Ilmu Kependidikan*, 12(2), 65–75. <https://doi.org/10.33506/jq.v12i2.2898>
- Ayub, S., Rokhmat, J., Busyairi, A., & Tsuraya, D. (2023). Implementasi Proyek Penguatan Profil Pelajar Pancasila (P5) Sebagai Upaya Menumbuhkan Jiwa Kewirausahaan. *Jurnal Ilmiah Profesi Pendidikan*, 8(1b), 1001–1006. <https://doi.org/10.29303/jipp.v8i1b.1373>
- Barbe, W. B., & Swassing, R. H. (1979). *Teaching Through Modality Strengths : Concepts and Practices*. Zaner-Bloser.
- BSKAP Kemendikbudristek. (2022). *Dimensi, Elemen, dan Subelemen Profil Pelajar Pancasila pada Kurikulum Merdeka*.
- Budiono, A. N., Yahya, S. R., Siyono, S., Pratiwi, D. A., & Ginting, R. (2023). Pelatihan Mendesain Proyek Penguatan Profil Pelajar Pancasila (P5) bagi Komite Pembelajaran dalam Kurikulum Merdeka. *Bubungan Tinggi: Jurnal Pengabdian Masyarakat*, 5(1), 410. <https://doi.org/10.20527/btjpm.v5i1.7672>
- Chislett, & Chapman. (2005). *VAK Learning Styles Sel-Assesment Questionnaire (Online)*.
- Dewey, J. (1900). *The school and society ; and, The child and the curriculum*. The University of Chicago Press.
- Gardner, H. (1993). *Frames of Minds : The Theory of Multiple Intelligences*. Basic Books.
- Grizzard, M., & Shaw, A. Z. (2017). Effect Size. In *The International Encyclopedia of Communication Research Methods* (pp. 1–8). Wiley. <https://doi.org/10.1002/9781118901731.iec.rm0076>
- Herlina, H., Wardany, O. F., Sani, Y., & Maharani, R. Z. (2023). Kendala Dan Kebutuhan Guru Sekolah Dasar dalam Implementasi Kurikulum Merdeka Bagi Peserta Didik Berkebutuhan Khusus di Lampung. *Jurnal Basicedu*, 7(5), 2928–2941. <https://doi.org/10.31004/basicedu.v7i5.6086>
- IDEO LLC. (2012). *Design Thinking For Educators*. <http://designthinkingforeducators.com/>

- James, W. (1899). *Talk To Teacher On Psychology: And To Students On Some Of Life's Ideals*. New York Henry Holt And Company 1915.
- Kohar, A., Budiyaniti, C., Deni, A., Setiabudi, D. I., & Ramadhana, A. (2024). Perbandingan Persepsi Antara Guru MTs dan SMP Tentang Pelaksanaan Kurikulum Merdeka. *Jurnal Educatio*.
- Kurniasih, A. W. (2012). Scaffolding sebagai Alternatif Upaya Meningkatkan Kemampuan Berpikir Kritis Matematika. *Kreano: Jurnal Matematika Kreatif-Inovatif*.
- Labudasari, E., Rochmah, E., Cucu, Risnawati, Adiwioga, O., Nurlaeni, L., Halimah, E., Atikah, Puspasari, L., Heryanto, A. I., & Mutaqin, J. (2023). *Kurikulum Merdeka (Teori dan Praktik di Sekolah)*. Indonesia Emas Group.
- Majir, A. (2018). *Dasar Pengembangan Kurikulum (Buku Ajar Mata Kuliah Dasar Pengembangan Kurikulum)*. deepublish.
- Maruti, E. S., Malawi, I., Hanif, M., Budyartati, S., Huda, N., Kusuma, W., & Khoironi, Moh. (2023). Implementasi Proyek Penguatan Profil Pelajar Pancasila (P5) pada Jenjang Sekolah Dasar. *Abdimas Mandalika*, 2(2), 85. <https://doi.org/10.31764/am.v2i2.13098>
- Prasetyo Utomo, E. (2018). Internalisasi Nilai Karakter Gotong Royong Dalam Pembelajaran Ips Untuk Membangun Modal Sosial Peserta Didik. *Jurnal Teori Dan Praksis Pembelajaran IPS*, 3(2), 95–102. <https://doi.org/10.17977/um022v3i22018p095>
- Rogoff, B., & Wertsch, J. V. (1984). *Childrens Learning in The Zone of Proximal Development*. Jossey-Bass Inc.
- Salsabila, D., Luthfiana, M., & Umam Zaid Nugroho, K. (2025). Systematic Literature Review: Model Pembelajaran Jigsaw dengan Pendekatan Etnomatematika untuk Meningkatkan Pemahaman Konsep Siswa. *AB-JME: Al-Bahjah Journal of Mathematics Education*, 3(2), 85–96. <https://doi.org/10.61553/abjme.v3i2.906>
- Sani, R. A., & Kadri, M. (2016). *Pendidikan Karakter*. Bumi Aksara.
- Saputra, R., Rochmiyati, S., & Havifah Cahyo Khosiyono, B. (2023). Perwujudan Keenam Profil Pelajar Pancasila Dalam Kegiatan Proyek Penguatan Profil Pelajar Pancasila Pembuatan Tempat Pensil Sederhana Dari Botol Plastik Bekas. *Elementary School: Jurnal Pendidikan Dan Pembelajaran Ke-SD-An*, 10(1). <https://doi.org/10.31316/esjurnal.v10i1.4077>
- Serdykov, P. (2002). *Lesson Plan*. Pearson Education.
- Slameto. (2015). *Belajar dan Faktor-faktor yang Mempengaruhinya*. PT. Rineka Cipta.
- Somantri, D., Sutanto, T., & Istiqomah, Y. Y. (2024). Miskonsepsi Penerapan Pembelajaran Berdiferensiasi di Sekolah Dasar. *Pendas: Jurnal Ilmiah Pendidikan Dasar*.
- Sugiyono. (2017). *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Alfabeta.
- Sutisnawati, A., Maksum, A., & Marini, A. (2023). Implementasi Pendidikan Multikultural Berbasis Proyek Penguatan Profil Pelajar Pancasila P5 di Sekolah Dasar. *DWIJA CENDEKIA: Jurnal Riset Pedagogik*, 7(3). <https://doi.org/10.20961/jdc.v7i3.79769>
- Wahyudin, D., Subkhan, E., Malik, Moh. A., Sudiapermana, E., Alhapip, L., Anggareni, Y., Maisura, R., Amalia, N. R. A. Sh., Ali, N. B. V., & Krisna, F. N. (2024). *Kajian Akademik Kurikulum Merdeka*. Pusat Kurikulum dan Pembelajaran Badan Standar, Kurikulum, dan Asesmen Pendidikan Kementerian Pendidikan, Kebudayaan, Riset, dan Teknologi.
- Yasdin. (2023). *Pengembangan Kurikulum Kejuruan*. Indonesia Emas Grup. <https://doi.org/10.7459/ct/38.1.03>