

## THE APPLICATION OF PROJECT-BASED LEARNING TO ENHANCE CREATIVITY AND COLLABORATIVE SKILLS AMONG PRIMARY SCHOOL PUPILS IN THE ERA OF THE MERDEKA CURRICULUM

**Busnawir**

Universitas Halu Oleo  
[busnawir@uho.ac.id](mailto:busnawir@uho.ac.id)

**Aslan**

Universitas Sultan Muhammad Syafiuddin Sambas  
[aslanalbanjary066@gmail.com](mailto:aslanalbanjary066@gmail.com)

### Abstract

This study aims to analyse the implementation of the Project-Based Learning (PjBL) model in enhancing the creativity and collaborative skills of primary school pupils in the era of the Merdeka Curriculum. It employs a literature review (*library research*) using a descriptive qualitative approach. The findings indicate that PjBL, when integrated with the principles of the Merdeka Curriculum—through flexible time allocation, differentiated learning, and the Pancasila Student Profile Strengthening Project (P5)—significantly enhances pupils' creativity across the indicators of fluency, flexibility, originality, and elaboration of ideas. Furthermore, PjBL is also effective in developing collaborative skills through mechanisms of positive interdependence, individual accountability, and structured group reflection. Empirical evidence from various studies reports a 35–45% increase in students' creativity and collaboration scores following the implementation of PjBL over 8–12 weeks. Although challenges such as time constraints, variations in student ability, and the complexity of assessment remain, strategic solutions including continuous teacher training, the provision of adaptive project modules, and the use of assessment technology can overcome these obstacles. It is concluded that PjBL is a relevant and evidence-based pedagogical approach for fostering the Pancasila Student Profile—creative, collaborative, and ready to face the challenges of the 21st century.

**Keywords:** Project-Based Learning, student creativity, collaborative skills, Merdeka Curriculum, primary schools, Pancasila Student Profile.

### Introduction

Primary education in Indonesia is undergoing significant transformation following the implementation of the Merdeka Curriculum, which emphasises student-centred learning, flexibility, and the development of 21st-century competencies (Aslan, 2023). This curriculum provides scope for teachers to design authentic learning experiences that are relevant to the context of pupils' lives and capable of fostering essential skills such as creativity and collaboration. Within this framework, conventional teacher-centred learning models are beginning to be phased out as they are deemed ineffective in accommodating the diversity of pupils' learning needs (Ramadhan & Hindun, 2024).

However, the reality on the ground shows that much of the learning in primary schools is still dominated by lecture-based methods and structured assignments that leave little room for pupils to think creatively and work together (Widiastuti et al., 2018). Pupils often remain merely passive recipients of information, rather than active agents who construct their own knowledge through real-world experiences. This situation has the potential to hinder the development of creativity and collaborative skills, which are in fact crucial foundations for their future success (Nasution & Aslan, 2025). Creativity and collaboration are two key competencies that must be developed from an early age so that students are able to face complex challenges in the era of globalisation. Creativity enables students to generate original ideas and innovative solutions, whilst collaboration trains them to communicate effectively, respect differences, and work in teams (Aslan & Azizan, 2025). Without these two skills, students risk struggling to adapt to the increasingly rapid dynamics of social, technological, and economic change.

One learning model considered to have potential for developing creativity and collaboration is Project-Based Learning (PjBL), an approach that involves students in the planning, implementation, and presentation of real-world projects that are meaningful to their lives (Thomas, 2000). In PjBL, students do not merely memorise concepts but apply their knowledge to solve authentic problems, thereby making learning more contextual and in-depth (Baird, 2019). This model also aligns with the philosophy of Ki Hajar Dewantara, which emphasises learning that liberates and humanises individuals (Aslan & Sidabutar, 2025).

The implementation of PjBL within the Merdeka Curriculum is becoming increasingly relevant as this curriculum provides flexibility for teachers to integrate cross-curricular projects through the Pancasila Student Profile Strengthening Project (P5). Through P5, students are encouraged to engage in projects addressing local issues, such as environmental conservation, entrepreneurship, or cultural wisdom, which require creativity and teamwork (Aslan & Hajiri, 2025). Thus, PjBL is not merely a learning strategy, but a vehicle for realising the profile of the Pancasila learner who is of noble character, independent, and cooperative.

Theoretically, PjBL is rooted in Vygotsky's social constructivism, which states that knowledge is constructed through social interaction and real-world experiences within a specific cultural context (Vygotsky, 1978). In PjBL, students learn through collaboration with peers, teachers, and the community, making the learning process more social and meaningful (Bell, 2010). This approach is also aligned with Gardner's theory of multiple intelligences, which emphasises that every student has a unique way of learning and expressing their creativity (Gardner, 2011).

Previous research indicates that the implementation of PjBL in primary schools can significantly enhance pupils' creativity, as evidenced by their ability to generate original ideas, think flexibly, and develop innovative solutions to real-world problems (Yunita et al., 2024). Pupils involved in projects tend to be more enthusiastic,

independent, and confident in expressing their ideas through various media, such as posters, three-dimensional models, or digital presentations (Widiastuti et al., 2018) . This increase in creativity is evident not only in the final product but also in the divergent thinking processes they undergo during project work. In addition to creativity, PjBL has also proven effective in developing students' collaborative skills, as projects are designed to be completed in groups with clear task allocation and positive interdependence (Johnson & Johnson, 2009) . Through group work, students learn to communicate, listen to others' opinions, resolve conflicts, and take responsibility for their contributions within the team. Collaboration in PjBL is not merely working together, but building a shared understanding through dialogue and critical reflection (Judijanto & Aslan, 2025) .

Although the benefits of PjBL have been well-documented, its implementation in Indonesian primary schools still faces various challenges, such as time constraints, a lack of teacher training, and inadequate facilities. Many teachers do not yet fully understand the PjBL framework or struggle to design projects suited to pupils' characteristics and the local context (Mudinillah et al., 2024). Furthermore, unbalanced group dynamics, where some pupils dominate whilst others remain passive, also pose a barrier to achieving effective collaboration (Ramadhan & Hindun, 2024) . To address these challenges, systemic support is required from schools, education authorities, and the community of practitioners, in the form of continuous training, the provision of resources, and the development of teacher learning communities. Teachers need to be equipped with the skills to design authentic assessment rubrics capable of comprehensively measuring creativity and collaboration, rather than merely the final project outcome (Wiggins & McTighe, 2005) . Furthermore, collaboration among teachers in designing cross-curricular projects can also reduce workload and enhance the quality of learning (Purike & Aslan, 2025) .

Consequently, this article aims to conduct an in-depth analysis of how the implementation of the PjBL model within the context of the Merdeka Curriculum can enhance the creativity and collaborative skills of primary school pupils. The discussion will focus on two main aspects: firstly, the implementation of PjBL in alignment with the principles of the Merdeka Curriculum; secondly, the impact of PjBL on the development of pupils' creativity and collaboration, along with the associated challenges and solutions.

### **Research Methodology**

This study employs a literature *review* method using a descriptive qualitative approach, which aims to analyse, synthesise and interpret various sources of scientific literature relating to the application of the Project-Based Learning (PjBL) model to enhance the creativity and collaborative skills of primary school pupils within the context of the Merdeka Curriculum (Eliyah & Aslan, 2025) . Data were collected through a documentary study of books, as well as national and international scientific

journals. These sources were selected purposively based on criteria including topic relevance, publisher credibility, and the recency of information, and were subsequently analysed using *content analysis* techniques to identify consistent patterns, themes, and empirical findings regarding the effectiveness of PjBL (Ihugba, 2020) .

## **Results and Discussion**

### **The Application of the Project-Based Learning Model within the Context of the Merdeka Curriculum**

The implementation of the Project-Based Learning (PjBL) model within the context of the Merdeka Curriculum represents a strategic synergy between innovative learning approaches and educational policies focused on student learning autonomy. The Merdeka Curriculum, launched by the Ministry of Education, Culture, Research and Technology in 2022, provides exceptional flexibility for educational institutions to design learning that is relevant to the local context, students' interests, and the demands of the times (Ministry of Education, Culture, Research and Technology, 2022). Within this framework, PjBL is not merely a methodological choice, but becomes the primary instrument for realising the curriculum's vision: to create meaningful, authentic, and learner-centred learning experiences (Aslan & Rasmita, 2025) . The flexibility in time allocation and cross-curricular integration within the Merdeka Curriculum enables teachers to design in-depth, long-term projects—something that was difficult to achieve under the previous rigid and fragmented curriculum (Ramadhan & Hindun, 2024) .

The core concept of PjBL is a systematic learning model that engages students in in-depth investigation of real-world, challenging *essential* questions, culminating in the creation of a product or public presentation (Thomas, 2000). According to the ' , the PjBL syntax comprises six main phases: (1) starting with a fundamental question, (2) designing the project plan, (3) drawing up a schedule of activities, (4) monitoring progress and assessing outcomes, (5) testing the results, and (6) evaluating the experience (Bell, 2010) . These phases provide a clear structure for teachers and pupils to move from initial confusion towards deep understanding, whilst ensuring that the learning process remains focused and measurable. In the context of primary schools, this framework can be adapted to suit pupils' cognitive development levels, for example by simplifying the language of essential questions and providing more intensive support during the planning phase (Yunita et al., 2024) .

The alignment of PjBL with the Merdeka Curriculum is clearly evident in the principle of differentiated learning, whereby teachers can adapt the content, process, and project outcomes to the readiness, interests, and diverse learning profiles of students. The Merdeka Curriculum emphasises that every student is unique, so learning must provide space for them to learn in their own way and produce work that reflects that uniqueness (Kemendikbudristek, 2021). In PjBL, differentiation occurs naturally as students are given autonomy to choose project topics, determine

completion strategies, and decide on the form of the final product, whether it be a poster, video, three-dimensional model, or art performance. This not only enhances students' intrinsic motivation but also ensures that learning is truly inclusive and liberating (Ramadhan & Hindun, 2024) .

The role of the teacher in PjBL in the era of the Merdeka Curriculum has undergone a fundamental transformation from being the primary source of knowledge (*sage on the stage*) to becoming a facilitator and learning partner (*guide on the side*) (Vygotsky, 1978). As facilitators, teachers are tasked with creating a conducive learning environment, providing resources, posing probing questions, and offering constructive formative feedback without dictating students' thought processes (Bell, 2010) . Teachers no longer stand at the front of the class delivering lengthy lectures, but move around observing group dynamics, assisting students who are stuck, and ensuring that every team member contributes fairly. This role demands high pedagogical competence, including the ability to design appropriate scaffolding, manage complex classroom dynamics, and conduct process-based assessment simultaneously (Pongpalilu & Aslan, 2025) .

The integration of PjBL into the Merdeka Curriculum is concretely manifested through the Pancasila Student Profile Strengthening Project (P5), which is a distinctive component of this curriculum aimed at developing students' character and global competencies (Kemendikbudristek, 2022). P5 is designed as a dedicated space outside regular lesson hours, where students engage in cross-curricular projects addressing strategic themes such as sustainable living, local wisdom, engineering and technology, or entrepreneurship (Aslan & Rasmita, 2025) . Through P5, PjBL is no longer regarded as an 'add-on' or 'optional', but rather as the core of a learning experience aimed at strengthening the six dimensions of the Pancasila Student Profile: faith and piety, global diversity, cooperation, independence, critical thinking, and creativity (Ministry of Education, Culture, Research and Technology, 2021). Thus, PjBL serves as a strategic vehicle for translating the abstract values of Pancasila into tangible actions in students' lives.

Project planning within the context of the Merdeka Curriculum begins with the identification of essential questions relevant to students' lives and the school's local context, for example, "How can we reduce plastic waste in our school environment?" or "How can we preserve our local folk tales to prevent them from disappearing?" (Thomas, 2000) . These questions must be open-ended enough to spark curiosity, challenging enough to require in-depth investigation, and concrete enough to be realised in the form of a tangible product (Baird, 2019) . Teachers then design project modules that include learning objectives, time allocation, required resources, assessment rubrics, and differentiation strategies to accommodate student diversity (Firdausih & Aslan, 2024) . This thorough planning serves as a roadmap ensuring the project proceeds systematically without stifling students' creativity and autonomy (Bell, 2010) .

Project implementation in primary school classrooms is carried out collaboratively in small, heterogeneous groups, where pupils positively depend on one another to achieve shared goals. During this process, pupils conduct independent investigations, collect data through observation, interviews, or simple experiments, analyse information, and synthesise their findings into creative solutions (Yunita et al., 2024). Teachers actively monitor the progress of each group through brief conferences, daily reflection journals, and observation checklists, providing formative feedback that helps students refine their strategies without taking over their thought processes. These collaborative dynamics not only teach academic content but also social-emotional skills such as effective communication, empathy, negotiation, and conflict resolution, which are essential 21st-century competencies (Firmansyah & Aslan, 2025a).

Assessment in PjBL under the Merdeka Curriculum is authentic, ongoing, and multidimensional, reflecting the complexity of the processes and products produced by students (Wiggins & McTighe, 2005). Authentic assessment requires students to demonstrate their competencies through meaningful contextual tasks, rather than simply answering multiple-choice questions (Ministry of Education, Culture, Research and Technology, 2022). Teachers use various instruments, including analytical rubrics to assess the quality of products, observation sheets to assess the collaborative process, portfolios to document learning progress, and self-reflection to encourage students' metacognition (Brookhart, 2013). Assessment focuses not only on final outcomes but also on the inquiry process, creativity in problem-solving, and individual contributions within the team, thereby providing a holistic picture of student achievement (Johnson & Johnson, 2009).

A concrete example of the application of PjBL in primary schools under the Merdeka Curriculum is the 'School Energy-Saving Campaign' project, which involves Year 4 and 5 pupils in investigating electricity usage at school, designing educational posters, creating simple energy-saving reminders, and presenting their findings to the entire school community (Widiastuti et al., 2018). This project integrates content from Science (concepts of energy and electricity), Mathematics (measurement and data processing), Indonesian Language (writing persuasive texts), and Arts and Culture (poster design), thereby making learning integrated and contextual (Fitriyanti & Aslan, 2025). Through this project, pupils not only understand the concept of energy conservation cognitively, but also internalise these values through concrete actions, whilst developing creativity in designing campaigns and collaboration in teamwork (Musa et al., 2012).

The main challenges in implementing PjBL in primary schools include time constraints due to a still-heavy curriculum load, a wide range of student abilities within a single class, and limited facilities or learning resources in certain schools. Many teachers are not yet accustomed to the role of facilitator and tend to revert to lecture-based methods when projects hit a deadlock, thereby undermining the essence of PjBL

as student-centred learning. Furthermore, assessing the complex collaborative process often poses a challenge as it requires careful observation tools and sufficient time to monitor each group fairly (Ramadhan & Hindun, 2024) . These challenges require systemic solutions and sustained support to ensure PjBL can be implemented optimally (Ministry of Education, Culture, Research and Technology, 2023).

Solutions to address these challenges include intensive and ongoing teacher training on PjBL design and facilitation, the provision of ready-to-use project modules that can be adapted to the school context, and the development of teacher learning communities to share best practices (Kemendikbudristek, 2023). Schools can adopt a flexible scheduling approach ( ) by allocating dedicated time blocks for projects, for example 3–4 hours per week, so that students have sufficient time for in-depth investigation without being interrupted by the bell marking the end of lessons (Caroline & Aslan, 2025) . The use of digital technologies such as online collaboration platforms, content creation applications, and open educational resource databases can also enrich the project experience and overcome the limitations of physical facilities (Bell, 2010) . With this support, teachers can be more confident and competent in implementing PjBL consistently and to a high standard.

Overall, the implementation of PjBL within the context of the Merdeka Curriculum offers a transformative learning paradigm, in which students become active agents who construct knowledge through real-world experiences, whilst teachers act as empowering facilitators. The synergy between curriculum flexibility, the PjBL framework, and a focus on character development through the P5 principles creates a conducive learning ecosystem for fostering creativity, collaboration, and 21st-century skills from an early age. Although implementation challenges remain, with a shared commitment from teachers, schools, and policymakers, PjBL can serve as a catalyst for change towards a more relevant, meaningful, and liberating primary education.

Thus, PjBL is not merely a learning model, but an educational philosophy aligned with the spirit of the Merdeka Curriculum to create a generation of Pancasila-inspired learners who are creative, collaborative, and ready to face future challenges. Consistent and reflective implementation will ensure that every primary school pupil gains a learning experience that not only enhances academic achievement but also shapes essential character and life skills.

### **The Impact of PjBL on the Development of Students' Creativity and Collaborative Skills**

The application of the Project-Based Learning (PjBL) model has been empirically and theoretically proven to have a significant impact on the development of creativity in primary school pupils, particularly through learning mechanisms that require them to generate original ideas and innovative solutions to real-world problems (Yunita et al., 2024) . Creativity in the context of PjBL is not merely defined

as artistic or aesthetic ability, but rather as a higher-order cognitive competence encompassing fluency, flexibility, originality, and elaboration in thinking (Gardner, 2011) . When students are involved in projects such as designing an environmental campaign or creating a recycled product, they are forced to move beyond a single convergent mindset and develop a diverse range of solutions, thereby systematically training their creative muscles. This process is reinforced by the freedom afforded in PjBL to explore various media, materials, and strategies, which fosters students' confidence to experiment and take intellectual risks without fear of judgement (Musa et al., 2012) .

Indicators of student creativity in PjBL can be observed concretely through the quality of the products produced, such as unique posters, functional three-dimensional models, engaging presentations, or previously unthought-of technical solutions. Research by (Putri et al., 2026) indicates that primary school pupils who participated in PjBL learning for one term experienced a 35–45% increase in creativity scores compared to those in conventional learning, particularly in the dimensions of originality of ideas and elaboration of solutions. Pupils no longer simply copy examples from teachers or books, but begin to combine concepts from various disciplines, modify their peers' ideas, and add a personal touch that reflects their identity (Ministry of Education, Culture, Research and Technology, 2022). For example, in the 'Organic Waste Processing' project, students did not merely construct standard composters, but innovated by adding an automatic aeration system made from recycled bottles or an aesthetically pleasing design that attracted the interest of the school community to participate (Fitriyanti & Aslan, 2025) .

The psychological mechanism underpinning the enhancement of creativity in PjBL is the creation of a state *of flow*, that is, an optimal psychological state in which students are fully absorbed in activities that are challenging yet aligned with their abilities (Huebner, 2012) . During the planning and implementation phases of the project, students experience an iterative cycle of trying, failing, reflecting, and refining, which is at the heart of the creative process (Amabile, 2018) . The formative feedback provided by teachers and peers throughout this process acts as scaffolding that helps students refine their ideas without stifling their imagination (Vygotsky, 1978). Furthermore, the public presentation at the end of the project fosters authenticity and accountability, motivating students to produce their best work, as they know their outcomes will be assessed not only by the teacher but also by a real audience such as parents, classmates, or the school community (Bell, 2010) .

In addition to creativity, PjBL has an equally strong impact on the development of students' collaborative skills, namely the competence to work effectively in a team, communicate constructively, and achieve shared goals through positive interdependence (Johnson & Johnson, 2009) . In PjBL, collaboration is not merely sitting together in a group, but a dynamic interaction in which each member has a specific role, a unique contribution, and individual responsibilities that complement

one another for the success of the project (Slavin, 2022) . The complex and multidimensional nature of the project forces students to depend on one another; one student may be an expert in research, another in visual design, and yet another in oral presentation, so that they realise success can only be achieved if all contributions are valued and integrated (Fitroh & Aslan, 2026) . This experience teaches students that collaboration is a *force multiplier* that enables them to achieve results that would be impossible to attain individually.

Indicators of collaborative ability in PjBL can be observed through specific behaviours such as *active* listening, fair task distribution, constructive conflict resolution , and honest group reflection (Rahmawati et al., 2025) . Research by (Ramadhan & Hindun, 2024) found that primary school pupils involved in PjBL showed significant improvement in their ability to listen to peers' opinions, provide constructive feedback, and negotiate differences without negative emotions. In the "Energy Saving Campaign" project, for example, pupils learnt not to dominate discussions, but rather to invite quieter peers to contribute, to value differing ideas, and to jointly decide on the best strategy through consensus (Widiastuti et al., 2018) . These skills are not only relevant to an academic context but also form the foundation for their future success in social and professional life.

The impact of PjBL on collaboration is further reinforced by the use of strategies such as *positive interdependence* and *individual accountability*, which are deliberately incorporated into the PjBL syntax. Teachers can apply techniques such as *jigsaw*, where each group member is responsible for one aspect of the project which is then combined into a complete product, or *role rotation*, where students take turns leading discussions, taking notes, and presenting results (Slavin, 2022). These techniques ensure that no student becomes a *free rider* and that all members feel needed and valued. Furthermore, group reflection at the end of each project phase provides an opportunity for students to evaluate their team dynamics, identify areas for improvement, and plan more effective collaboration strategies for the next phase (Pramesworo & Aslan, 2026) .

Empirical results from various meta-analyses and experimental studies consistently show that PjBL significantly enhances both of these competencies simultaneously, with *effect sizes* ranging from moderate to large depending on the quality of implementation. A quasi-experimental study by (Rahmawati et al., 2025) involving 240 primary school pupils in West Java reported that the experimental class using PjBL for 12 weeks experienced significantly higher increases in creativity scores ( $d = 0.78$ ) and collaboration scores ( $d = 0.82$ ) compared to the control class using direct instruction. Another study by (Musa et al., 2012) using a classroom action research (CAR) design found that after three cycles of PjBL, 84% of pupils achieved the 'developing very well' category on the creativity indicator and 82% on the collaboration indicator, compared to just 25% and 28% at baseline. These findings reinforce the argument that PjBL is not merely a pedagogical trend, but an evidence-

based approach that is effective in developing 21st-century competencies (Romadhon & Aslan, 2025) .

The synergy between creativity and collaboration in PjBL creates a mutually reinforcing synergistic effect, where effective collaboration sparks more creative ideas through group brainstorming, and individual creativity enriches the quality of collaboration with diverse contributions (Sawyer, 2017) . When students collaborate on a project, they are exposed to different perspectives, experiences and ways of thinking, which triggers constructive *cognitive conflict* and forces them to revise and expand their ideas (Vygotsky, 1978). This dialogic process, referred to by (Mercer, 2002) as *exploratory talk*, yields more innovative and robust solutions compared to individual work. Conversely, when each team member contributes their creative ideas, group dynamics become more vibrant, intrinsic motivation increases, and a sense of ownership towards the shared project grows stronger (Amabile, 2018) . This synergy makes PjBL an ideal vehicle for developing both competencies in an integrated manner, rather than as separate skills.

Although the impact is highly positive, the implementation of PjBL to foster creativity and collaboration is not without challenges, particularly regarding variations in students' prior abilities, unbalanced group dynamics, and teachers' difficulties in assessing complex processes (Pawar et al., 2020) . Some students may feel uncomfortable with the freedom afforded by PjBL and experience *analysis paralysis* or creative block due to an overload of choices (Mudinillah et al., 2024) . Within group dynamics, there is often a tendency for more extroverted or high-achieving students to dominate, whilst quieter or less confident students become passive and marginalised (Ramadhan & Hindun, 2024) . Furthermore, assessing creativity and collaboration requires careful observation tools, clear rubrics, and sufficient time to monitor each student individually, which often places an additional burden on teachers who are already overloaded (Brookhart, 2013) .

To address these challenges, several strategic solutions can be implemented, including differentiated scaffolding, explicit training in collaborative skills, and the use of technology to support process-based assessment. Teachers can provide planning *templates*, examples of products, or prompt questions of varying difficulty levels to assist students experiencing difficulties, whilst still allowing space for more independent students to innovate. Collaborative skills such as active listening, providing feedback, and conflict resolution need to be explicitly taught through mini-lessons and simulations before students embark on real projects (Johnson & Johnson, 2009) . For assessment, teachers can utilise technologies such as digital observation apps, electronic portfolios, or reflection videos that allow students to document their processes and enable teachers to assess more efficiently and objectively (Bell, 2010) . With these solutions, challenges can be transformed into opportunities for more inclusive and meaningful learning.

The practical implications of these findings for primary school educators are the need for a paradigm shift from teaching as the transfer of knowledge to facilitating as the development of competencies (Firmansyah & Aslan, 2025b) . Teachers must dare to relinquish control, trust in pupils' capacity to learn independently and collaboratively, and focus on creating a learning environment that is resource-rich, psychologically safe, and full of authentic challenges (Vygotsky, 1978). Schools also need to provide systemic support in the form of flexible time allocation, adequate facilities, and a teacher learning community to share best practices and reflect on the ongoing implementation of PjBL (Nasution & Aslan, 2025) . With a shared commitment, PjBL can serve as a catalyst for the transformation of primary education, not only improving academic achievement but also shaping a generation that is creative, collaborative, and ready to face the challenges of the future.

Overall, existing empirical and theoretical evidence reinforces the conclusion that PjBL is a highly effective approach for developing creativity and collaborative skills in primary school pupils, two competencies that form the foundation of 21st-century success . Through authentic project experiences, pupils not only learn academic content but also develop creative dispositions, social-emotional skills, and a collaborative mindset that will serve them throughout their lives. Within the context of the Merdeka Curriculum, PjBL is not merely a methodological option, but a core strategy for realising the Pancasila Student Profile—one that is creative, cooperative, and critically thinking . With consistent, reflective implementation supported by the right systems, PjBL can become a pedagogical legacy that liberates learning and humanises education in Indonesian primary schools.

## **Conclusion**

The application of the Project-Based Learning (PjBL) model within the context of the Merdeka Curriculum has proven to be an effective and relevant pedagogical strategy for enhancing the creativity and collaborative skills of primary school pupils. Through a systematic framework—beginning with essential questions, planning, implementation, and culminating in public presentation—PjBL creates authentic learning experiences that require pupils to think divergently, generate original ideas, and work collaboratively in teams to solve real-world problems . The synergy between the flexibility of the Merdeka Curriculum, the integration of the Pancasila Student Profile Strengthening Project (P5), and the principles of differentiated learning makes PjBL not merely a method, but a transformative vehicle for realising the Pancasila Student Profile—one that is creative, cooperative, and critically thinking.

The positive impact of PjBL on students' creativity and collaboration is supported by consistent empirical evidence, showing significant improvements in indicators of fluency, flexibility, originality of ideas, as well as communication skills, positive interdependence, and conflict resolution within teams. Although implementation challenges such as time constraints, variations in student ability, and

the complexity of assessment remain, strategic solutions—including ongoing teacher training, the provision of adaptive project modules, flexible scheduling, and the use of assessment technology—can systematically address these obstacles . With this support, teachers can feel more confident in facilitating learning that liberates and empowers the potential of every student.

Overall, PjBL offers an educational paradigm that aligns with the spirit of the Merdeka Curriculum to create student-centred, contextual, and life-relevant learning. It is hoped that this article will serve as a conceptual and practical reference for educators, headteachers, and policymakers to optimise the implementation of PjBL in Indonesian primary schools. Further research is recommended to explore the long-term impact of PjBL on students' academic achievement, character, and career readiness, as well as to develop effective teacher support models to ensure the sustainability of this learning innovation in the future.

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