

The Influence of Differentiated Project-Based Learning Models on IPAS Learning towards School Well-Being in the Era of Independent Learning

Priandita Mindiari, Roemintoy, Mintasih Indriayu

Universitas Sebelas Maret
prianditamindiari28@student.uns.ac.id

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Abstract

Low School Well-being (SWB) indicates that many elementary school students do not feel a safe and comfortable learning environment that supports their optimal emotional, social, and academic development. This study aims to: (1) identify SWB in elementary schools, (2) measure the impact of the differentiated PjBL model on the SWB of elementary school students, and (3) analyze the relationship between the differentiated PjBL model and SWB. The research method used in this study is a mixed-methods explanatory sequential design. The total sample for this study consisted of 61 grade V elementary school students. Qualitative data were collected through observation, interviews, and document review. Meanwhile, quantitative data were obtained from the questionnaire results. The instruments used to collect data included observation sheets to measure the differentiated PjBL model and the SWB questionnaire. The results of the study showed that: (1) the level of school well-being was in the high category, (2) the differentiated PjBL model in science learning had a significant positive impact on increasing the SWB of elementary school students. The application of the differentiated PjBL model can improve SWB in the era of merdeka curriculum in elementary schools. This study concludes that the application of the differentiated PjBL model contributes positively to SWB in elementary schools.

Keywords: PjBL, Differentiation, School Well-Being, IPAS, Independent Learning

Abstrak

Rendahnya School Well-Being (SWB) mengindikasikan bahwa banyak peserta didik sekolah dasar tidak merasakan lingkungan belajar yang aman, nyaman, dan mendukung perkembangan optimal mereka secara emosional, sosial, dan akademik. Penelitian ini bertujuan untuk: (1) mengidentifikasi SWB di SD, (2) mengukur dampak model PjBL berdiferensiasi terhadap SWB peserta didik SD, (3) menganalisis hubungan model PjBL berdiferensiasi dengan SWB. Metode penelitian yang digunakan dalam penelitian ini adalah mix methods desain explanatori sequential. Total sampel penelitian ini yaitu 61 peserta didik kelas V SD. Data kualitatif diperoleh melalui observasi, wawancara dan dokumen. Sementara itu, data kuantitatif diperoleh dari hasil angket. Hasil penelitian menunjukkan bahwa: (1) tingkat SWB berada pada kategori tinggi, (2) model PjBL berdiferensiasi pada pembelajaran IPAS memiliki dampak positif yang signifikan terhadap peningkatan SWB peserta didik SD. Penerapan model PjBL berdiferensiasi dapat meningkatkan SWB pada era kurikulum merdeka di SD. Penelitian ini menyimpulkan bahwa penerapan model pembelajaran berbasis proyek berdiferensiasi berkontribusi positif terhadap SWB di SD.

Kata kunci: PjBL, Diferensiasi, School Well-Being, IPAS, Merdeka Belajar



INTRODUCTION

A conducive and supportive school environment is now a major urgency in the world of education, along with increasing attention to students' mental and emotional health issues. The concept of school well-being (physical, social, and psychological) is recognized as a crucial foundation for achieving optimal academic outcomes and holistic student development (Susanto et al., 2024). Research shows that school well-being is positively correlated with learning motivation and academic achievement, and can reduce stress, anxiety, and negative behaviors such as bullying (Rustyawati et al., 2025; Saputra et al., 2025). The implementation of student well-being policies is imperative to fostering a superior and mentally healthy generation, as this concept refers to conditions in which students feel safe, valued, supported, and able to function optimally at school (Agustina et al., 2022).

Ideally, schools should be places that foster a sense of comfort and happiness for every student, encouraging them to actively participate in learning and develop their full potential. This aligns with Nishimura et al (2020) opinion that school well-being refers to the feelings of safety, comfort, and well-being experienced by students in the school environment. The World Health Organization (WHO) recommended in 2024 that schools promote the importance of well-being in schools. Research conducted by Andjarsari et al. (2023) found that students with high levels of school well-being tend to view school as a healthy, warm, and enjoyable environment.

Low school well-being can manifest in various forms, such as decreased learning motivation, the emergence of emotional problems (anxiety, stress), difficulties in social adaptation, and even a negative impact on learning outcomes (Martin & Diter, 2024). Various factors contribute to this condition, ranging from less innovative learning methods, a dense curriculum, an unsupportive school environment, and less than positive teacher-student interactions (Baars et al, 2021). Based on existing data, child protection cases in education in Indonesia remain a significant issue. Data compiled by the Indonesian Child Protection Commission (KPAI) and the Federation of Indonesian Teachers' Unions (FSGI) in 2023 shows that bullying continues to terrorize children in the school environment. Meanwhile, the types of bullying most frequently experienced by victims are physical bullying (55.5%), verbal bullying (29.3%), and psychological bullying (15.2%). Furthermore, a survey conducted by Simfoni PPA in 2022 found 541 cases of violence in schools. Based on the results of interviews and observations with fifth grade teachers at the research elementary school on November 18-19, 2024 regarding school welfare, namely a non-conducive classroom atmosphere, such as less harmonious relationships between students, unhealthy competition such as being the most dominant student, choosing friends in groups, bullying so that it can create feelings of insecurity and make students experience pressure.

The essence of Freedom to Learn and the issue of low school well-being can be addressed with differentiated PjBL. Through real-life projects, students collaborate, solve problems, and create concrete products (Ferrero et al., 2021). Thus, PjBL can be a vital strategy for improving student well-being in elementary schools by fostering engagement, autonomy, and a sense of accomplishment (Putri & Wulandari, 2023). Combining PjBL with differentiation crucial for ensuring each student receives support tailored to their needs, reducing stress and increasing self-confidence (Tia et al, 2024; Nakhutsrishvili et al, 2024). This approach accommodates student diversity, from learning styles to interests, by varying content, processes, products, and learning environments (Goyibova et al, 2025). This approach creates an inclusive and relevant learning environment (Lerna et al., 2023).

Previous research has consistently demonstrated the influence of the Project-Based Learning (PjBL) learning model on the learning process, with findings consistently demonstrating its positive impact on improving student motivation, problem-solving skills, and academic achievement (Fadhilah et al, 2025; Santi et al, 2024). Furthermore,

relevant research emphasizes that student academic achievement and mental health lie in school well-being, which is built from supportive relationships, a positive climate, and a sense of belonging among students (Aziz and Riyanto, 2025; Putri et al., 2024). Although numerous studies have examined the effectiveness of Project-Based Learning (PjBL) in improving academic outcomes, studies focusing on its impact on student well-being are still limited. Furthermore, research integrating PjBL with differentiated learning approaches to accommodate student diversity and its impact on student well-being is still very rare in natural and social science learning.

This study aims to address this gap by in-depth examining the influence of a differentiated PjBL model on school well-being in the context of science learning at the elementary school level in the era of independent learning. This research is expected to provide theoretical and practical contributions on how innovative and inclusive learning approaches can create learning environments that not only excel academically but also support students' holistic emotional and mental development.

METHOD

This research employed a mixed-methods approach with an explanatory sequential design. According to Cresswell (2018), this design begins with the collection of quantitative data, followed by the collection of qualitative data to analyze the quantitative findings.

The population of this study was all fifth-grade students of elementary schools in the RA Kartini cluster. For the quantitative phase, the researcher used simple random sampling on 61 students of SDN Karangbenda 01, SDN Glempangpasir 04, and SDN Pedasong 02 considering the homogeneity of the population members. Meanwhile, the qualitative phase used purposive sampling due to the limited number of teachers who are experts in the differentiated PjBL model. Qualitative data, obtained through participant observation, will be analyzed descriptively. Quantitative data from the School Well-Being questionnaire will be analyzed using descriptive statistics. The research instruments include an observation sheet for the differentiated PjBL model and the School Well-Being questionnaire.

Table 1. Student Data

Data	Female	Male
Students	28	33
Total	61	
Percentage	46%	54%

The data collection methods in this study were observation and questionnaires. Observation was used to identify field issues related to learning in the implementation of the differentiation-based PjBL model. A questionnaire was used to assess school well-being, which students had to complete. The research design stages are presented in Figure 1.

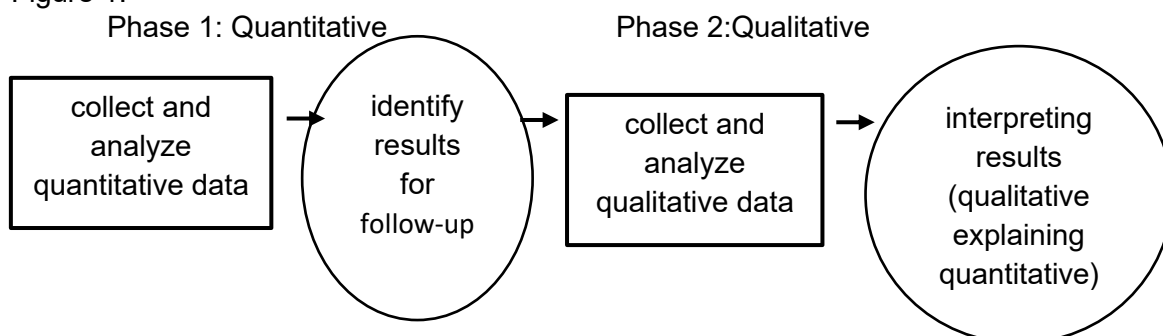


Figure 1. Stages of *explanatory sequential design* (Cresswell, 2018)

This study collected data through two phases. In the first phase, quantitative data were collected using a questionnaire to assess the level of school well-being among fifth-grade elementary school students who were learning using the differentiation-based PjBL method. Furthermore, the second phase involved observation and documentation studies to delve deeper into each variable and dimension. This phase aimed to enrich and expand the data from the first phase and find evidence of improved *school well-being* through the differentiation-based PjBL model. The results of the qualitative data collection in the second phase were then analyzed to conclude.

This research was conducted in two phases (quantitative and qualitative) with the following general steps: First, the researcher clearly formulated the research questions and problems. Second, the researcher revealed the theoretical basis and hypothesis. Third, the researcher collected and analyzed quantitative data, which led to hypothesis testing. Next, to strengthen and deepen the quantitative data, the researcher identified relevant research resources, collected and analyzed qualitative data, and then analyzed the combined quantitative and qualitative data before presenting conclusions and recommendations.

The instruments used included an expert validation sheet to ensure quality, accuracy, and relevance. Validation related to the Likert scale questionnaire instrument refers to Palupi (2020) research, which was validated by experts and conducted a trial, with the questionnaire results being valid and reliable with a score of $0.923 > 0.6000$. The normality test was used to determine whether the data population was normally distributed or not. The normality test used the Kolmogorov-Smirnov test. The linearity test aims to determine whether two variables have a linear relationship or not. Two variables are said to have a linear relationship if the significance (linearity) is less than 0.05 (Hidayati, 2020).

Observation sheets were used to ensure that the PjBL model was implemented according to plan and to observe students' actual responses and behavior during the learning process (Muslihin et al., 2022). Observation sheets for the school well-being-based PjBL model were used to understand the difficulties teachers and students faced in its implementation. This study explored data in depth through participant observation to understand the implementation process of the differentiated PjBL model and the dynamics that affect student well-being. The main focus was to explore students' and teachers' perceptions and experiences regarding classroom atmosphere, social interactions, and the motivational and emotional changes that occurred as a result of the learning model.

This study used a closed-ended questionnaire designed with a multilevel Likert scale. Respondents were asked to select the appropriate column from four answer choices: Strongly Agree (SS), Agree (S), Disagree (TS), and Strongly Disagree (STS).

Table 2. *School Well-Being Instrument Grid*

No	Indicator	Sub Indicators	No Item	Amount
1	Having	The physical environmental conditions of the school can make students comfortable in learning.	1.2	2
		Learning environment conditions can make students comfortable in learning	3.4	2

2	Loving	There is a positive relationship between students, teachers, and school staff	5,6,7	3
		There is a positive relationship between students and other students	8.9	2
3	Being	Every student has the same right to express their opinion.	10.11	2
		The school offers facilities and infrastructure to maximize student potential.	12,13,14	3
		Students receive awards for their work.	15,16	2
4	Health	No symptoms of psychological disorders over some time	17,18	2
		Schools implement health Education, health services, and foster a healthy environment.	19.20	2

The observation sheet was used to determine whether the differentiated PjBL model had an Influence on improving *school well-being* in elementary schools through science learning in grade V of elementary school.

Table 3. Grid of the PjBL Observation Sheet Instrument based on differentiation.

Syntax	Aspect	Indicator
Determine the basic questions.	The teacher presents problems or questions that are challenging, relevant, and appropriate to the students' learning needs.	Problems are presented in detail, in context, and a relevant manner. Connecting problems with the material and students' learning needs (content differentiation).
Designing product planning	Students are given the opportunity to design work plans according to their interests, learning styles, and abilities.	Teachers provide students with choices and freedom to choose approaches/strategies. Students can design work steps according to their needs (process differentiation).
Make a schedule	Students create group work schedules according to their different abilities and learning needs.	Work schedules are agreed upon collectively. Accommodate differences in students (time, roles, and responsibilities).
Monitor progress	Teachers provide guidance according to students' needs	Teachers accompany in turns, providing support as needed (scaffolding) Optimizing differences in student learning (process differentiation)
Testing Results	Students deliver presentations or reports based on the products they produce.	Presentations can be in the form of posters, reports, or prototypes (product differentiation) Assessment based on agreed criteria.

Evaluation	Students and teachers evaluate the process and products produced.	Students are encouraged to identify challenges, learn from their mistakes, and design improvements to address them. Respect the differences in each student's learning process.
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RESULTS AND DISCUSSION

Results

A. Improving *School Well-Being*

The information obtained from the school well-being questionnaire was used as a reference in describing the research findings. The following is a summary of the research results based on the school well-being questionnaire.

Table 4. Results of the school well-being questionnaire

Category	Interval	F	%	Mean	Med	Min	Max
Strongly agree	66-80	30	49	64.385	50.768	26.00	74.00
Agree	51-65	28	46				
Disagree	36-50	2	3				
Strongly disagree	20-35	1	2				

Meanwhile, to find out how big the percentage of the school well-being dimension is, it is interpreted in the following table 5.

Table 5. Results of School Well-being Dimension Data Analysis

Dimensions School Well-being	Percentagee	Category
Having	86%	Excellently
Loving	87%	Excellently
Being	85%	Excellently
Health	90%	Excellently

B. The Impact of Differentiation-Based PjBL on School Well-being

This study aims to evaluate the impact of implementing a differentiated project-based learning (PjBL) model on school well-being. Analysis of the implementation of the differentiated PjBL learning model. The results of the analysis of the implementation of the differentiated PjBL learning model are shown in Table 6.

Table 6. Results of the Differentiation-based PjBL Observation Sheet

Aspect	Percentage of Achievement (%)
1. Determining basic questions	90
2. Designing product plans	80
3. Creating schedules	85
4. Monitoring students and their Progress	95
5. Testing results	80
6. Reflecting	80

The table indicates that the implementation of the differentiated Project-Based Learning (PjBL) model was very effective, following the established steps. This was due to the teacher's ability to adapt classroom management, allowing the learning process to proceed smoothly within the allotted time.

Researchers obtained normally distributed data results based on research and calculations using the SPSS 25 application. The following table shows the calculation results.

Table 7. Normality test results

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
<i>Differentiated PjBL</i>	0,104	45	0,200	0,914	45	0,078
<i>School Well-being</i>	0,102	45	0,200	0,954	45	0,394

Tabel 8 Hasil Regresi Linier Sederhana

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	41,765	20,225		2,016	0,050
<i>Differentiated PjBL</i>	0,746	0,102	0,756	7,323	0,000

The extent of the influence of differentiated project-based learning on school well-being can be seen using a correlation test. The results of the correlation test are presented in Table 9.

Table 9. Correlation Test Results

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0,738 ^a	0,542	0,535	15,692



Figure 1. The learning process of the differentiated PjBL model

The Project-Based Learning (PjBL) model integrates a differentiated approach into the learning process, tailored to students' individual learning styles. Effective implementation of this differentiated PjBL model syntax contributes to improved school well-being, encompassing aspects of school conditions, social relationships, self-fulfillment, and student health.

Discussion

1. Analysis of the results of the School Well-being questionnaire

The analysis of Table 4 shows that the majority of respondents, 95%, responded positively to the school well-being questionnaire. Specifically, 49% (30 respondents) were in the Strongly Agree category, and 46% (28 respondents) were in the Agree category. These results strongly indicate that the implementation of the learning program or model, such as differentiated PjBL, has successfully created a supportive and enjoyable learning environment. These data support the hypothesis that interventions focused on student experiences can significantly increase their positive feelings about school, which is an important foundation for effective learning.

Further statistical analysis provides deeper insights. The Mean (average) of 64.385 indicates that the average score falls in the "Strongly Agree" category, confirming the overall positive trend. However, the Median (middle) of 50.768 falls in the "Agree" category, indicating that most respondents' responses are concentrated in this range, rather than at the highest end. This difference between the mean and median suggests that there are a few very high responses (though not many) that push the average upward. Nevertheless, the concentration of data in the Agree and Strongly Agree categories suggests that the experience was positive for the majority of students. The relatively wide range of scores, from a Min of 26.00 to a Max of 74.00, also indicates some variation in experiences among students, with one or two students perhaps having less positive experiences. This variation underscores the importance of an individualized approach in creating an inclusive environment for all students.

Overall, based on table 5, the scores are in the excellent category. These findings indicate that interventions through learning models, such as differentiated PjBL, have successfully created an environment that strongly supports student well-being across multiple dimensions. The high consistency of results across all dimensions is a strong indication of the program's success. Specifically, the findings show that the Belonging dimension achieved a percentage of 86%, Loving 87%, Being 85%, and Health 90%. Consistent achievement above 85% in each dimension indicates that the implemented program has successfully built student well-being holistically.

The Having dimension (86%) reflects students' high feelings of safety, physical comfort, and the availability of supporting resources in the school environment. Good achievement in this dimension indicates that the school has successfully created a solid physical and material foundation to support student learning activities. The Loving dimension (87%) has a very high percentage, indicating that students feel they have strong and supportive relationships with peers and teachers. This indicates that the implementation of the learning model has succeeded in fostering a positive social climate, which is crucial for a sense of belonging and emotional support. The Being dimension (85%), although slightly lower than the other dimensions, still shows that students have a strong sense of autonomy, purpose, and opportunity for self-development. This reflects the success of differentiated PjBL in empowering students to become active agents in their own learning. The Health dimension (90%) is the highest percentage, highlighting the program's positive impact on students' mental and physical health. This figure strongly implies that the learning model implemented does not increase the burden of academic stress, but rather promotes positive feelings and energy, which are essential for overall health. Critically, while all results

are excellent, the slightly lower percentage on the Being dimension could be a focus for further exploration. This could provide an opening to examine whether there are specific aspects of student self-development that still require more attention within the context of the curriculum or teacher interactions.

The same thing was found by Fang et al, (2025) and Faizah et al (2024) that students who experience a positive school climate show better social adaptability because the environment supports the development of socio-emotional competencies, builds stress resilience, and provides adaptive resources through a conducive learning environment and emotional and psychological support from teachers. Strong social problem-solving skills in elementary school can improve students' interactions and psychological resilience, contributing positively to their friendships, well-being, and emotional and academic development, which ultimately strengthens overall school well-being (Erol, 2025). In addition, Markus, et.al (2022) stated that aspects of school well-being are directly related to the activities students undertake and influence their learning outcomes, especially in the cognitive aspect.

Based on these findings, it can be concluded that students generally perceive the well-being conditions at school to be quite positive and able to meet their learning, emotional, and psychological needs. This is reflected in the high percentage of students who agree. This is a crucial aspect for creating a meaningful, comfortable, and enjoyable learning process. However, there are still students who do not fully agree, so it is important for schools and educators to continue to seek and implement improvement measures to achieve a more optimal and equitable well-being condition. Thus, it is hoped that all students can learn, grow, and reach their maximum potential in a supportive and humane learning environment.

2. The influence of differentiated PjBL on school well-being

The analysis results in table 6 relate to the observations made by the researchers during the study. The implementation of the differentiated PjBL model was very effective in accordance with the established steps. This is indicated by the very high achievement percentage, ranging from 80% to 95% in each aspect. The success of this implementation provides a strong foundation that explains why there was a significant increase in the dimensions of student school well-being. According to Anggraini and Wulandari (2020), the PjBL steps are as follows: 1) determining fundamental questions; 2) designing a project plan; 3) preparing a schedule; 4) monitoring students and the progress of the project; 5) testing the results; and 6) reflecting.

Analysis of the implementation of differentiated PjBL and its relationship with school well-being is as follows.

1) Defining the Fundamental Question (90%)

This aspect indicates that students are actively involved in formulating relevant and meaningful project topics. This process directly contributes to the Being dimension, as students feel they have autonomy and a clear learning goal. Early project involvement also fosters a sense of ownership and collaboration, which strengthens the Loving dimension.

2) Designing a Product Plan (80%)

This high percentage indicates that students are supported to plan their project workflow in a structured manner. This not only develops critical thinking skills but also builds confidence and self-efficacy, which are core to the Being dimension. Thorough planning also helps students feel more prepared and reduces uncertainty, contributing to the Having dimension (a sense of security).

3) Creating a Schedule (85%)

High performance on this aspect reflects an organized learning environment. A structured schedule provides a sense of predictability and control, which are part of the Having dimension. Students' ability to manage time is also

an important life skill that fosters a sense of responsibility, an integral part of the Being dimension.

4) Monitoring Students and Progress (95%)

This aspect had the highest percentage and is the strongest indicator of the teacher's role as a supportive facilitator. Intense teacher involvement in monitoring student progress directly fulfills the need for support and attention, which is crucial for the Loving dimension. A supportive teacher presence can also reduce student stress and anxiety, thus contributing significantly to the Health dimension.

5) Testing Results (80%)

This step provides an opportunity for students to present and evaluate their work. This process not only measures academic achievement but also strengthens the Being dimension by providing feedback on their competency. The opportunity to showcase products can also increase pride and recognition from peers and teachers, part of the Loving dimension.

6) Reflection (80%)

This aspect is a crucial step for in-depth learning. The reflection process encourages students to evaluate experiences, identify strengths, and areas for improvement. This ability is a metacognitive skill that strengthens the Being (self-development) and Health (mental resilience) dimensions in facing future challenges.

Based on the research results, the school well-being of students after the implementation of the Project Based Learning (PjBL) model based on differentiation. This is evident from the majority of students who stated that the learning conditions at school have become more comfortable, enjoyable, and tailored to their individual needs. This is also in line with the Rahman (2021) that in the learning process, PjBL based on differentiation provides space and flexibility for students to learn according to their interests, abilities, and learning styles, so that students can be more active, creative, and independent. Overall, this data confirms that the implementation of differentiated PjBL is not only procedurally effective but also has a profound impact on students' psychosocial aspects. The high implementation rate, especially in the aspect of Monitoring Students and Progress, demonstrates the crucial role of teachers in creating a supportive climate. This is in line with research by Singh (2020) which emphasizes that a positive relationship between teachers and students is the main key to building well-being in schools. The high percentages across all steps also demonstrate that the differentiated PjBL framework (Anggraini & Wulandari, 2020) is robust and can be consistently applied. However, scores of 80% on aspects such as Designing Products, Testing Results, and Critically Reflecting suggest that these steps may require further attention in teacher training or the development of supporting instruments.

Before testing the hypothesis, a normality test was carried out to assess whether the collected data was normally distributed or not using the Shapiro-Wilk test method, then the data was processed using SPSS 25 for Windows software. The results of the normality test show that the significance value for the differentiated Project Based Learning variable is $0.078 > 0.05$ and for the school well-being variable is $0.394 > 0.05$. Therefore, it can be shown that the distribution of both variables is normal. Simple analysis of the table above shows a regression relationship between the differentiated Project Based Learning model and school well-being with the regression equation $Y = 41.765 + 0.746 X$. In this equation, the constant value of 41.765 indicates that if the differentiated Project Based Learning value is close to or equal to zero, then school well-being (Y) is worth 41.765. Meanwhile, the regression coefficient of 0.746 on the differentiated Project Based Learning model variable (X) indicates that every increase in the differentiated Project Based Learning value will increase school well-

being (Y) by 0.746. In other words, every increase in the differentiated Project Based Learning variable will contribute to an increase in school well-being by 0.746. The extent of the influence of differentiated project-based learning on school well-being can be seen using a correlation test. The correlation value (R) between the variable Differentiated Project Based Learning (X) and school well-being (Y) is 0.738. The test results indicate that the relationship between the two variables is in the strong category. The results of Table 6 show a coefficient of determination with an R-square of 0.535, indicating that the differentiated project-based learning model has a 53.5% influence on school well-being.

From the results of the description above, it was found that differentiated Project Based Learning contributed 53.5% to school well-being. This proves that the implementation of the differentiated Project Based Learning model has a significant influence on school well-being in elementary schools. The results of this study offer a new perspective on the impact between the implementation of differentiated Project Based Learning and school well-being. This study proves that there is a positive influence of 53.5%, which significantly contributes to the understanding of the importance of the Project Based Learning model in the context of school well-being applied to the implementation of science learning in Grade 5 of elementary schools. Meanwhile, there are other factors that influence school well-being by 46.5%, thus providing room for further research in this regard.

The results of this study are comparable to research on how the application of a project-based learning model based on differentiated learning affects students' creative thinking skills (Atmojo et al., 2025). Putri et al. (2023) found that differentiated learning, which optimally facilitates students' diverse learning styles, supports the improvement of critical thinking skills and contributes to better school well-being compared to conventional learning. This also supports aspects of well-being, namely feelings of being valued, accepted, and empowered, which are then reflected in students' broader learning satisfaction and motivation (Shen et al, 2024).

Furthermore, differentiated-based project-based learning (PjBL) also enhances students' emotional and relational aspects. Rohmaniyah and Asih (2024) this occurs because the PjBL approach provides opportunities for students to learn collaboratively, find creative solutions to problems, and learn from their differences. Differentiated learning is an educational approach that aligns the learning process with students' readiness, interests, and learning profiles, including in science learning that integrates science and social aspects, with the main goal of facilitating each student according to their characteristics and significantly improving their critical thinking skills compared to conventional learning (Hanik & Laili, 2024). In other words, differentiation-based PjBL is not only useful from an academic aspect, but also becomes a relevant approach to creating maximum school well-being for students.

CONCLUSION

Based on the research results, it can be concluded that that the differentiated Project-Based Learning (PjBL) model has a positive and significant impact on students' school well-being in the context of science learning in the Merdeka Curriculum era. The practical implications are highly relevant: for teachers, this model can be an effective strategy for creating a supportive and relevant learning environment; for schools, these results underscore the importance of prioritizing a student-centered approach; and for curriculum policy, these findings reinforce the relevance of a framework that provides autonomy in adopting methods responsive to students' holistic needs. However, this study has limitations, particularly in terms of duration and limited sample size. Therefore, it is recommended that further research be conducted on a broader scale and longer duration, and involve longitudinal studies to examine the long-term impact of this model on student well-being and academic outcomes.

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