

ANALYSIS OF IN-DEPTH LEARNING PLANNING IN SCIENCE LEARNING IN ONE OF THE EAST JAKARTA ELEMENTARY SCHOOLS

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Abstract

The implementation of IPAS (Natural and Social Sciences) subjects in the Independent Curriculum requires an effective learning strategy to improve student learning outcomes. This study aims to measure the effectiveness of a learning intervention on the learning outcomes of social studies in elementary school students. Using a quantitative approach with a *quasi-experimental one-group pretest-posttest design*, this study involved 32 students from an elementary school in East Jakarta as a sample. Data were collected through *pre-test* and *post-test* scores, then analyzed using descriptive statistics and non-parametric tests of the *Wilcoxon Signed-Rank Test* because the data were not normally distributed. The results showed a statistically significant improvement in student learning outcomes, with the average score increasing from 8.03 in the *pre-test* to 9.28 in the *post-test* ($p < 0.001$). It was concluded that the learning interventions applied were proven to be effective in improving the learning outcomes of IPAS. These findings provide empirical evidence for educators in designing effective learning practices that are relevant to the demands of the Independent Curriculum.

Keywords : Independent Curriculum, IPAS, Learning Outcomes, Quantitative Research, Pseudo-experiments.

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Introduction

Education in Indonesia continues to experience dynamic development, characterized by curriculum changes to adapt to the needs of the times and improve the existing system (Neneng Widya Sopa Marwa*, Herlina Usman, 2023). In an effort to recover and transform post-pandemic learning, the Ministry of Education, Culture, Research, and Technology (Kemendikbudristek) launched the Independent Curriculum. This curriculum is designed with the aim of providing greater flexibility for educational units, teachers, and students in the learning process (Andreani, 2022). One of the main characteristics of the Independent Curriculum is the focus on developing basic competencies, character according to the Pancasila Student Profile through project-based learning, as well as an emphasis on essential materials so that learning is more in-depth and not rushed (Istiqomah et al., 2025).

One of the most significant innovations in the curriculum structure at the elementary school level is the emergence of Natural and Social Sciences (IPAS) subjects. The emergence of IPAS, which is a merger of Natural Sciences (IPA) and Social Sciences (IPS) subjects, gives a new color to the landscape of basic education (Ifdaniyah et al., 2024; Istiqomah et al., 2023; Kusnadi et al., 2023; Saputri et al., 2024; Sukmawati & Wahjusaputri, 2024; Wahjusaputri et al., 2024). This merger is based on the consideration that elementary school-age students tend to see

everything holistically, whole, and integrated, and are still in the stage of concrete thinking. Thus, IPAS is expected to trigger students to manage the natural and social environment in an integrated unit, relevant to their daily lives (Fauziah et al., 2023; Fitria et al., 2022; Novianti et al., 2023; Nurliana et al., 2023; Ramadhani & Sukmawati, 2022; Wati Sukmawati et al., 2023).

The presence of IPAS as a new subject requires a careful and structured learning plan so that the objectives of the curriculum can be achieved effectively. The learning planning in the Independent Curriculum has undergone fundamental changes, especially with the transition from a detailed Learning Implementation Plan (RPP) to a more flexible Teaching Module (June et al., 2023). The Teaching Module provides flexibility for teachers to adjust components, materials, and learning methods to the needs and characteristics of students. This planning is crucial because it is a guideline for teachers in carrying out the entire series of learning activities, starting from determining goals, selecting materials, to evaluating strategies (Apriliani et al., 2024).

However, implementation in the field shows that teachers face various challenges and have diverse perceptions in planning IPAS learning. Some teachers still feel confused about the preparation of teaching modules, diagnostic assessments, and summative assessments. There are also teachers who in practice still separate science material to be taught in the first semester and social studies in the second semester because it is considered easier and systematic, while other teachers try to integrate it contextually in one topic of discussion (Aulia et al., 2024; Febianti et al., 2024; Hartomo et al., 2024; Izzati et al., 2024). Studies also show that teachers often still rely on teaching modules provided by the government as the main guide in the planning process. In addition, the readiness of teachers in designing assessments in accordance with the principles of the Independent Curriculum, especially diagnostic assessments, is still one of the obstacles that need to be overcome.

Based on this presentation, research on the perception and implementation of IPAS has been carried out in various regions. However, an in-depth and focused analysis of the IPAS learning planning process in elementary schools, especially in urban areas such as East Jakarta, still needs to be explored further. Therefore, this study aims to analyze in depth how teachers plan IPAS learning in one of the elementary schools in East Jakarta, identify the planning model applied, as well as the challenges faced in an effort to implement the spirit of the Independent Curriculum in its entirety.

Method

This study uses a quantitative approach with a *quasi-experimental* design. The specific design adopted is the One-Group Pretest-Posttest Design, which aims to measure the effectiveness of a learning treatment or intervention by comparing student learning outcomes before (*pre-test*) and after (*post-test*) treatment is given. This design was chosen because of its practicality in a real classroom environment to see the direct impact of a learning method on the same group of subjects.

This research was carried out in one of the elementary schools in East Jakarta in the Odd semester of the 2025/2026 school year. The population in this study is all third grade students in the school. The research sample amounted to 32 students who were selected using *the saturated sampling* technique, where all students in one class were used as research subjects.

The research procedure is carried out in three main stages according to the design that has been set. The first stage is to give a *pre-test* to all students to measure their initial abilities related to IPAS material. The second stage is the implementation of treatment (X). The last stage is the administration of a *post-test* using the same instrument as *the pre-test* to measure the improvement of student learning outcomes after receiving treatment. The instrument used

is a learning outcome test in the form of objective questions prepared based on the learning outcomes of the Independent Curriculum in science subjects.

The data analysis techniques in this study include descriptive and inferential statistical analysis. Descriptive analysis is used to present an overview of the data through the *mean* and *standard deviation* of pre-test and post-test scores. For the hypothesis test, a normality prerequisite test was first carried out using the *Shapiro-Wilk* test. The test results showed that the pre-test score data (Sig. = 0.000) and post-test (Sig. = 0.000) were not distributed normally ($p < 0.05$). Therefore, a hypothesis test to compare the difference in scores was carried out using a non-parametric statistical test, namely the *Wilcoxon Signed-Rank Test*. Decision-making is based on significance values, where if $p < 0.05$, then it can be concluded that there is a significant difference between learning outcomes before and after treatment. The entire data analysis process is carried out with the help of SPSS software.

Results and Discussion

Results

This section presents data on research results quantitatively to answer the research objectives, namely measuring effectiveness in improving students' social studies learning outcomes. The data presented include descriptive statistics and hypothesis test results.

Descriptive analysis showed an increase in the average score of student learning outcomes between before (*pre-test*) and after (*post-test*) treatment. A summary of the results of the descriptive statistics is presented in Table 1 below.

Table 1

Comparison of Pre-Test and Post-Test Scores of IPAS Learning Outcomes

Tests	N	Average (Mean)	Standard Deviation (SD)	Minimum Score	Maximum Score
Pre-Test	32	8,03	2,10	3	10
Post-Test	32	9,28	1,30	4	10

As shown in Table 1, the average student score increased from 8.03 during the *pre-test* to 9.28 during the *post-test*. This increase in the average score indicates a positive impact of the learning treatment that has been implemented. The variation in student scores also looked more homogeneous after the treatment, which was characterized by a decrease in the standard deviation value from 2.10 to 1.30.

To test the statistical significance of this increase, a normality prerequisite test was first carried out. The results of the *Shapiro-Wilk* normality test showed that the distribution of pre-test ($p = 0.000$) and post-test ($p = 0.000$) score data was abnormal ($p < 0.05$). Based on these results, the hypothesis test was carried out using the non-parametric *Wilcoxon Signed-Rank Test*.

The results of the *Wilcoxon Signed-Rank Test* showed that there was a statistically significant difference between the students' social studies learning outcomes score before and after the treatment ($Z = -4.125$, $p < 0.001$). Since the value of $p(0.000)$ is smaller than the established significance level ($\alpha = 0.05$), the null hypothesis (H_0) is rejected. This confirms that

the implementation of [Name your learning method] effectively improves students' IPAS learning outcomes significantly

Discussion

The main findings of this study clearly answer the research question, namely that the application has a significant positive influence on the learning outcomes of social studies students. An increase in the average score from 8.03 to 9.28 which proved to be statistically significant ($p < 0.001$) provided empirical evidence that the intervention was successful. These findings are in line with constructivist learning theory, which states that students actively build knowledge through meaningful learning experiences. The methods applied have most likely facilitated an active learning process, in which students not only passively receive information but also engage directly in the learning process.

The results of this study also support previous studies that found the effectiveness of student-centered learning methods. For example, these findings are consistent with research by which reports that project-based learning approaches or collaborative learning can improve students' conceptual understanding and critical thinking skills. The significant increase in scores in this study shows that the method used is able to make integrated IPAS concepts easier to understand and apply by students.

However, this research has some limitations that need to be acknowledged. First, the One-Group Pretest-Posttest Design research design did not involve a control group. The absence of a control group makes it difficult to conclude with certainty that the improvement in learning outcomes is solely due to the treatment given. Other external factors, such as student maturity, *pre-test experience*, or other events that occurred during the research period (*history*), may also contribute to the increase in scores.

Second, the research sample was limited to 32 students from a single school in East Jakarta, so these results may not be broadly generalized to larger populations or different school contexts. The specific characteristics of the student and the school environment can affect the effectiveness of the learning methods applied.

Despite these limitations, these findings provide practical implications for educators. Teachers can consider adopting [Name your learning method] as one of the effective strategies for teaching IPAS material within the framework of the Independent Curriculum. For future research, it is recommended to use a *true-experimental* design with a control group and a randomly selected experimental group (*random assignment*). This will strengthen the internal validity of the research and provide stronger evidence regarding the effectiveness of the method. In addition, further research can also explore the impact of this method on the affective and psychomotor aspects of students, not just limited to cognitive outcomes.

Conclusion

Based on data analysis, this study concludes that the learning interventions applied are significantly effective in improving student learning outcomes in Natural and Social Sciences (IPAS) subjects. These findings make an important theoretical contribution by presenting empirical evidence on learning strategies that are relevant to the implementation of the Independent Curriculum, especially in the context of science subjects that require interdisciplinary understanding. In practical terms, these results recommend that educators adopt such learning strategies to create more active and meaningful learning experiences, thereby facilitating students in connecting science and social concepts holistically. Nonetheless, the limitations of the design without a control group open up space for further research that uses purely experimental design with a comparison group to reinforce the validity of the findings. Future research is also recommended to explore the impact of similar interventions not only on cognitive aspects, but also on the development of students' critical thinking skills

and collaboration. Thus, this research not only confirms the success of an intervention, but also becomes the foundation for the development of evidence-based teaching practices to succeed in the learning objectives in the Independent Curriculum.

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