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The Perception of English Study Program Students on the Use of Project-Based Learning in Scientific Writing

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ABSTRACT

This study investigates students' perceptions of the use of Project-Based Learning (PjBL) in the Scientific Writing class at the English Study Program of FKIP Universitas Riau. Employing a descriptive quantitative method, the research involved 37 students who had experienced PjBL during the course. Data were collected through a questionnaire consisting of 35 items across eight indicators. The findings reveal that students have a highly positive perception of PjBL, with an average score of 3.96. All indicators, including relevance, clarity of goals, application, and satisfaction, fall into the high category. These results indicate that PjBL is positively perceived in various aspects, such as its implementation in learning activities, lecturer support, student motivation, and the development of scientific writing skills. This study contributes to the limited body of research on the use of PjBL in scientific writing class within higher education in Indonesia, highlighting its potential to enhance both the cognitive and affective dimensions of students' learning experiences in a relatively underexplored context.

Introduction

In learning English, students need to become proficient in four essential skills, which are listening, speaking, reading, and writing (Brown, 2001). Students are expected to be able to communicate effectively by mastering these language skills. Among them, writing is considered one of the most important yet challenging skills. Writing means an activity of expressing information, ideas, and important messages clearly to readers (Rostika et al., 2021).

Writing skills are crucial because they determine students' success in language learning. Moreover, writing can be used to measure students' proficiency in English through various aspects such as their ability to express ideas clearly and coherently. According to Kingston et al. (2002) as cited in Februansyah et al. (2020), a student's English proficiency is often reflected in their productivity, particularly in writing.

Writing is not only about generating and organizing ideas with the correct use of vocabulary,

grammar, and paragraph structure, but also about turning them into well-developed and readable texts (Richards & Renandya, 2002). However, writing is widely regarded as the most difficult skill to master for foreign language learners. It requires the ability to communicate thoughts, emotions, and arguments in a clear and structured way (Leki, 1992). Through writing, people can persuade, inform, or reflect on various issues (Sangkala, 2012). Writing also promotes critical thinking and self-reflection. As Zulkarnaini (2011) stated, writing is often considered the most challenging ability for English learners to acquire.

One of the reasons students struggle with writing is their lack of vocabulary and limited grammar skills. These components are essential in producing good quality writing. The ability to construct well-organized paragraphs with appropriate vocabulary and grammatical accuracy greatly affects the clarity and effectiveness of a text (Rostika et al., 2021). Another challenge that hinders students' writing performance is low motivation, especially when writing is perceived as intimidating or tedious. Low levels of motivation can negatively affect students' progress and reduce their ability to meet academic expectations. Hinkel (2003) emphasizes that writing requires mastery of vocabulary, grammar, and organization—areas in which many students continue to struggle. These issues are further exacerbated by the continued use of traditional, lecture-based teaching methods, which can make writing classes feel monotonous and unengaging.

As students progress academically, they are introduced to more specialized forms of writing, such as scientific writing. This type of writing plays a crucial role in higher education, where students are expected to complete assignments like research papers and academic reports. Scientific writing emphasizes clarity, objectivity, coherence, and adherence to academic conventions, often involving literature reviews and research findings (Yore et l., 2004).

According to Day and Gastel (2012), scientific writing must be concise and accurate because its main goal is to communicate research clearly and logically. It is not only concerned with grammatical correctness but also with presenting arguments supported by credible evidence in a well-organized structure. In addition, Swales (1990) emphasized that scientific writing follows a rhetorical structure specific to academic discourse communities. For instance, writing a literature review involves applying genre awareness, rhetorical strategies, and critical analysis of existing research, skills that are not often explicitly taught in general writing courses. Wellington and Osborne (2001) also noted that scientific writing involves particular conventions of explanation, argumentation, and the presentation of findings, making it different from narrative or expository writing typically practiced at earlier educational stages.

In the English Study Program of Universitas Riau, Scientific Writing is a course designed to help students develop their academic writing competence. One of the learning approaches used in this course is project-based learning. Based on the researcher's experience with the final assignment in

10.26555/adjes.v11i2.1448.

the Scientific Writing class, which required writing a literature review-based article, the researcher found it difficult to express ideas due to limited vocabulary and a lack of confidence in academic writing style. This aligns with several previous studies indicating that students often face difficulties in organizing their ideas and applying academic language appropriately in writing tasks.

To address these challenges, a more interactive and student-centered approach is needed, such as project-based learning (PjBL). PjBL encourages students to be actively involved in the learning process through meaningful projects that result in real-world outcomes (Brundiers & Wiek, 2013; Krajcik & Shin, 2014). It allows students to take responsibility for their own learning, collaborate with peers, and develop critical thinking skills (Cole et al., 2002; Saban, 2000).

Project-based learning is considered effective in improving writing skills because it provides opportunities for students to engage deeply with the writing process, explore topics thoroughly, and produce a final product that reflects their learning (Indarti, 2016). Zheng (2017) also emphasizes that combining PjBL with modern writing instruction can enhance students' writing performance and motivation. Similarly, Hallinger and Lu (2011) in a broader educational context found that students perceived PjBL positively due to increased engagement and collaborative learning.

Several studies have supported the effectiveness of PjBL in writing instruction. In Indonesia, Rostika et al. (2021) found that students viewed PjBL positively due to its engaging content and the support provided by lecturers, which helped improve their motivation and writing skills. Similarly, Fadillah et al. (2023) reported that students perceived project-based learning as effective and enjoyable, especially in enhancing their writing skills. These studies emphasized how teacher facilitation and clarity of tasks contributed to students' writing improvement.

Meanwhile, in the specific context of scientific writing, Masniah et al. (2021) found that students responded positively to writing tasks such as composing abstracts and thesis proposals. However, their study did not explore the instructional approach implemented, leaving a gap concerning the application of PjBL in this context. Rusiana et al. (2023) examined PjBL in a TEYL class and found that while students showed a neutral perception, factors such as teacher guidance and classroom interaction influenced its effectiveness. Meanwhile, Puangpungsi (2021) confirmed the potential of PjBL to promote English proficiency and 21st-century skills in university settings.

Despite the growing number of studies, there is still limited research that specifically investigates students' perceptions of PjBL in the context of scientific writing classes at the university level, particularly in Indonesian higher education. Most previous studies either examined general writing classes or focused on different student levels (e.g., high school students in Fadillah et al., 2023 or vocational schools in Rusiana et al., 2023). Therefore, it is necessary to explore how university students perceive the application of PjBL in scientific writing, a genre that demands more

complex academic skills and structured argumentation.

According to Brown (2006), students' perceptions are essential to improving the quality of language teaching, as they influence the effectiveness of the learning process. While the project-based learning approach has been applied in a variety of academic fields, it has not yet been thoroughly investigated in relation to the writing context, particularly scientific writing. Based on the description above and the existing research gaps, the researcher is interested in exploring students' perceptions of the use of project-based learning in scientific writing class.

Despite growing attention to Project-based Learning (PjBL) in writing instruction, limited research has explored its application in the context of scientific writing at the university level in Indonesia. Scientific writing requires not only linguistic proficiency but also structured argumentation, critical thinking, and adherence to academic conventions, elements that align well with PjBL principles such as autonomy, collaboration, and real-world relevance.

This study aims to answer the following research questions:

1. How do students perceive the use of Project-Based Learning in the Scientific Writing class?
2. Which aspects of PjBL are perceived most positively or less favourably by students?
3. What implications can be drawn to improve the implementation of PjBL in academic writing courses?

Method

This research employed a descriptive quantitative survey design to investigate students' perceptions of Project-Based Learning (PjBL) in a Scientific Writing course. According to Ary et al. (2020), descriptive quantitative research focuses on collecting and analyzing numerical data to describe existing conditions, opinions, or behaviors without manipulating variables. This method is especially useful for identifying students' attitudes, beliefs, and perceptions about current educational practices.

The research was conducted in the English Study Program at Universitas Riau, located on Jalan Bina Widya Km 12.5, Simpang Baru, Pekanbaru, Riau, from January to May 2025. The population consisted of all students from the 2020 cohort, totaling 114 students across three classes. Among these, both Class A and Class B were taught using the PjBL model, while the remaining class followed traditional instruction. Class A, comprising 38 students, participated in the validity and reliability testing of the questionnaire instrument. Meanwhile, Class B, which consisted of 37 students, was selected through purposive sampling to serve as the main sample for data collection in this study.

The research instrument was a closed-ended questionnaire adapted and developed from several previous studies, including those by Rostika et al. (2021), Puanpungsi (2021), and Rusiana et al. (2023), which examined students' perceptions of PjBL in various educational settings. The items were further refined to align with the specific context of scientific writing in higher education.

10.26555/adjes.v11i2.1448.

The final version of the questionnaire included 35 statements rated on a 5-point Likert scale, ranging from 1 (Strongly Disagree) to 5 (Strongly Agree).

While many items were directly adapted from the aforementioned sources, two indicators "relevance of objectives" and "clarity of objectives" required further conceptual refinement. Although similar statements existed in prior studies, they were not explicitly categorized under these two constructs. To address this, the researcher utilized artificial intelligence (AI) tools to assist in analyzing and grouping the items conceptually according to the intended indicators. The AI-generated outputs were then critically reviewed and manually refined to ensure theoretical alignment and contextual appropriateness for the Scientific Writing class. This process resulted in a structured instrument comprising 40 items covering eight indicators.

A Pearson product-moment correlation was conducted to ensure the instrument's validity, using a critical r-value threshold of 0.325 based on the number of respondents (N=37) and a 5% significance level. As a result, five items that did not meet the threshold were removed. For reliability, a Cronbach's Alpha test produced a coefficient of 0.95, indicating excellent internal consistency. Additionally, informed consent was obtained from all participants, and they were assured of confidentiality and voluntary participation.

The collected data were analyzed descriptively using percentage and mean score formulas. Based on the interpretation range by Sözen and Güven (2019), students' perceptions were categorized into five levels: Very Low (1.00–1.80), Low (1.81–2.60), Medium (2.61–3.40), High (3.41–4.20), and Very High (4.21–5.00).

A. The Implementation of Project-Based Learning in the Scientific Writing Class

Based on the provided procedures for the final project in the Scientific Writing class, the process closely aligns with the steps outlined by Trianto (2014). The stages included:

1. Lead-in Activities: Initial instructions and examples were provided to students to demonstrate the expected outcomes and structure of the literature review-based article.
2. Planning: Lecturers and students collaboratively analyzed and selected project concepts and topics, specifically choosing article topics related to English Language Teaching in the Digital Age.
3. Conducting the Project: Students developed their literature review-based articles under lecturer supervision, including writing various sections such as the abstract, background, research questions, methods, discussion, conclusion, and references.
4. Creating the Final Product: Students completed and refined their literature review-based articles.
5. Evaluation: Articles were submitted, feedback was provided by the lecturer, and revisions were made. Students were also encouraged to submit their articles to nationally accredited journals as an extended form of evaluation.

This process ensured that students engaged in authentic and structured scientific writing practices throughout the course.

Discussion

Table 1. Students' perception of satisfaction with the use project-based learning in scientific writing class

Items	*SD (1)*	*D (2)*	*N (3)*	*A (4)*	*SA (5)*	*Mean*
1. Doing the project provided a beneficial experience.	2 (5.4%)	1 (2.7%)	9 (24.3%)	14 (37.8%)	11 (29.7%)	3.84
2. I am satisfied with the learning experience I gained from this project.	0 (0%)	2 (5.4%)	11 (29.7%)	17 (45.9%)	7 (18.9%)	3.78
3. I feel that I achieved the learning objectives of the project.	0 (0%)	1 (2.7%)	11 (29.7%)	19 (51.4%)	6 (16.2%)	3.81
4. The project-based learning met my expectations for the course.	1 (2.7%)	2 (5.4%)	7 (18.9%)	21 (56.8%)	6 (16.2%)	3.78
Average Score						3.80

Table 1 presents the percentage scores of students' perceptions of satisfaction with the use of project-based learning (PjBL) in the Scientific Writing class, consisting of four items. The highest mean score was obtained in item one, where students agreed that the project provided a beneficial experience (3.84), while the lowest was in item two and item four, which concerns satisfaction with the learning experience gained (3.78). Overall, the average score for all items is 3.80, which falls into the "high" category (score range: 3.41–4.20), indicating a generally positive perception from respondents. The results of this study indicate that students generally had a positive perception of their satisfaction with the use of Project-Based Learning (PjBL) in the Scientific Writing class, with an average score of 3.80 across four indicators. Most students agreed that the project provided a beneficial experience, helped them achieve the learning objectives, and met their expectations for the course. These findings are consistent with previous research. Rostika et al. (2021) found that PjBL in writing classes enhanced students' satisfaction through authentic and engaging tasks. Similarly, Susanti et al. (2020) reported that PjBL increased students' sense of fulfillment and involvement, especially in writing-focused courses. They also emphasized that student satisfaction in PjBL environments was influenced by the clarity of goals and project design factors that are reflected in this study's positive responses regarding the achievement of learning objectives.

Table 2. Students' perception of the application of project-based learning in scientific writing class

Items	*SD (1)*	*D (2)*	*N (3)*	*A (4)*	*SA (5)*	*Mean*
1. The instructions for the project were clearly explained and easy to understand.	0 (0%)	0 (0%)	10 (27.0%)	14 (37.8%)	13 (35.1%)	4.08
2. Project-based learning is designed systematically, starting with	0 (0%)	0 (0%)	8 (21.6%)	16 (43.2%)	13 (35.1%)	4.13

10.26555/adjes.v11i2.1448.

explanations, exercises, and continuing with the final project.						
3. Learning scientific writing through project-based learning has helped me understand the material more quickly.	0 (0%)	0 (0%)	9 (24.3%)	20 (54.1%)	8 (21.6%)	3.97
4. I think the project-based learning was an effective way to practice scientific writing class.	1 (2.7%)	2 (5.4%)	6 (16.2%)	19 (51.4%)	9 (24.3%)	3.89
5. Through project-based learning, I have become more careful in following the scientific writing format.	0 (0%)	2 (5.4%)	8 (21.6%)	16 (43.2%)	11 (29.7%)	3.97
Average Score						4.00

Table 2 presents the percentage scores of students' perceptions of the application of project-based learning (PjBL) in the Scientific Writing class, measured through five items. The highest mean score was found in item two (4.13), where students acknowledged that PjBL was designed systematically—beginning with explanations, followed by exercises, and culminating in a final project. The lowest score was in item four (3.89), which asked whether the project was an effective way to practice scientific writing. The overall average score of 4.00 falls within the "high" category (3.41–4.20), indicating a positive perception of PjBL implementation. These results show that students appreciated aspects such as clear instructions, a well-structured learning design, ease in understanding the material, and the effectiveness of the project in enhancing writing practice. This aligns with the findings of Rostika et al. (2021), who emphasized that PjBL offers meaningful learning experiences and enhances student comprehension, and with Argawati and Suryani (2020), who noted that PjBL helps students manage their writing tasks more effectively.

Table 3. Students' perception of the lecturer's role in the use project-based learning in scientific writing class

Items	***SD (1)***	***D (2)***	***N (3)***	***A (4)***	***SA (5)***	***Mean***
1. The lecturer help students who find difficulties in working on the project.	0 (0%)	3 (8.1%)	11 (29.7%)	15 (40.5%)	8 (21.6%)	3.75
2. The lecturer monitors the progress of the project-based learning tasks.	0 (0%)	0 (0%)	13 (35.1%)	14 (37.8%)	10 (27.0%)	3.91
3. The lecturer gives clear timeline regarding consultation time, revision, and collecting project.	0 (0%)	2 (5.4%)	9 (24.3%)	20 (54.1%)	6 (16.2%)	3.81
4. The lecturer provides clear feedback related to the result of your project.	1 (2.7%)	0 (0%)	10 (27.0%)	18 (48.6%)	8 (21.6%)	3.86
5. The guidance from the lecturer helped me achieve the project objectives.	0 (0%)	0 (0%)	11 (29.7%)	12 (32.4%)	14 (37.8%)	4.08
Average Score						3.88

Table 3 presents the percentage scores of students' perceptions of the lecturer's role in the implementation of project-based learning (PjBL) in the Scientific Writing class, based on five items. The highest mean score was recorded in item five (4.08), indicating that students felt the lecturer's guidance helped them achieve the project objectives. Conversely, the lowest average score appeared in item one (3.75), which questioned whether the lecturer supported students facing difficulties with the project. The overall average score of 3.88, which falls into the "high" category (3.41–4.20), reflects a generally positive perception of the lecturer's role. Students acknowledged the importance of the lecturer in guiding the project, monitoring progress, and providing constructive feedback. These findings are consistent with Baidowi et al. (2015), who highlighted the lecturer's role as a facilitator in PjBL to enhance student learning, and Sagita et al. (2021), who emphasized that effective lecturer involvement is essential for the success of project-based learning.

Table 4. Students' perception on engagement and motivation of the use project-based learning in scientific writing class

Items	*SD (1)*	*D (2)*	*N (3)*	*A (4)*	*SA (5)*	*Mean*
1. The project motivated me to learn more about scientific writing.	0 (0%)	0 (0%)	10 (27.0%)	16 (43.2%)	11 (29.7%)	4.02
2. I enjoyed working on the literature review-based article.	0 (0%)	3 (8.1%)	12 (32.4%)	15 (40.5%)	7 (18.9%)	3.70
3. The project made the learning process more interesting.	0 (0%)	2 (5.4%)	10 (27.0%)	12 (32.4%)	13 (35.1%)	3.83
4. Project work promotes a positive learning environment	0 (0%)	2 (5.4%)	9 (24.3%)	12 (32.4%)	14 (37.8%)	4.02
5. I felt engaged throughout the project.	0 (0%)	2 (5.4%)	5 (13.5%)	19 (51.4%)	11 (29.7%)	4.05
Average Score						3.92

Table 4 presents the percentage scores of students' perceptions of engagement and motivation in the use of project-based learning (PjBL) in the Scientific Writing class, based on five items. The highest mean score was recorded in item five (4.05), indicating that students felt consistently engaged throughout the project. The lowest mean score appeared in item two (3.70), which relates to enjoyment in working on the literature review-based article. The overall average score for all items is 3.92, which falls into the "high" category (3.41–4.20), indicating that students held a positive perception of their engagement and motivation during the project-based learning process. Students reported that PjBL was both engaging and motivating, particularly in fostering a supportive learning atmosphere. These results align with Shin's (2018) findings that PjBL enhances students' motivation and confidence. Similarly, studies by Baidowi et al. (2015) and Alotaibi (2020) found that PjBL effectively sustains student engagement through interactive and meaningful learning experiences.

10.26555/adjes.v11i2.1448.

Table 5. Students' perception of the relevance of project-based learning in scientific writing class

Items	SD (1)	D (2)	N (3)	A (4)	SA (5)	Mean
1. The project was relevant to the course content.	0 (0%)	0 (0%)	7 (18.9%)	23 (62.1%)	7 (18.9%)	4.00
2. Writing a literature review was useful for my academic development.	0 (0%)	0 (0%)	2 (5.4%)	26 (70.2%)	9 (24.3%)	4.18
3. The project helps me connect the theory I have learned with its real-world application.	0 (0%)	0 (0%)	11 (29.7%)	14 (37.8%)	12 (32.4%)	4.02
4. The project tasks were meaningful to me.	0 (0%)	0 (0%)	10 (27.0%)	18 (48.7%)	9 (24.3%)	3.97
Average Score						4.04

Table 5 presents the percentage scores of students' perceptions of the relevance of project-based learning (PjBL) in the Scientific Writing class, based on four items. The highest mean score was recorded in item two (4.18), indicating that students found writing a literature review useful for their academic development, while the lowest mean score appeared in item four (3.97), which asked whether the project tasks were meaningful to students. The overall average score for all items is 4.04, which falls into the "high" category (3.41–4.20), reflecting a positive perception of the relevance of PjBL in the Scientific Writing class. Students particularly appreciated the alignment of the project with the course material and its application to real-world contexts. These findings are consistent with studies by Alotaibi (2020) and Suprapti (2022), which highlighted that PjBL effectively bridges the gap between theory and practice, reinforcing its relevance in academic writing courses.

Table 6. Students' perception of the challenges and difficulties in using project-based learning in scientific writing class

Items	SD (1)	D (2)	N (3)	A (4)	SA (5)	Mean
1. The project makes me do much effort to finish.	1 (2.7%)	0 (0%)	7 (18.9%)	19 (51.4%)	10 (27.0%)	4.00
2. I encountered challenges while working on the project.	0 (0%)	0 (0%)	7 (18.9%)	14 (37.8%)	16 (43.2%)	4.24
3. I found ways to overcome the difficulties I encountered during the project.	0 (0%)	0 (0%)	11 (29.7%)	17 (45.9%)	9 (24.3%)	3.94
4. The challenges in the project encouraged me to work harder and improve.	0 (0%)	0 (0%)	10 (27.0%)	17 (45.9%)	10 (27.0%)	4.00
Average Score						4.04

Table 6 presents the percentage scores of students' perceptions of the challenges and difficulties associated with Project-Based Learning (PjBL) in the Scientific Writing class. The highest mean score was found in item two (4.24), indicating that most students clearly encountered challenges while completing their projects. Additionally, items one (4.00) and four (4.00) also scored highly, suggesting that students recognized the effort required and believed that challenges pushed them

to improve. Although item three recorded the lowest score (3.94), it still reflected a generally positive response, indicating that many students found ways to overcome the difficulties they faced. These findings support the idea that while PjBL poses considerable challenges, it also fosters resilience and personal growth. This aligns with Aldabbus (2018), who emphasized that PjBL's demanding nature promotes students' persistence and critical thinking skills. The data also resonate with Argawati and Suryani (2020), who observed that although students initially faced difficulties—particularly in managing time and understanding task complexity—those struggles contributed positively to their writing development and problem-solving abilities. Hence, the challenges students experienced in this study did not hinder their learning; rather, they motivated them to engage more deeply with the tasks and develop strategies to succeed.

Table 7. Students' perception of skill development through of the use of project-based learning in scientific writing class

Items	***SD (1)***	***D (2)***	***N (3)***	***A (4)***	***SA (5)***	***Mean***
1. The Project-Based Learning approach helps me improve my ability to organize and articulate academic arguments in writing.	0 (0%)	0 (0%)	9 (24.3%)	16 (43.2%)	12 (32.4%)	4.08
2. I feel more confident in writing a literature review.	1 (2.7%)	0 (0%)	9 (24.3%)	20 (54.1%)	7 (18.9%)	3.86
3. Learning through projects encourages me to think critically and creatively.	1 (2.7%)	1 (2.7%)	7 (18.9%)	16 (43.2%)	12 (32.4%)	4.00
4. I am better prepared for future academic writing tasks after completing the project.	0 (0%)	0 (0%)	12 (32.4%)	17 (45.9%)	8 (21.6%)	3.89
Average Score						3.95

Table 7 presents the percentage scores of students' perceptions of skill development through the use of project-based learning (PjBL) in the Scientific Writing class, which includes four items. The highest mean score was obtained in item one (4.08), stating that the project helped improve students' ability to organize and articulate academic arguments in writing, while the lowest score appeared in item two (3.86), concerning confidence in writing a literature review. The overall average score of 3.95 falls within the "high" category (3.41–4.20), indicating a positive perception of skill development through PjBL. Students acknowledged that PjBL contributed significantly to enhancing their academic writing and critical thinking skills. This aligns with the findings of Puanpungsi (2021) and Fajrina et al. (2022), who highlighted that PjBL promotes creativity, collaboration, and writing proficiency. Similarly, Buchman (2024) emphasized that PjBL strengthens students' critical thinking and deepens their engagement with academic content.

10.26555/adjes.v11i2.1448.

Table 8. Students' perception of the clarity of objectives in the use of project-based learning in scientific writing class

Items	*SD (1)*	*D (2)*	*N (3)*	*A (4)*	*SA (5)*	*Mean*
1. The learning objectives of the project-based activities were easy to follow.	0 (0%)	0 (0%)	11 (29.7%)	15 (40.5%)	11 (29.7%)	4.00
2. I understood the purpose of writing a literature review-based article for this project.	0 (0%)	0 (0%)	8 (21.6%)	18 (48.6%)	11 (29.7%)	4.08
3. I knew what was required to successfully complete the project.	0 (0%)	0 (0%)	9 (24.3%)	18 (48.6%)	10 (27.0%)	4.02
4. The goals of the project aligned with the course objectives.	0 (0%)	0 (0%)	6 (16.2%)	19 (51.4%)	12 (32.4%)	4.16
Average Score						4.06

Table 8 presents the percentage scores of students' perceptions of the clarity of objectives in the use of project-based learning (PjBL) in the Scientific Writing class, consisting of four items. The highest mean score was obtained in item four (4.16), which states that the goals of the project aligned with the course objectives, while the lowest was in item one (4.00), related to the ease of following the learning objectives of the project-based activities. The overall average score of 4.06 falls within the "high" category (3.41–4.20), indicating a positive perception from the respondents regarding the clarity of objectives in PjBL. Students reported that they clearly understood the project requirements and how the tasks aligned with course goals. These findings are in line with previous studies that highlight the importance of clear objectives in project-based learning. For instance, Argawati and Suryani (2020) found that students were more engaged when the steps and goals of PjBL were made explicit, leading to a more organized and purposeful learning experience. Similarly, Ermawati et al. (2022) emphasized that the effectiveness of PjBL lies in its alignment with course objectives and the curriculum, which supports meaningful and directed student learning.

After describing the data from each questionnaire item, the researcher calculated the average score of students' perceptions regarding the use of Project-Based Learning (PjBL) in the Scientific Writing class, as shown in the table below:

Table 9. The Average Score of Students' Perception on the use of Project-based Learning

No	*Indicators of the Students' Perception*	*Average score*	*Criteria*
1	Satisfaction	3.80	High
2	Application	4.00	High
3	Lecturer's role	3.88	High
4	Engagement and motivation	3.92	High
5	Relevance	4.04	High
6	Challenges and difficulties	4.04	High
7	Skill development	3.95	High
8	Clarity of objectives	4.06	High
Total		3.96	High

Table 9 shows that the overall average score of students' perception is 3.96, which falls into the "High" category. This indicates that students have a high level of perception of the use of Project-

Based Learning in the Scientific Writing class.

Although all indicators fall within the 'high' category, satisfaction received the lowest score (3.80), which may reflect unmet expectations related to workload, feedback clarity, or rubric transparency, compared to other indicators like clarity of objectives (4.06) and relevance (4.04).

Interestingly, the "Challenges and Difficulties" indicator scored 4.04, reflecting a positive perception of the difficulties encountered. This aligns with Aldabbus (2018), who argues that PjBL fosters resilience and problem-solving skills. In this study, students viewed challenges not as obstacles, but as opportunities to grow academically and to deepen their engagement with scientific writing. This finding is similar to that of Rostika et al. (2021), who reported positive student responses to PjBL in high school writing classes. However, unlike their secondary-level participants, the present study's university-level respondents engaged with more complex tasks such as literature review composition, which may explain differences in perceived satisfaction and challenge. Overall, the findings demonstrate that the implementation of PjBL in the Scientific Writing class was perceived positively across multiple dimensions, including application in learning activities, lecturer support, student motivation, and writing skill development. These findings highlight that PjBL, when thoughtfully applied, can enhance both the cognitive and affective aspects of students' learning experiences.

The results of this study successfully address the three proposed research questions. First, the overall average score of 3.96 indicates that students perceive the use of Project-Based Learning (PjBL) in the Scientific Writing class positively. This is supported by high scores across all eight perception indicators. Second, among the measured aspects, the highest-rated were the clarity of objectives (4.06), relevance (4.04), and challenges and difficulties (4.04), while satisfaction received the lowest average score (3.80), suggesting potential areas for improvement. Third, the findings imply several improvements for future implementation of PjBL, including providing clearer rubrics, offering additional support for students facing difficulties, and maintaining the relevance and authenticity of the tasks. These implications highlight the need for thoughtful instructional design to ensure that students' cognitive and affective needs are met.

Nevertheless, this study has several limitations. The sample was limited to 37 students from the 2020 cohort who, although still officially enrolled, no longer attended regular classes and were only reachable during final project supervision, which made data collection challenging. The process of completing the questionnaire, which took nearly two weeks, may have also influenced the accuracy or consistency of responses. Furthermore, as this study focused solely on the Scientific Writing class, the findings may not be generalizable to other courses or academic programs. Limitations in time and resources also constrained the depth of analysis, and the assessment criteria adapted from Sözen and Güven (2019) may not have captured the full scope of students' learning experiences.

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Additionally, the reliance on self-reported data introduces the possibility of social desirability or recall bias. Future research would benefit from triangulating data sources, such as interviews or classroom observations, to gain a more comprehensive understanding of students' perceptions.

Conclusion

Based on the data analysis, it can be concluded that the 37 students from the 2020 cohort at the English Study Program of FKIP Universitas Riau have a high perception of Project-Based Learning (PjBL) in the Scientific Writing class, with an average score of 3.96. The highest scores were found in clarity of learning objectives, relevance, and challenges. These results show that PjBL is effective in fostering both structured academic skills and positive student engagement. However, satisfaction received the lowest score among all indicators, indicating that further adjustments in learning design may be beneficial. For instance, instructors may scaffold PjBL with mini-tasks to reduce cognitive load, and provide clearer rubrics to guide students throughout the project process. While these findings may apply to other Indonesian universities with similar contexts, further research is recommended using mixed-methods approaches such as interviews or classroom observations to explore students' experiences more deeply. Such studies can provide richer insights into how PjBL fosters academic literacy and how challenges can be addressed effectively.

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