Exploring the Role of Project-Based Learning in Promoting HOTS: An EFL Classroom's Voice

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Abstract. Indonesian EFL senior high school students. Traditional EFL instruction often emphasizes lower-order cognitive skills, limiting students' ability to analyze, evaluate, and create in English. This research explored student experiences with PBL and its impact on HOTS development. Semi-structured interviews were conducted with five 11th-grade students participating in environmental-themed PBL activities. Thematic analysis identified patterns in student experiences and perceptions. Findings reveal that students perceive PBL as significantly more engaging than traditional instruction, fostering enhanced motivation, deeper understanding, and collaborative competencies. Students demonstrated active engagement in higher-order cognitive processes through research activities, critical discussions, and creative project development. Collaborative dimensions particularly enhanced analytical and evaluative thinking as students examined diverse perspectives. Implementation challenges emerged, including time management difficulties, group dynamics issues, resource limitations, and presentation anxiety. These challenges highlight PBL's complexity and the need for comprehensive support systems. The study concludes that while PBL effectively promotes HOTS development in EFL contexts, successful implementation requires systematic support, including project management instruction, collaborative skills development, adequate technological resources, and continuous professional development for educators.

Keywords: EFL Classroom, Higher-Order Thinking Skills, Project-Based Learning, Student Experiences, Educators.

1. INTRODUCTION

Today's fast-changing educational environment demands pedagogical approaches that extend beyond traditional instructional methods. Teachers and students need to stay aware of ongoing changes and develop the necessary skills to navigate an increasingly demanding world (Wongdeang, 2018). They cannot rely solely on memorizing facts or repeating material now. Rather, children must learn abilities that enable them to analyze several points of view, solve difficult issues, reason critically, and generate fresh ideas. Higher-Order Thinking Skills (HOTS) are skills that are important for success in daily life and future professions in addition to academic performance (Anderson & Krathwohl, 2001; Facione, 1990). In addition to simply remembering and understanding, HOTS engages cognitive processes like analysis, evaluation, and creativity. Students with these abilities are better equipped to handle complex situations and make informed decisions.

Project-Based Learning (PjBL) has evolved as an effective method for building these skills, involving students in genuine, significant projects that necessitate collaboration, research, and real-world application. In contrast to conventional education, where instructors

deliver knowledge and learners absorb it, Project-Based Learning (PBL) places students at the center of the educational experience. They engage in real-world projects or issues for an extended duration, frequently in collaboration, to investigate inquiries, collect data, and produce significant products or presentations (Thomas, 2000; Bell, 2010). This experiential, active pedagogy promotes deep thinking, inquiry, and reflection on the learning process among students.

However, while PjBL presents considerable advantages, its application in EFL settings is plagued by problems that must be carefully handled to achieve its complete potential. PjBL is an educational approach wherein students engage in extended projects that typically tackle real-world issues or inquiries, culminating in presentations of their discoveries to real audiences (Kemaloglu-Er, 2022). This methodology is intended to be student-centered, promoting active engagement, cooperation, and the incorporation of language skills within relevant contexts. Research consistently indicates that Project-Based Learning (PBL) can improve language fluency as well as critical thinking, creativity, and communication skills (Purwati et al., 2024; Yimwilai, 2020; Cosgun & Atay, 2021). Systematic reviews by Luchang and Nasri (2023) and Wahyudin et al. (2023) underscore the efficacy of PBL in enhancing students' analytical and evaluative skills, along with their motivation and engagement. Furthermore, PBL has demonstrated the ability to cultivate learning autonomy, as students assume increased responsibility for their educational processes (Ma'rifah, 2022; Ismail et al., 2024). Similarly, studies have shown that PBL enhances students' speaking skills, confidence, and collaborative abilities, particularly when integrated with HOTS assessments (Purwati et al., 2024).

The integration of Project-Based Learning into EFL instruction presents unique opportunities to address contemporary language acquisition challenges. Traditional assessment methods often emphasize lower-order cognitive skills, such as factual recall or basic grammatical rule application, rather than the analysis, synthesis, and evaluation of information (Ngadiso et al., 2021). In contrast, PjBL situates language acquisition within the framework of complex, open-ended tasks that require learners to engage in higher-order cognitive processes (Andriyani & Anam, 2022; Ghosheh Wahbeh et al., 2021). Research involving university-level EFL students has shown that consistent PjBL implementation leads to significant improvements in students' analytical, evaluative, and creative thinking abilities, as well as their learning autonomy (Ma'rifah, 2022). Additional studies have highlighted that PjBL integrated with HOTS assessment frameworks helps students develop speaking skills, increases their

confidence in English communication, and encourages active participation and creative thinking during project implementation (Purwati et al., 2024).

The theoretical foundations of PBL are grounded in the emphasis on active engagement, collaboration, and reflection in the learning process, which are central to constructivist and social learning theories (Luchang & Nasri, 2023). In a PBL classroom, students are at the center of their learning, taking responsibility for setting goals, planning their work, and evaluating their progress. The teacher's role transforms from that of a knowledge provider to a facilitator and guide, supporting students as they navigate the complexities of the project and encouraging them to reflect on their learning strategies (Andriyani & Anam, 2022).

Despite the compelling evidence in support of PBL, its implementation in EFL contexts is not without challenges. Teachers may encounter difficulties in designing appropriate projects, managing group dynamics, and assessing students' progress in both language and thinking skills (Arochman et al., 2024). Institutional constraints, such as limited time, resources, and support, can also hinder the effective integration of PBL into the curriculum (Calderón-Vallejo, 2024; AbdelAziz, 2023). Nevertheless, with careful planning, professional development, and a commitment to student-centered learning, these challenges can be addressed. This research seeks to contribute to the ongoing discourse on the integration of Project-Based Learning in EFL contexts by examining its role as a pathway to developing students' higher-order thinking skills. This research will explore the benefits, challenges, and practical implications of PjBL for EFL students. The article aims to support teachers in harnessing the power of PBL to foster not only language proficiency but also critical thinking and problem-solving skills.

2. LITERATURE REVIEW

Project-Based Learning In Efl

Project-Based Learning (PBL) is an educational methodology in which students acquire knowledge by investigating real-world issues and challenges through the creation of projects. According to Bell (2010), Project-based learning is a teacher-facilitated, student-centered approach wherein students gain knowledge by inquiring about their interests and curiosity. This approach prioritizes critical thinking, collaboration, and student-led inquiry, thus improving learner engagement and knowledge retention. In the context of English as a Foreign Language (EFL), Project-Based Learning (PBL) has demonstrated considerable efficacy in enhancing language learning and associated competencies.

Thomas (2000) defines five criteria for project-based learning (PBL): 1) Centrality: PBL projects are fundamental, not additional, to the curriculum. They are essential to the educational program's learning objectives and aims. 2) Driving Questions: Project-Based Learning (PBL) initiatives center around inquiries or challenges that force students to engage with and struggle with the fundamental concepts and principles of a topic. These inquiries are frequently open-ended and promote exploration. 3) Constructive Investigation: Projects engage students in a constructive inquiry. This indicates that students participate actively in inquiry and study, developing their comprehension through practical experiences. 4) Student-driven: Projects are primarily guided by students. Students possess agency and autonomy in their educational journey, which cultivates ownership and drive. 5) Authentic Context: Projects are practical, rather than academic in style. They frequently mirror real-world issues and situations, keeping the learning experience relevant and important to students' lives.

This methodology is especially advantageous in extensive classrooms when conventional teaching techniques may be insufficient, facilitating meaningful language application beyond the classroom (Tedeneke, 2023). Moreover, according to Mohamed (2023) examines the improved educational outcomes related to multimodal project-based learning indicate that teacher training centered on PBL can markedly boost EFL education and student motivation. Similarly, demonstrate enhanced reading comprehension in EFL students in Indonesia due to the introduction of PBL, underscoring its beneficial impact on academic performance (Assiddiq & Sasmayunita, 2022).

The incorporation of technology into Project-Based Learning has significantly transformed English as a Foreign Language learning environments. Technological tools have demonstrated the ability to increase motivation and engagement in English classes, supporting the idea that contemporary teaching methods can beneficially influence learning. This supports the perspective that Project-Based Learning promotes essential 21st-century competencies, including critical thinking and collaboration, which are important for students' academic and practical success (Almaida & Jaelani, 2021; Kavlu, 2016). This is particularly relevant when students manage the complex structures of contemporary educational environments. Furthermore, Giri (2016) asserts that PBL enables students to interact more deeply with material, fostering not only linguistic abilities but also important life skills required for the 21st century.

Nevertheless, the advantages it brings, carrying out PjBL, present certain problems. Muttahidah and Zen (2023) indicate that rural schools frequently lack the essential resources for effective PBL plans, which could negatively impact educational outcomes. The complicated

process of arranging group projects may occasionally overwhelm EFL learners, as studies indicate that the collaborative elements of PBL necessitate substantial negotiating and communication abilities (Andriyani & Anam, 2022). However, proficient facilitation by educators can alleviate these problems, guiding students toward completing their projects successfully (Karyawati & Ashadi, 2018).

Higher-Order Thinking Skills

Higher Order Thinking Skills (HOTS) highlight the complex cognitive processes of analysis, evaluation, and creation, beyond simple memorization or information recall. These skills empower students to engage more deeply with knowledge, critically examine assumptions, make informed decisions, and generate innovative ideas. As education progressively emphasizes meaningful and student-centered learning, the development of Higher Order Thinking Skills (HOTS) has emerged as an essential goal for educators. Developing these skills enables learners to achieve more autonomy, reflectiveness, and proficiency in addressing complex difficulties across diverse academic and real-world scenarios. Therefore, educators are increasingly concentrating on developing instructional strategies and evaluation techniques that effectively foster the development of higher-order thinking skills in the classroom.

According to Bloom's revised taxonomy, these skills include analyzing, evaluating, and creating—processes that require learners to critically examine information, make reasoned judgments, and generate new ideas or solutions (Anderson & Krathwohl, 2001). The incorporation of Higher Order Thinking Skills (HOTS) in the EFL classroom is especially important. Conventional language instruction frequently emphasizes memorization, grammatical exercises, and rote learning, which may limit students' capacity to use English in significant, real-world situations. In contrast, HOTS-based education promotes learners to do intricate cognitive tasks, including analyzing language structures, evaluating arguments, and producing original content in English (Mahrudin et al., 2023; Sukarni et al., 2022). This method not only improves language competency but also fosters a deeper awareness of the language and its subtleties. Students who build higher-order thinking skills (HOTS) demonstrate enhanced abilities to analyze real materials, engage in substantive discussions, and present their thoughts with clarity and confidence (Sari & Prasetyo, 2021; Ningsih & Rose, 2018).

Studies that implement innovative strategies, including Project-Based Learning (PBL) in mathematics education, further demonstrate the efficacy of pedagogical approaches in cultivating HOTS (Suherman et al., 2020). The findings suggest that active learning practices might improve students' analytical and evaluative skills, motivating them to develop solutions

in challenging situations. Abdullah et al. (2016) present empirical data connecting teacher knowledge and the implementation of Higher Order Thinking Skills (HOTS) to successful classroom outcomes, highlighting the essential importance of continuous teacher education.

Ultimately, although educational systems are progressively acknowledging the significance of higher-order thinking skills, their practical application remains uneven. Effective practices are crucial for fostering a generation of learners skilled in navigating a dynamic knowledge landscape through analysis, evaluation, and creativity (Alrawili et al., 2020; Yanuarto et al., 2021). Therefore, educators, policymakers, and administrators must together prioritise the enhancement of teacher competencies and appropriate assessment frameworks that foster higher-order thinking skills to prepare students for the complexity of contemporary life.

3. METHOD

This research uses a qualitative design to explore the experiences and challenges faced by senior high school students, along with their views on higher-order thinking skills (HOTS) in the context of Project-Based Learning (PBL) within an English as a Foreign Language (EFL) classroom. A qualitative approach is selected for its ability to gather detailed, descriptive data that reflect the participants' personal perspectives, emotions, and cognitive processes. This method enables analysis of students' experiences with PjBL in authentic classroom settings and its influence on HOTS. This research employs a case study methodology, focusing on a specific group of students engaged in project-based activities during their English classes. A case study is appropriate for examining educational phenomena in their real-world context, especially when the boundaries between the phenomenon and the context are unclear (Yin, 2018). Creswell and Poth (2018) note that qualitative case studies provide detailed insights into complex processes and enable researchers to document the "lived experiences" of participants.

This study involves senior high school students who took classes in an 11th-grade English course at a public high school that has adopted Project-Based Learning as an instructional strategy. Students are selected based on their active participation in a recent project-based unit related to EFL content. Students participating in the study collaborated on projects that required investigating environmental themes and communicating their findings in English. Their direct participation in these tasks makes them valuable sources of data regarding the impact of PjBL on their language skills and cognitive processes. Focusing on a single class within one school allows for a thorough and contextually rich examination of the effects of

PBL, ensuring coherence and depth in data analysis. Data collection employs qualitative approaches to obtain thorough and broad perspectives into the students' experiences and views.

The principal data collection methods are semi-structured and in-depth interviews carried out with 5 participants to look into their experiences, attitudes, and perceptions concerning Project-based learning. Semi-structured interviews provide flexibility in examining relevant topics while ensuring that essential questions are covered. The interview guide contains questions regarding students' experiences during the project, the obstacles faced, the skills acquired—especially in critical, analytical, and creative thinking—and how they made use of English throughout the process. Every interview is videotaped and transcribed for analysis to ensure the accuracy and depth of the qualitative data gathered. The variety of kinds of data allows triangulation to increase the credibility and depth of the findings. Thematic analysis will be applied to the qualitative data collected from the interviews. The coding process involves identifying patterns, themes, and relationships in the participants' narratives, which offers a deeper understanding of their experiences and perspectives related to the process of project-based learning. It is a widely used method in qualitative research to identify, analyze, and report patterns or themes in the data, which allows the researcher to gain rich insights into the participants' lived experiences, challenges, perceptions, and attitudes. The coding process involves a careful word-by-word reading of the transcripts and assigning codes or labels to meaningful segments, both data-driven and theory-driven.

4. FINDINGS AND DISCUSSION

The results in this part are from in-depth interviews with students who are learning English as a foreign language (EFL) through project-based learning (PBL). The following section analyzes students' views and feelings about PBL (Project-Based Learning) using quotes and supporting arguments from various sources. The focus is on how PBL promotes higher-order thinking, the benefits, and the challenges faced by students. The diverse responses demonstrate how PBL influences student participation, motivation, teamwork, and critical thinking in English as a Foreign Language (EFL) classrooms in complex ways.

Student Experiences with Project-Based Learning (PBL)

Project-based learning (PjBL) has revolutionized the way people learn in recent years, especially in English as a foreign language (EFL) classrooms. This method strongly emphasizes student engagement by involving them in project-based activities that simulate real-life situations and challenge them to use their communication, collaboration, and cognitive problem-solving skills. The PjBL approach requires students to develop independence in their

learning process while simultaneously cultivating higher-order cognitive competencies such as analysis, evaluation, and creativity, as well as effective communication skills. The shift to project-based learning activities has transformed the classroom atmosphere, creating a more engaging, meaningful, and impactful learning experience for students by connecting learning materials with their practical application.

Excerpt 1. PjBL is perceived as more engaging

S1: *"If the teacher just explains things, it can be boring, and suddenly, in class A3, many students fall asleep because they are bored. If they're bored like that, there's a high chance they'll skip class. But with PBL, we can interact with our classmates, discuss things with the teacher, and share our opinions with the teacher. It's more fun, broadens our horizons, and sharpens our public speaking skills."*

Excerpt 2. PjBL is perceived as more engaging

S2: *"I feel happier and more understanding. For example, what I felt earlier was more meaningful and more applicable in daily life."*

These findings show that project-based learning (PBL), compared to the conventional teacher-centered approach, is considered by students to be more interesting and useful. S1 said that conventional classes often make students bored and indifferent; some even fall asleep in class or skip school. In contrast, PjBL makes learning more enjoyable and helps students learn important skills such as public speaking by encouraging interaction, discussion, and the exchange of opinions. S2 supports this view, emphasizing that PBL enhances happiness, understanding, and the ability to apply what is learned to real-life situations. This perspective suggests that PjBL has a positive effect on student motivation, participation, and the connection.

Excerpt 3. Motivation and pride in project-based tasks

S1: *"It's just more exciting and enjoyable. Because with projects, the results of our work are more evident, whereas with practice exercises, only the teachers know the results, right, Miss? We can't share them with our friends, you know, Miss. It's also more inspiring."*

Excerpt 4. Motivation and pride in project-based tasks

S3: *"In this project, I felt more proud after producing something. With practice, it's just about doing the task and getting a grade, so the sense of fulfillment is a bit lacking."*

Compared with conventional practice tasks, students were far more motivated and emotionally involved in project-based assignments. Students said that project-based learning was "more interesting and enjoyable" because "our work is more visible," which means they

could share their successes with their classmates instead of just with their teachers. Seeing real products makes them feel more proud and satisfied.

Excerpt 5. Collaboration

S1: *"In my opinion, teamwork is easier because there are many ideas, so it's easier to learn. For example, if there are differing opinions, we look for the best one, basically discussing until we reach a consensus."*

Excerpt 6. Collaboration

S5: *"Yes, teamwork makes it easier for me to think and learn. During discussions, I can share my ideas, and my peers provide feedback or add their opinions."*

The response reveals that students think they learn better when they work on projects with other people. Students find that working together to solve problems with people from different backgrounds helps them comprehend things better. Collaborative activities provide students a chance to have real conversations where they may talk about and improve their ideas. Students also like how interaction is two-way, as they can "share ideas" and get "feedback" and new points of view from their classmates. This makes for a dynamic learning environment that improves both individual thinking and collaboration.

Excerpt 7. Self-learning and deeper understanding

S2: *"PBL allows them to explore topics beyond the textbook, conduct research, and apply knowledge in real-world contexts. For example, projects like creating posters or dramas help students understand and practice the material more effectively."*

Excerpt 8. Self-learning and deeper understanding

S3: *"In the Merdeka Curriculum, there's something called P5, and that's project-based learning. In the first semester, we had a living pharmacy project, where we went out to plant medicinal plants. There was also a diversity project, which was a drama project."*

Students' responses to project-based learning (PBL) help students learn more than just what they read in books by motivating them to do their research and use what they've learned in real life. Students said that doing projects like making posters or acting helped them comprehend and practice the content better. The "living pharmacy" project and diversity drama from the Merdeka Curriculum are other examples of how PjBL gives students chances to study in a hands-on way and gain a deeper knowledge of the material, making it more relevant and important to their lives.

The findings from this sub-reveal that students believe that project-based learning (PBL) is much more interesting and rewarding than conventional methods. The students responded that working on real projects makes learning more interesting and rewarding,

especially when they can see and share the real results of their work. One student, for example, said that they enjoyed seeing the results of the project-based activities, something that is sometimes lost in repetitive exercises. This is in line with what Anazifa and Djukri (2017) found, that allowing students to create and showcase authentic products in a PBL environment can increase their motivation and sense of achievement.

Usmeldi (2019) and Muslim et al. (2021) also saw that students who did PBL were more interested in what they were learning, took part more, and felt more satisfied. Student reports show that they collaborate more, take pride in their work, and feel satisfied when they share their project findings with their peers. Both student voices and professional research agree that PBL creates a dynamic, motivating, and effective learning environment that helps students build important skills and prepares them for success beyond school.

Development of Higher Order Thinking Skills (HOTS)

Project-based learning (PjBL) has become one of the powerful methods to develop higher-order thinking skills (HOTS) among students in EFL classrooms. PjBL encourages students to think critically about challenging situations, look at them from various perspectives, and come up with innovative solutions. This is far more than just memorizing facts or sitting back and watching. Working on projects with others allows students to have critical discussions, back up their opinions, and think about other points of view, which helps them get better at analyzing and evaluating things. When students work together to solve issues, they not only learn more about the subject, but they also develop critical cognitive abilities like analysis, evaluation, and creativity. These are qualities that are becoming increasingly important in the 21st century.

Excerpt 1. PjBL to Promote HOTS

S1: *"Yes, it can, Miss. Because when it's project-based, friends can share their opinions, right, Miss? Well, everyone's opinions are different, right, Miss? If I don't agree with my friend, I can challenge them. Well, that's good too, right, Miss? It sharpens higher-level thinking."*

Excerpt 2. PjBL to Promote HOTS

S3: *"Yes, Miss, because in PjBL we work in groups, so the opinions we receive are not just one but many. With so many opinions, we can think critically about which ones are valid or better."*

The results show that project-based learning (PjBL) is a great way to help students develop higher-order thinking skills (HOTS). The students said that working on the project in groups helped them be more open to other people's ideas and points of view, which made them

think more critically and analytically. A student said that being able to challenge and be questioned by classmates during project talks helped them think more deeply. Another student said that accepting different points of view in the group made them think more critically about which ideas were the best. These experiences illustrate that PjBL not only helps individuals grow cognitively, but it also creates an environment where higher-order thinking is always being developed and improved.

Excerpt 3. Application of HOTS in PjBL

S4: "*Yes, for analyzing, we search for the material, then evaluate the obstacles, and for creativity, we can enhance our creativity through the process of creating an attractive poster.*"

Excerpt 4. Application of HOTS in PjBL

S2: "*Analyzing because in a project, there's always something to do, and from what we do, we need to know what to do next. From there, we can analyze, like researching data, what this is, what that is. As for creativity, it can also help because we end up creating a project that produces something, which trains our creativity.*"

Excerpt 5. Application of HOTS in PjBL

S3: "*It happens because I am required to understand the problem deeply, not just memorize it. I have to analyze information, evaluate various solutions, and make decisions. So, my thinking skills—such as analyzing, evaluating, and creating—are sharpened because I am truly involved in the learning process, not just receiving material.*"

Excerpt 6. Application of HOTS in PjBL

S2: "*In evaluation, it makes us aware of things outside our immediate surroundings that we might consider ordinary, yet their impact can be extraordinary and harmful to the environment and ourselves.*"

The results show that students understand how important Higher Order Thinking Skills (HOTS) are in a Project-Based Learning (PjBL) setting, based on what they stated. Students demonstrated an understanding that they could enhance their analytical skills by following a systematic process involving research, data investigation, and determining the next steps to take in their projects. This was shown by their participation in material search activities and the evaluation of issues. The creative aspect of higher-order thinking skills emerged as students engaged in project work, particularly when they were tasked with designing engaging presentations and producing tangible outcomes, which in turn enhanced their creative abilities. Students also said that they learned how to evaluate things by really understanding problems instead of just memorizing them. This meant that they had to look at a lot of different solutions, make smart choices, and become aware of how their actions affect the environment within

them as well as the people in it. These results suggest that PjBL creates a real learning environment where students are actively involved in the processes of analysis, evaluation, and creation. This helps them develop critical thinking skills by actively engaging in the learning process instead of just passively receiving information.

Excerpt 7. Peer Collaboration and Group Discussions

S5: *"Yes, teamwork makes it easier for me to think and learn. During discussions, I can share my ideas, and my peers provide feedback or add their opinions. From there, we complemented each other and expanded our understanding of one another. So, I didn't just learn from the assignment, but also from my friends' ways of thinking."*

Excerpt 8. Peer Collaboration and Group Discussions

S3: *"Yes, Miss, because when working in a group, we can exchange opinions, which can then be challenged and accepted."*

Based on students' responses, the findings suggest that collaborative teamwork and group discussions play an important role in improving students' higher-order thinking and understanding. Students expressed that discussing ideas and obtaining feedback from peers while working together not only highlighted their ways of thinking but also exposed them to new views. One student saw that these interactions facilitated the development of connections within the group and increased their group's comprehension, enabling them to learn not only from the task at issue but also from the varied reasoning of other students. Another student argued that collaborative work facilitates the sharing and critique of ideas, resulting in a deeper and nuanced knowledge of the subject material. This collaborative process, fundamental to project-based learning, fosters the continuous enhancement of higher-order thinking skills within a dynamic and interactive educational setting.

The study of students' quotations indicates that Project-Based Learning (PjBL) facilitates the development of higher-order thinking skills through collaborative engagement and mutual learning. Students' responses indicate that group work exposes them to other views and perspectives, fostering critical thinking and evaluation of information. One student said that group work naturally encourages students to engage in more critical thinking. This aligns with previous research by Shoimah & Fatoni (2023) and Şahin & KILIÇ (2024), which found that group discussions and idea discussions among students foster enhanced cognitive depth and creativity. Students' collaboration in Project-Based Learning (PjBL) enables them to explore concepts, justify their reasoning, and synthesise information from many sources, therefore enhancing their Higher-Order Thinking Skills.

Furthermore, the use of higher-order thinking skills within the setting of Project-Based Learning extends beyond collaboration to encompass genuine and innovative problem-solving. The students revealed an understanding that the development of Higher Order Thinking Skills (HOTS) happens through active participation in investigation, analysis, and evaluation, rather than through passive information processing. A student's reflection illustrates how the PjBL environment involves cognitive engagement at every level of Bloom's taxonomy. The creative aspect of HOTS appeared through the creation of projects and presentation development, requiring students to synthesize information into concrete results. This finding aligns with Rahmadhani & Wirayuda's (2023) statement that peer interaction within a PjBL context cultivates a more enriching learning environment suitable for the development of higher-order thinking. The acknowledgment by students of their learning highlights how Project-based Learning fosters an atmosphere that constantly promotes cognitive development.

Challenges Encountered in Implementing Project-Based Learning

Project-Based Learning (PBL) is a great way to help students think more deeply and get more involved in their learning, but using it in EFL settings can be difficult for students. The interviews revealed that students encountered numerous challenges, including technical and language issues, social dynamics, and mental demands. But these problems often pushed them to learn more and enhance their skills.

Excerpt 1. Time Management

S2: *"Sometimes, the project takes more time than expected, so we have to rush at the end or leave some parts unfinished."*

Excerpt 2. Time Management

S4: *"The main difficulty I experience when learning with PjBL is managing time and dividing tasks within the group."*

Excerpt 3. Time Management

S5: *"Maybe during discussions, because from many people's opinions, we have to choose the best one."*

On the excerpts provided, the findings reveal that time management emerges as a significant challenge in Project-Based Learning (PjBL) environments. Students have a hard time figuring out how long their projects will take, which often leads to last-minute rushes or unfinished work. Working together in groups makes things harder since students have trouble figuring out who is responsible for what and when. Also, group conversations might go on longer since there are so many different ideas, and it takes time to think about all of them and

decide which one is best. Project-based learning encourages teamwork and helps students think more deeply, but it also makes it hard to stay organized and manage their time.

Excerpt 4. Group Dynamics and Communication Issues

S4: *"The main difficulty I experience when learning with PjBL is managing time and dividing tasks within the group."*

Excerpt 5. Group Dynamics and Communication Issues

S5: *"Maybe during discussions, because from many people's opinions, we have to choose the best one."*

Student interviews indicate that group dynamics and communication pose challenges in a project-based learning environment. Students had trouble with the practical parts of working together, such as making sure that everyone in the group had an equal portion of the work and that everyone made a useful contribution to the project. When students talk in groups, they have to deal with different points of view and perspectives from different team members, which can make it hard to communicate. The group had a hard time deciding because they had to evaluate several ideas and come to an agreement on the best strategy for implementation. The results show that project-based learning has many benefits, but students need help learning how to work well with others, including how to communicate, solve problems, and make decisions as a group.

Excerpt 6. Resource and Technical Limitations

S5: *"Limited access to necessary materials, technology, or facilities can restrict the scope and quality of projects. Technical difficulties, such as using unfamiliar digital tools or lacking internet access, are also common obstacles."*

Excerpt 7. Resource and Technical Limitations

S1: *"It's hard to edit things, like posters, for example, our Canva isn't pro-level."*

The responses from students showed that project-based learning can be extremely hard because of a lack of resources and technology. Students often have trouble getting to the resources, technology, and facilities they need to finish their assignments appropriately. This makes it harder for them to do their best work and limits what they can accomplish. Technical problems made it hard to finish the project since students often had to use digital technologies they weren't used to or deal with poor internet speeds that made things take longer. Students had trouble with even simple design work because they could only use free versions of software like Canva. This made it hard for them to make the professional-looking content they wanted for their assignments. Students may not look for innovative ideas because of these resource limits, and they may be disappointed when the end output doesn't match their original vision.

This is why it's important to have enough technical support and access to good tools for a successful project-based learning experience.

Excerpt 8. Presentation Anxiety and Performance Pressure

S1: "*Then, the final challenge is feeling nervous during the presentation.*"

Excerpt 9. Presentation Anxiety and Performance Pressure

S5: *"I found the presentation challenging because I was nervous."*

The results showed that students often felt nervous and afraid when giving presentations for project-based learning activities. Several students said they had trouble and felt stressed during these times. This suggests that Project-Based Learning (PBL) is a great way to improve public speaking and communication skills, but it also means that students need to learn how to deal with the stress that comes with finishing a task. In PBL, the presentations are both a chance to improve skills and an indicator of stress that may negatively impact students' confidence and performance. This shows that presentations are crucial for enhancing communication skills and disseminating knowledge, but teachers must provide students with sufficient support to manage their anxiety and build confidence when presenting their work to others.

The execution of Project-Based Learning (PBL) in English as a Foreign Language (EFL) contexts poses significant obstacles that influence student engagement and educational results. Qualitative interview data identify four principal areas of concern that consistently arise in the implementation of PBL. Time management challenges persist, as students often underestimate project complexity and duration, resulting in hurried completion phases and inadequate deliverables (Rogers et al., 2010). The collaborative aspect of PBL exacerbates these challenges, as group decision-making procedures exceed expected durations, and students find it difficult to shift from teacher-directed to self-regulated learning contexts. Moreover, group dynamics present both advantages and challenges, as students frequently lack the requisite interpersonal skills for effective collaboration, encountering difficulties in achieving consensus among varied perspectives, ensuring equitable task allocation, and managing interpersonal conflicts (Suryandari et al., 2018).

Resource limitations and psychological obstacles further hinder the implementation of PBL in EFL situations. Students frequently indicate constraints in obtaining essential materials, technology, and facilities, which directly restricts project scope and quality, particularly highlighted by limited access 2to digital tools and software that impede creative expression and professional output (Tain et al., 2023). Furthermore, presentation anxiety is a substantial psychological obstacle, since the apprehension of public speaking and peer assessment detracts from desired learning outcomes, causing students to divert their attention from subject mastery

to the management of performance anxiety (Sartika et al., 2022). The findings emphasize the intricacy of PBL implementation and the necessity for robust support systems that encompass both academic and socioemotional dimensions of learning, necessitating explicit instruction in project management, collaboration skills, and presentation techniques, alongside sufficient technological resources and professional development for educators.

5. CONCLUSION

In conclusion, this study demonstrates the essential role of project-based learning (PBL) for enhancing senior high school students' higher-order thinking skills (HOTS) in the English as a Foreign Language (EFL) classroom. Students regard Project-Based Learning (PBL) as a more engaging, significant, and inspiring methodology than conventional teaching techniques, since it fosters active participation, cooperation, and the practical application of knowledge. Through Project-Based Learning, students cultivate essential cognitive skills including analysis, evaluation, and creativity, while also enhancing their communication and collaboration abilities. These findings align with current research, validating that PBL efficiently fosters students' academic development and personal growth in EFL environments.

However, the execution of PBL also poses challenges, such as time management difficulties, group dynamics issues, resource limitations, and anxiety related to presentations. Overcoming these obstacles needs thorough teacher support, sufficient resource allocation, and methods to promote constructive social interactions and student self-assurance. By overcoming these obstacles, teachers may optimise the advantages of PBL and foster an engaging, student-centric learning atmosphere that more effectively equips EFL learners for academic achievement and real-world communication needs.

REFERENCES

Abdullah, A., Mokhtar, M., Halim, N., Ali, D., Tahir, L., & Kohar, U. (2017). Mathematics teachers' level of knowledge and practice on the implementation of higher-order thinking skills (HOTS). *Eurasia Journal of Mathematics, Science and Technology Education, 13*(1), 3–17. https://doi.org/10.12973/eurasia.2017.00601a

Almaida, H., & Jaelani, A. (2021). The integration of project-based learning (PBL) in education 4.0 toward EFL students' activities. *English Journal, 15*(1), 50–65. https://doi.org/10.32832/english.v15i1.4562

Anderson, L. W., & Krathwohl, D. R. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. Addison Wesley Longman.

Andriyani, S., & Anam, S. (2022). Exploring the relationship between project-based learning and collaborative skills: EFL learners' voices. *Al-Lisan: Jurnal Bahasa (e-Journal), 7*(1), 51–63. https://doi.org/10.30603/al.v7i1.2413

Arochman, T., Margana, M., Ashadi, A., Achmad, S., Nugrahaeni, D., & Baihaqi, I. (2024). The effect of project-based learning on English writing skill for EFL learners. *Journal of Pedagogical Research, 8*(2), 310–324. https://doi.org/10.33902/JPR.202423961

Assiddiq, M. (2022). Implementing project-based learning in a hybrid setting: The effectuality of the EFL students' reading comprehension. *SHS Web of Conferences, 149*, Article 01058. https://doi.org/10.1051/shsconf/202214901058

Bell, S. (2010). Project-based learning for the 21st century: Skills for the future. *The Clearing House, 83*(2), 39–43. https://doi.org/10.1080/00098650903505415

Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry and research design: Choosing among five approaches* (4th ed.). Sage Publications.

Facione, P. A. (1990). *Critical thinking: A statement of expert consensus for purposes of educational assessment and instruction—The Delphi report*. California Academic Press.

Ghosheh Wahbeh, D., Najjar, E., Sartawi, A., Abuzant, M., & Daher, W. (2021). The role of project-based language learning in developing students' life skills. *Sustainability, 13*(12), Article 6518. https://doi.org/10.3390/su13126518

Kavlu, A. (2016). The effect of project-based learning on undergraduate EFL students' reading comprehension ability. *Journal of Education in Black Sea Region, 1*(1), 44–55. https://doi.org/10.31578/jebs.v1i1.8

Kemaloglu-Er, E., & Sahin, M. T. (2022). Project-based learning in English language teaching at a rural school: A case study from Turkey. *Novitas-ROYAL (Research on Youth and Language), 16*(1), 34–55.

Luchang, L., & Mohamad Nasri, N. B. (2023). Project-based learning (PBL) in enhancing students' higher-order thinking skills (HOTS): Systematic literature review. *International Journal of Academic Research in Progressive Education and Development, 12*(4), 1506–1525. https://doi.org/10.6007/ijarped/v12-i4/20404

Mahrudin, M. S., Hidayat, D. N., Husna, N., & Alek, A. (2023). Critical discourse analysis of moral values in EFL textbook for senior high school. *Al-Lisan: Jurnal Bahasa (e-Journal), 8*(1), 45–61. https://doi.org/10.30603/al.v8i1.3287

Ma'rifah, U. (2022). The implementation of project based learning in EFL class: Fostering students' higher order thinking and autonomy. *DIDAKTIKA: Jurnal Pemikiran Pendidikan, 28*(2), 7–17. https://doi.org/10.30587/didaktika.v28i2.4405

Mohamed, A. M. (2023). Investigating the benefits of multimodal project-based learning in teaching English to international students. *International Journal of Educational Innovation and Research, 2*(2), 114–129. https://doi.org/10.31949/ijeir.v2i2.5085

Muslim, M., Ambiyar, A., Karudin, A., Yanto, D. T. P., Hidayat, N., Arif, A., & Sugiarto, T. (2023). Analyzing the validity of project-based learning implementation plans in light vehicle maintenance: A comprehensive study. *INVOTEK: Jurnal Inovasi Vokasional dan Teknologi, 23*(1), 61–70. https://doi.org/10.24036/invotek.v23i1.1112

Ningsih, H., & Rose, D. (2018). Language shift: Analysing language use in multilingual classroom interactions. *Functional Linguistics, 5*, Article 8. https://doi.org/10.1186/s40554-018-0061-0

Purwati, P., Ulhaq, A., Japar, M., Nikmah, F., & Lianasari, D. (2024). Cognitive behavioral therapy: Develop positive thinking to reducing adolescent moral decadence. In *Proceedings of the 2nd International Conference on Education and Technology* (pp. 280–289). Atlantis Press. https://doi.org/10.2991/978-2-38476-273-6_28

Rogers, M., Francis, D., Gresalfi, M., Trauth, A., & Buck, G. (2011). First year implementation of a project-based learning approach: The need for addressing teachers' orientations in the era of reform. *International Journal of Science and Mathematics Education, 9*(4), 893–917. https://doi.org/10.1007/s10763-010-9248-x

Sari, R. S., & Prasetyo, Y. (2021). The effect of HOTS-based instruction on students' reading comprehension and critical thinking. *Indonesian Journal of EFL and Linguistics, 6*(1), 1–14. https://doi.org/10.21462/ijefl.v6i1.321

Shoimah, R. N., & Fatoni, A. (2023). The implementation of higher order thinking skill (HOTS) oriented learning through project based learning model (PJBL) in elementary schools. *Syekh Nurjati International Conference on Elementary Education, 1*, 47–58. https://doi.org/10.24235/sicee.v1i0.14583

Suherman, S., Prananda, M., Proboningrum, D., Pratama, E., Laksono, P., & Amiruddin, A. (2020). Improving higher order thinking skills (HOTS) with project based learning (PJBL) model assisted by GeoGebra. *Journal of Physics: Conference Series, 1467*(1), Article 012027. https://doi.org/10.1088/1742-6596/1467/1/012027

Sukarni, S., Sudar, S., & Tarwiyah, S. (2022). English teachers' perception of higher order thinking skills viewed from importance and complexity. *Jurnal Pendidikan Progresif, 12*(1), 254–266. https://doi.org/10.23960/jpp.v12.i1.202220

Suryandari, K., Fatimah, S., Sajidan, S., Rahardjo, S., & Prasetyo, Z. (2018). Project-based science learning and pre-service teachers' science literacy skill and creative thinking. *Jurnal Cakrawala Pendidikan, 38*(3), 471–481. https://doi.org/10.21831/cp.v38i3.17229

Tain, M., Nassiri, S., Meganingtyas, D., Sanjaya, L., & Bunyamin, M. (2023). The challenges of implementing project-based learning in physics. *Journal of Physics: Conference Series, 2596*(1), Article 012068. https://doi.org/10.1088/1742-6596/2596/1/012068

Tedeneke, A. (2023). Exploring the practices and contextual factors in teaching writing skills in EFL classrooms: A case study. *Ethiopian Renaissance Journal of Social Sciences and the Humanities, 9*(2), 83–101. https://doi.org/10.4314/erjssh.v9i2.6

Thomas, J. W. (2000). *A review of research on project-based learning*. Autodesk Foundation.

Wahyudin, W., Sutawidjaja, A., Irawan, E. B., & Rahardjo, S. (2024). The implementation of project-based learning (PBL) with ADDIE model to improve students' creative thinking ability. *ELINVO (Electronics, Informatics, and Vocational Education), 9*(2), 215–225. https://doi.org/10.21831/elinvo.v9i2.77240

Yanuarto, W., Jazuli, A., & Suanto, E. (2021). Enhancing higher-order thinking skills on mathematics students by TPACK concepts in digital era. *International Journal of Academic Research in Progressive Education and Development, 10*(4), 569–584. https://doi.org/10.6007/ijarped/v10-i4/11641

Yimwilai, S. (2020). The effects of project-based learning in an EFL classroom. *Journal of Liberal Arts, Maejo University, 8*(2), 214–232.

Yin, R. K. (2018). *Case study research and applications: Design and methods* (6th ed.). Sage Publications.

Zen, E. (2023). The implementation of project based learning in English language teaching at rural school: A conceptual review. *Ethical Lingua: Journal of Language Teaching and Literature, 10*(2), 417–426. https://doi.org/10.30605/25409190.629