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INTEGRATING DISCOVERY LEARNING AND PJBL IN EFL: TEACHING MATERIALS, TASKS, AND ASSESSMENT

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Abstract: The combination of Discovery Learning and Project-Based Learning (PjBL) in English as Foreign Language (EFL) classrooms is acknowledged as an effective strategy to boost student engagement and language development. This research fills a gap by examining the integrated application of Discovery Learning and PjBL in an Indonesian public school context, specifically in class XI 5 at SMAN 11 Garut**.** It focuses on how teaching materials, project assignments, and assessment methods are designed and implemented. Employing a qualitative case study method, the data were gathered through classroom observations, a review of instructional resources, and analysis of students' project results, particularly their video-based conversation tasks. The results reveal that materials grounded in Discovery Learning assist in organizing the learning process, while project tasks enable students to express creativity and practice communication skills, as shown in their video projects. Furthermore, formative assessments offer meaningful feedback on student progress and learning difficulties. Despite challenges such as student preparedness and technical issues in video creation, the integration of these approaches shows strong potential in creating an engaging and purposeful EFL learning environment. The study offers practical recommendations for EFL educators in designing instructional content and assessment aligned with Discovery Learning and PjBL, and also discusses the implications for future curriculum and project-based teaching practices.

Keywords: assessment, discovery learning, project-based learning, project-based tasks, teaching materials

INTRODUCTION

English as a Foreign Language (EFL) instruction in Indonesia continues to face persistent challenges, particularly in fostering students' motivation, classroom engagement, and real-life language use (Jon et al., 2021; Astuti et al., 2022; Prasetya,

2024). Traditional approaches, often dominated by textbook reliance and teacher-centered practices, tend to limit opportunities for meaningful communication and critical thinking. As educational demands evolve in the 21st century, there is growing emphasis on learning models that promote student autonomy, creativity, collaboration, and problem-solving.

Among the approaches considered promising in this context are Discovery Learning and Project-Based Learning (PjBL). Both emphasize student-centered instruction (Nayak et al., 2024), active participation, and the development of higher-order thinking skills (Radiansyah et al., 2022). While these models have gained attention globally, there remains a lack of practical, context-specific research on their integration within Indonesian public school EFL classrooms.

To address this gap, the present study investigates how Discovery Learning and PjBL are implemented in a senior high school EFL classroom in West Java, Indonesia. The study focuses on three core components of instructional practice: (1) the design and use of teaching materials, (2) the implementation of project-based tasks, and (3) the assessment methods used to evaluate learning. Through this exploration, the study aims to offer practical insights into the application of student-centered learning strategies in the Indonesian EFL context.

LITERATURE REVIEW

Discovery Learning in EFL Contexts

Discovery Learning, grounded in constructivist principles, emphasizes learners' active role in constructing knowledge through exploration and inquiry (Bruner, 1961). Rather than passively receiving information, students are guided to uncover patterns and meanings through observation, comparison, and hypothesis testing. In EFL classrooms, this approach promotes deeper understanding, learner autonomy, and language use grounded in authentic contexts. According to Putri and Halimi (2024), learners show diverse motivational orientations in Discovery Learning environments, with extrinsic goals often serving as key drivers. Thus, task design must consider individual and contextual learner differences to optimize engagement.

Project-Based Learning in Language Education

Project-Based Learning (PjBL) involves extended tasks that require students to plan, inquire, and present findings, usually culminating in a concrete product (Krajcik & Blumenfeld, 2006). In the EFL context, PjBL encourages authentic language use, enhances communicative competence, and supports the development of 21st-century skills. Maros et al. (2021) demonstrated that students taught through PjBL outperformed their peers in conventional classrooms, confirming its effectiveness in improving academic outcomes. Similarly, Thomas (2000) and Blumenfeld et al. (1991) noted its impact on student motivation and participation.

Combining Discovery Learning and PjBL

The integration of Discovery Learning with PjBL provides a synergistic framework that fosters both inquiry and application. Manao et al. (2024) found that while both methods improved students' narrative writing, those taught through PjBL showed higher performance—indicating the strength of task-based instruction in fostering creativity and ownership. When Discovery Learning supports exploration and inductive

reasoning, and PjBL anchors these in collaborative, goal-driven projects, students experience more meaningful learning. However, despite growing theoretical and empirical support, limited research exists on the practical implementation of these combined models in Indonesian public school settings.

METHOD

This research adopted a qualitative case study methodology to explore in depth how Discovery Learning and Project-Based Learning (PJBL) are applied within an English as a Foreign Language (EFL) classroom environment. The case study approach was selected as it provides an opportunity to investigate intricate instructional practices within a real-life setting. By concentrating on a single classroom, the study was able to yield rich, detailed information regarding the processes, experiences, and outcomes associated with the integration of these two learning models.

The investigation took place at SMAN 11 Garut, a public senior high school located in Garut, West Java, Indonesia. This school was chosen because it actively implements the 2013 Curriculum, which promotes student-centered pedagogies. The study was conducted during the second semester of the 2024/2025 academic year, specifically targeting class XI 5, which comprises 32 students aged 16 to 17. This particular class was intentionally selected because the English teacher had already incorporated a blend of Discovery Learning and PJBL into their teaching methods, especially for speaking lessons that involved creating video-based projects. The class also had a balanced mix of student abilities, a manageable size, and a strong rapport between the teacher and students—factors that supported the implementation of interactive and creative learning approaches. Informal observations and conversations with the teacher before the intervention also suggested that students in this class were relatively more open to trying new methods compared to other groups, making XI 5 a suitable setting for exploring the effectiveness of the chosen strategies.

Primary data sources included classroom observations, teaching materials, and student project outcomes. Observations were carried out over four English sessions, each lasting 90 minutes. During these sessions, the researcher compiled extensive field notes capturing teaching techniques, student engagement, classroom dynamics, and the use of instructional resources. Lesson plans, worksheets, and multimedia tools were collected to examine how Discovery Learning and PJBL principles were embedded in the lesson structure. Furthermore, students' video-based conversation projects were gathered and analyzed as tangible results of the instructional process.

To enrich the observational and document-based data, informal interviews were conducted with the English teacher to gain clarity on instructional goals, assessment methods, and challenges experienced during the application of both learning models. These interviews provided additional insights into the pedagogical rationale for using Discovery Learning and PJBL.

The data collection process adhered to ethical standards. Prior to commencing the research, informed consent was obtained from both the teacher and the students. Participants were assured of their anonymity and were informed that all data would be used exclusively for academic research.

The data were analyzed by carefully examining field notes, teaching documents, and student video projects. These were then organized into categories corresponding to the study's focus areas: instructional materials, project-based activities, and assessment

techniques. The analysis aimed to explain how Discovery Learning and PJBL were executed, the outcomes they yielded, and the difficulties encountered during implementation. Credibility was maintained through the triangulation of data sources and member checking with the teacher to verify the findings. Triangulation involved collecting data from three main sources: classroom observations, interviews, and student work. Two observers independently recorded classroom activities, then compared notes to reduce personal bias. Interviews with students and the teacher were conducted to confirm or challenge what was seen during lessons. In addition, students' video projects and worksheets were analyzed to see how ideas were applied in practice. These different sources were then cross-checked to identify consistent patterns, ensuring the findings reflected multiple perspectives rather than relying on a single type of data.

In conclusion, this methodological framework enabled a well-rounded understanding of how Discovery Learning and PJBL function in a real-world EFL classroom. By integrating various data sources within a specific educational context, the study offers valuable, experience-based insights that can contribute to broader improvements in EFL instructional practices.

FINDINGS AND DISCUSSION

This study examines the integration of Discovery Learning and Project-Based Learning (PjBL) models in English as a Foreign Language (EFL) instruction, as applied in the XI-5 class at SMAN 11 Garut, has yielded promising outcomes in enhancing both student engagement and language acquisition. This study specifically explored how these two pedagogical models intersect within three core components of instructional design: teaching materials, project-based tasks, and assessment strategies. The findings indicate that this integrative approach contributes significantly to the improvement of the teaching and learning process. When applied to the eleventh-grade curriculum, particularly in the unit focused on Giving and Defending Opinions with the specific theme "Healthy Life for Healthy Future", the combination of PjBL and Discovery Learning created a more dynamic and student-centered learning environment.

Teaching Materials

The integration of Discovery Learning and Project-Based Learning in the classroom began with the selection and development of teaching materials that support inquiry, exploration, and authentic communication. After that, the researchers developed teaching materials, and the main instructional materials used in this research included Textbooks, PowerPoint slides, worksheets and supplementary multimedia that were carefully aligned with learning outcomes to serve as initial stimuli for discovery.

The analysis of instructional materials in this study followed frameworks proposed by Hutchinson and Waters (1987), Tomlinson (2011), and Nunan (2004), which emphasize that effective materials must be relevant, authentic, engaging, and pedagogically structured to promote learner-centeredness. Furthermore, studies by Kessler and Hubbard (2017) and Pinter and Zandian (2015) underscore the need for materials that encourage active participation, critical thinking, and adaptive learning in diverse classroom settings. Textbooks served as the foundational input for language structures and vocabulary. In other words, material that can be used to build students' prior knowledge related with the material about "the expressions of giving and defending opinion". PowerPoint Slides provided visual reinforcement and structured

guidance through key expressions and examples. It can also improve student engagement and make students stay motivated. Worksheets were completed with clear and measurable instructions. The use of a worksheet facilitated practice for students, reflection, and low-stakes assessment. Supplementary multimedia content includes instructional videos, images, and real-world dialogues, enhanced students' contextual understanding and motivated deeper engagement. In other words, supplementary multimedia offered input and increased contextual engagement.

Instructional Materials and Discovery Learning

From a Discovery Learning perspective, instructional materials served as triggers for exploration. Rather than being told directly what an expression means or how it is used, learners were prompted to deduce meaning through noticing and comparing examples (inductive learning). For instance, students were presented with multiple dialogues using "I think…," "In my opinion…," and "Let me explain why…" and then asked to identify similarities, functions, and appropriate contexts for each. This guided discovery was scaffolded through well-structured worksheets, which included noticing tasks, pattern identification, and usage comparison.

Instructional Materials and Motivation

One of the most notable outcomes observed during instruction was increased student motivation and engagement. This aligns with findings from Mayer (2009) on multimedia learning, which emphasizes that dual-channel processing (combining words and visuals) leads to deeper understanding and sustained attention. Students frequently expressed enthusiasm toward video-based dialogues and PowerPoint visuals, which provided variety and reduced monotony. These resources not only increased attentiveness but also supported comprehension by visually reinforcing language input (Koć-Januchta et al., 2020; Bower, 2017).

Furthermore, since the project-based tasks were introduced through these materials, students could see the practical relevance of the language they were learning. This authentic application is critical in fostering instrumental motivation (Gardner, 1985) in EFL learners, where students learn a language for tangible communicative purposes. Moreover, the materials that are linked to real-life communication and problem-solving tasks increase both motivation and long-term retention (Lamb et al., 2020; Pinter & Zandian, 2015).

Based on analysis of instructional materials, the instructional materials used in this integration of Discovery Learning and PjBL provided meaningful linguistic input, enabled learner autonomy through guided discovery, fostered critical thinking and contextual application, increased learner engagement and motivation, supported both individual and collaborative learning.

The success of these materials in meeting both cognitive and affective learning goals underscores the need for thoughtful material selection and development in EFL pedagogy. The instructional materials functioned not merely as teaching aids, but as pedagogical tools that empowered learners to take ownership of their learning and to actively use language in meaningful ways.

Project Tasks: Integrating Discovery Learning Syntax in PjBL Activities

The project tasks in this study were deliberately structured using the syntax of Discovery Learning (as proposed by Bruner, 1961), yet realized through the framework

of Project-Based Learning (PjBL). This integration created a unique instructional design where students engaged in deep inquiry, exploration, and knowledge construction while working collaboratively to produce meaningful project outcomes, particularly in the production of a video-based speaking task. One specific task assigned to students was the creation of a short video (maximum 1 minute in length) that demonstrated their ability to use expressions of giving and defending opinions in the context of the theme "Healthy Lifestyle."

This task served not only to assess students' oral production skills, but also to develop essential 21st-century competencies, including creativity, learner autonomy, collaboration, and digital literacy (Scott, 2015). By requiring students to upload their videos as Instagram stories and tag their teacher's account, the activity leveraged a familiar social media platform, introducing a real-world, authentic audience that heightened students' motivation, accountability, and digital confidence. Students were asked to upload their final videos as Instagram stories and tag their teacher's account. This use of a popular social media platform created a meaningful, real-world audience and enhanced students' motivation and accountability. As argued by Krajcik and Blumenfeld (2006), authentic audience and context are key features of effective PjBL design that increase student engagement and relevance of learning.

The Discovery Learning model, typically characterized by five stages—Stimulation, Problem Statement, Data Collection, Data Processing, and Verification—was used as the backbone of the learning process. Each of these stages was embedded within the PjBL workflow, providing cognitive structure to the otherwise open-ended nature of project-based work.

Stimulation

Learning began with the stimulation syntax which is the exposure to authentic materials, videos, dialogues, and scenarios. This syntax showcased various expressions of giving and defending opinions. Students were introduced to the topic "Healthy Lifestyle" through discussions and examples of expressions used in giving and defending opinions, both formally and informally. These stimuli sparked curiosity and triggered prior knowledge, as recommended in the first stage of Discovery Learning. Here, students observed how language was used in context, which served as a foundation for inquiry and exploration.

Table 1. Stimulation

No.	The Process of Differentiation (Stimulus)
1.	Students are divided into several groups based on their levels: low (Group A1, A2, A3, etc.), mid (Group B1, B2, B3, etc.), and high achievers (Group C1, C2, C3, etc.)
2.	Students are shown a simple video about healthy habits, specifically running, with the background showing "Kerkof Garut & running at SOR Ciatel Garut"
3.	Students are asked "Which one is more comfortable: running at Kerkof Garut or running at SOR Ciatel Garut?"
4.	Students are asked to express a simple opinion using a sentence like "I think it's more comfortable to run at SOR Ciatel"
5.	Other students who have a different opinion are asked to express their opinion using a sentence like "I think it's more comfortable to run at Kerkof Garut"

As illustrated in Table 1, students were exposed to two short videos showcasing healthy habits—running at two local sites in Garut: Kerkof and SOR Ciatel. The use of

these culturally relevant visual stimuli served to engage learners by prompting them to compare the comfort of the two environments. Students were grouped according to proficiency levels (low, middle, high achievers), and each was asked to express simple personal opinions such as: "*I think it's more comfortable to run at SOR Ciatel*."

As part of the differentiated instructional strategy, students are initially grouped according to their proficiency levels: low achievers (Group A1, A2, A3, etc.), mid achievers (Group B1, B2, B3, etc.), and high achievers (Group C1, C2, C3, etc.). This categorization allows the teacher to tailor the learning experience according to the learners' cognitive readiness and linguistic ability.

To stimulate discussion and elicit opinion-based responses, all students are presented with a short, contextually relevant video illustrating the healthy habit of running, featuring two distinct local settings: Kerkof Garut and SOR Ciateul Garut. This audiovisual material serves as a cultural and environmental anchor to support students in formulating personal preferences and arguments.

Following the video, students are prompted with a guiding question in English: *"Which one is more comfortable: running at Kerkof Garut or running at SOR Ciateul Garut?"* This question is designed to activate students' critical thinking and encourage them to make comparative judgments based on the visual content.

Students are then scaffolded to express their opinion using a structured sentence frame, such as: *"I think it's more comfortable to run at SOR Ciateul"*. This structured linguistic support ensures that even students with lower English proficiency can participate meaningfully in the activity.

To foster respectful dialogue and encourage perspective-taking, students who express a different opinion are invited to respond using the same sentence frame, for instance: *"I think it's more comfortable to run at Kerkof Garut"*. This exchange not only enhances speaking fluency but also promotes the development of social-emotional skills, particularly in valuing diverse viewpoints and articulating thoughts assertively.

The integration of local cultural contexts—such as Kerkof Garut and SOR Ciateul Garut—as stimulus materials reflects a strong application of Culturally Responsive Teaching (CRT) which allows students to learn about material from surroundings.. This strategy aligns with contemporary pedagogical research emphasizing the role of cultural relevance in enhancing student motivation, identity affirmation, and academic engagement (Ladson-Billings, 2021; Hammond, 2015). By selecting familiar and meaningful local settings, the teacher operationalized Hammond's (2015) principle that cultural knowledge should be leveraged as a cognitive scaffold, helping students connect new language concepts to their lived experiences. This approach not only supported emotional engagement but also reduced the cognitive load typically associated with processing unfamiliar content (Gay, 2018). Furthermore, by validating students' cultural backgrounds through these project themes, the study demonstrates how CRT can be woven into Discovery Learning and PjBL frameworks to make EFL instruction more relevant, meaningful, and inclusive.

The strategy of grouping students based on proficiency level represents a practical application of differentiated instruction and Teaching at the Right Level (TaRL) principles. These practices are rooted in Vygotskian sociocultural theory, particularly the Zone of Proximal Development (ZPD), where students are best supported when tasks fall just beyond their independent ability but within reach with scaffolding (Vygotsky, 1978). Tomlinson's (2017) framework further emphasizes the importance of differentiating content, process, and product to accommodate diverse learner profiles, which this activity demonstrates by adjusting the complexity of the opinion task to match student ability.

This activity also fulfills the objectives of the Stimulation Phase in the Discovery Learning Model (Bruner, 1961), updated in modern instructional design by Kirschner et al. (2006), who argue that inquiry-based learning—when well-structured—can effectively activate students' prior knowledge and curiosity. The open-ended, culturally grounded question—"Which one is more comfortable: running at Kerkof Garut or at SOR Ciateul Garut?"—serves as a low-stakes but cognitively engaging entry point into the lesson, encouraging learners to observe, compare, and justify their opinions.

Problem Statement

In line with Discovery Learning syntax, students were then encouraged to formulate guiding questions and identify communicative problems related to the theme (e.g., "How can we create a persuasive dialogue about climate change in English?, Do you know what is meant by healthy lifestyle?") this is called problem statement syntax. This problem-oriented mindset was transferred into PjBL, where the topic was a real-life theme, such as healthy food, exercices, and social media towards mental health, and treated it as a scenario to explore linguistically and critically. Students were challenged to think critically about how to deliver their opinion on health habits in a natural, convincing way using appropriate language.

Table 2. Problem statement

No.	The Process of Problem Statement
1.	Students are given an explanation about the learning topic, which is "Giving and Defending Opinion" with the theme of healthy lifestyle.
2.	Students are informed about the learning objectives, which is to be able to use expressions for giving and defending opinions.
3.	Students are given a conversation text that uses expressions of "Giving and Defending Opinion" related to the topic of healthy lifestyle.
4.	Students are asked together about expressions used to give opinions (students already have the ability to use pressions to give opinions from the previous chapter).
5.	Students are asked to predict the expressions used for defending opinions. Students are given an explanation about examples of defending opinion expressions.

As shown in Table 2, in the problem identification phase of the lesson, students were introduced to the topic "Giving and Defending Opinions" within the thematic context of healthy lifestyle. The instructional sequence began with an explicit explanation of the learning objective: enabling students to appropriately use expressions for giving and defending opinions in English. To facilitate this, students were provided with a dialogue text containing relevant expressions embedded in a familiar theme, which allowed contextualized language modeling.

The teacher then guided students through an inductive process. Students were prompted to recall expressions for giving opinions, previously studied, and to infer the meaning of new expressions for defending opinions. Students were asked to identify these expressions and, subsequently, to make predictions about new language functions—specifically, how to defend an opinion. Finally, students received targeted instruction and exemplification of defending opinion expressions.

This process reflects a constructivist pedagogical approach, particularly inductive learning, where learners build upon prior knowledge to discover patterns and rules through guided interaction with input (Prince & Felder, 2006). By activating prior knowledge of giving opinions and contrasting it with new forms (defending opinions),

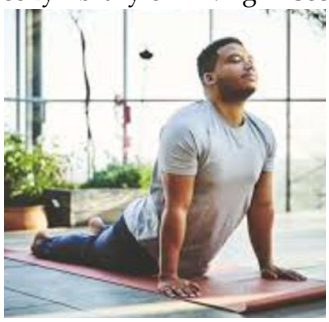
the activity promoted cognitive engagement and encouraged learners to formulate hypotheses before confirming them through instruction—a strategy aligned with Discovery Learning principles (Bruner, 1961; Alfieri et al., 2011).This reflects the Problem Identification phase, wherein learners define and conceptualize the core problem or theme through guided exploration.

Data Collection and Data Processing

Students collected linguistic data through internet research, analysis of sample texts, and interactions with peers. They examined sentence structures, persuasive strategies, and vocabulary relevant to giving and defending opinions. During this phase, Discovery Learning encouraged autonomy and exploration, while PjBL emphasized collaborative research and resource gathering.

Moreover, students collaboratively brainstormed then processed the information by drafting dialogues and project scripts. Students evaluated which expressions were appropriate for the tone, audience, and context of their video. In this phase, learning became active and constructive: students negotiated language use, revised their scripts through peer feedback, and made creative decisions on how to structure their messages. This stage was critical in blending critical thinking, language awareness, and creativity, core goals of both Discovery Learning and PjBL.

Table 3. Data collection and data processing

No.	Data Collection Process and Data Processing
1.	Students are asked to work in pairs to give and defend their opinions based on the following pictures: a. Which one is better to stay healthy? Cycling or running   b. Which do you think is a better way to improve mental health, reading a book in a cozy library or hiking in scenic mountains?   c. Which one is more relaxing? Practicing yoga or listening to meditation?

No.	Data Collection Process and Data Processing
2.	  Students are asked to predict the expressions used for defending opinions.
3.	Students are given an explanation about examples of defending opinion expressions.

As outlined in Table 3, the researchers developed the activity such as the students working in pairs, students analyzed a series of visual prompts and responded to comparative questions using expressions of opinion and defense, such as: "*Which is healthier: cycling or running?"* or "*Which activity improves mental health better: reading in a cozy library or hiking in scenic mountains?"*.

These tasks encouraged students to apply expressions of opinion and defense *(e.g., "I think cycling is healthier because..." or "I believe hiking improves mental health better since...")*, fostering both interpersonal communication and analytical reasoning. Through visual interpretation and peer discussion, students were guided to observe, compare, and justify their ideas using target language structures in context.

This phase reflects the Data Collection and Processing stage in the Discovery Learning model (Bruner, 1961; Alfieri et al., 2011), in which learners gather and process new information through exploratory interaction with materials and peers. The structured yet open-ended nature of the visual prompts provided a scaffold that maintained focus while enabling divergent thinking and negotiation of meaning.

Verification

Before recording, students tested their scripts through rehearsal, identifying and correcting language errors, pronunciation challenges, or unclear messages. Teacher feedback played a crucial role here, functioning as guided discovery rather than direct correction. Final projects (video recordings) were then used as performance-based assessments, providing tangible evidence of students' ability to apply what they had discovered.

Table 4. Verification

No.	The Process of Verification
1.	Students work in groups to play the game give me the opinion and defend my opinion using a fast-response system. They will be given several cases related to healthy lifestyles and must first ring the bell to give or defend an opinion. The group that responds the fastest will earn points. Below are some example cases: a. Many teenagers enjoy eating fast food. What's your opinion on the effects of fast food on health? b. Which do you prefer: online classes or traditional in-person classes? Why? c. There is a lot of added sugar in popular drinks and snacks. What is your opinion on limiting sugar in your daily diet? d. I prefer to drink popular drinks like boba or soft drinks instead of healthy drinks because they taste sweet. Defend my opinion!

No.	The Process of Verification
	e. It seems to me that wearing a school uniform is a good idea rather than wearing my own clothes. Defend my opinion!
	f. I enjoy eating seblak, bakso, cilor, and mie jeber rather than eating healthy food, because they are delicious. Defend my opinion!

Furthermore, the table 4 provides an overview of the verification stage, in which students participated in a competitive game titled "Give Me the Opinion and Defend My Opinion," where they had to quickly respond to healthy lifestyle scenarios by expressing and defending opinions. Examples of prompts included: "*Many teenagers enjoy eating fast food. What's your opinion on the effects of fast food on health?", "Which do you prefer: online classes or traditional in-person classes? Why?",* and *"There is a lot of added sugar in popular drinks and snacks. What is your opinion on limiting sugar in your daily diet?"* Points were awarded to the fastest and most accurate responses, encouraging active participation.

This activity served as an interactive verification tool, enabling learners to test and reinforce their understanding of target expressions under time constraints. The gamified setting enhanced motivation and engagement, facilitating immediate application of learned structures. This corresponds to the Verification stage, where students critically evaluate the relevance and correctness of their ideas in social and task-based settings.

This activity served as an interactive verification mechanism, enabling students to test and consolidate their understanding of target expressions under real-time pressure. The competitive format required learners not only to recall expressions but also to evaluate their appropriateness, coherence, and persuasiveness in response to contextually grounded prompts. The group dynamics further enriched the task by introducing peer evaluation and negotiation of meaning.

This corresponds with the Verification phase in Discovery Learning (Bruner, 1961; Alfieri et al., 2011), in which learners validate their hypotheses and understanding through active application, peer feedback, and task completion. The process reflects key principles of formative assessment in action, where learners receive immediate, informal feedback through performance and peer comparison (Black & Wiliam, 2009).

The game also embodies the tenets of gamification in language learning, known to enhance intrinsic motivation, engagement, and retention (Dichev & Dicheva, 2017). By embedding learning in a social and time-sensitive context, students were encouraged to retrieve and apply language quickly and accurately, which improves long-term retention through the retrieval practice effect (Karpicke & Grimaldi, 2012).

Moreover, the use of authentic, culturally relevant examples—such as cilor, bakso, and mie jeletot—illustrates culturally responsive teaching that increases emotional relevance and inclusivity (Gay, 2018; Ladson-Billings, 2021). Culturally embedded scenarios support contextualized learning, which is known to promote deeper cognitive engagement and meaning-making (Paris & Alim, 2017).

Presentation and Publication

The final video was uploaded on Instagram Stories, allowing teachers to track submissions and assess performance directly from the platform. This task demonstrated how Discovery Learning's inductive and exploratory approach could be effectively merged with PjBL's product-oriented, collaborative framework. According to Thomas (2000), PjBL supports the development of both content knowledge and communication

skills, particularly when students are required to produce a public artifact. Recent research has reinforced and expanded upon this, emphasizing that digital publication and authentic audience elevate student accountability, motivation, and reflective learning (Zhou et al., 2022; Kimmons & Veletsianos, 2020; Ghazali et al., 2019).

Table 5. Presentation and publication

No.	The Stages of Presentation and Publication
1.	Students are asked to create a short video product in English that applies the use of giving and defending opinions related to the theme Healthy Lifestyle. The video should have a maximum duration of 1 minute.
2.	Students must upload the video to their Instagram story and tag the teacher's Instagram account to inform who has completed the task and to facilitate the assessment process.
3.	Students, together with the teacher, will summarize the differences in expressions of giving and defending opinion both formally and informally in transactional spoken texts. Students are given general feedback.
4.	Students reflect on their achievements, and the teacher conducts reflection to identify the
5.	level of learning achievement and areas for improvement.

As detailed in Table 5, the social media dimension added a motivational layer by making students' work visible and shareable—enhancing ownership and performance quality. Research by Greenhow and Lewin (2016) supports the use of social platforms for pedagogical purposes, noting that such environments can foster peer learning, audience awareness, and digital communication skills. After the video task, students engaged in whole-class reflection facilitated by the teacher, where they compared the use of formal and informal expressions in the video scripts. Students were also given general feedback on their performance to inform their future oral communication tasks. General feedback was also provided by the teacher to inform future oral communication tasks, contributing to students' long-term speaking development through formative assessment (Huang & Burch, 2021).

Assigning a video project on a topic like "healthy lifestyle," where students express their opinions, offers a more humane and supportive approach to language learning, especially for low-proficiency learners. Unlike live speaking tasks that can cause anxiety and put pressure on immediate performance, video projects allow students to work at their own pace. They have the time to plan their ideas, write scripts, rehearse, and record multiple takes until they feel confident. This gentle scaffolding respects their learning process, reduces fear of making mistakes, and gives them a chance to build fluency in a low-stress environment. In this way, the task not only fosters language development but also honors the emotional and cognitive needs of students who often feel left behind in traditional classroom settings.

After all the processes, the integration of Discovery Learning syntax into a PjBL framework, specifically through the design and production of socially-shared video tasks, proved effective in improving students' speaking fluency, pragmatic competence, and motivation. Moreover, it highlighted the pedagogical value of merging language learning with authentic digital environments to prepare students for communicative practices beyond the classroom.

Project tasks were designed in alignment with PjBL principles to encourage active student participation and collaboration. This research was focusing on a PjBL task that integrated with discovery learning. In groups, students developed English-language

video projects focusing on real-life themes such as health, environment, and local culture. The process involved multiple stages: brainstorming, researching, scripting, rehearsing, recording, and editing. These stages fostered creativity and peer interaction while promoting language practice in authentic settings. The students applied critical thinking to generate content, negotiated meaning in English during collaboration, and used digital tools to create polished video outputs. This process helped bridge the gap between theoretical knowledge and practical application of language skills.

Assessment Practices

Diagnostic Assessment: A Comprehensive Evaluation Approach

The diagnostic assessment used in the implementation was portfolio assessment. It is employed primarily due to its ability to portray student development over a considerable time span and to provide a comprehensive picture of their learning progress. Unlike one-time testing methods, portfolio assessment accumulates evidence of students' achievements, skills, and reflections across various learning stages. This longitudinal perspective is valuable for assessing not only what learners know at a given moment but also how they have grown intellectually and personally throughout the learning process.

In terms of implementation, portfolio assessment typically utilizes students' previous assignments, performance in past classes, and pre-existing knowledge as the basis for evaluation. According to Jaenudin (2011), such an approach allows educators to make informed judgments about students' learning by analyzing their work over time. This method supports a more authentic assessment environment where students' abilities are reflected through actual tasks and projects rather than isolated test items. Moreover, it encourages learners to take responsibility for their own learning through self-assessment and reflection.

One of assessment that was included in the portfolio is a diagnostic assessment. The diagnostic assessment was administered to students in Class XI 5. It illustrates how individual learners began the module, highlighting their initial strengths and areas requiring improvement. However, portfolio assessment also presents certain limitations. One of the primary drawbacks is its potential lack of precision in evaluating specific knowledge or mastery of individual topics. Since portfolio tasks often integrate multiple competencies and span broader learning objectives, they may not effectively measure students' understanding of discrete content areas. As such, while portfolio assessment offers depth and breadth in evaluating learning, it may need to be complemented with other forms of assessment to ensure a balanced and thorough appraisal of student achievement.

Formative Assessment: Speaking Rubric as a Tool for Oral Skill Evaluation

The use of a speaking rubric in formative assessment serves to provide a clear and structured evaluation of students' oral communication skills. This method is particularly effective because it offers specific criteria that guide both the evaluator and the student, ensuring that the assessment remains focused and concise. The clarity of the rubric allows students to understand what is expected of them and which aspects of their speaking abilities are being assessed, such as pronunciation, fluency, vocabulary use, and coherence.

In terms of implementation, the speaking rubric is applied during speaking tasks where students are evaluated based on predefined indicators. Educators use the rubric

to assess individual performance and to provide immediate and constructive feedback. This feedback helps learners identify their strengths and areas for improvement, thereby fostering their oral language development. The process emphasizes formative learning, as the purpose is not solely to grade but to enhance student growth through continuous reflection and practice.

Table 6. Formative assessment rubric (Cambridge English speaking criteria)

No.	Aspects and Categories
1.	Content and Ideas (30 points) o Excellent (25–30): Ideas are clear, relevant, and well-developed. The dialogue addresses the topic effectively with logical arguments and examples. o Good (18–24): Ideas are relevant but could be more detailed or developed. Some arguments/examples are present but not strong. o Fair (10–17): Ideas lack clarity or relevance. Few or no arguments/examples support the discussion. o Poor (0–9): Dialogue does not address the topic or lacks coherence.
2.	Fluency and Pronunciation (20 points) o Excellent (16–20): Speech is fluent with accurate pronunciation and intonation. Communication is effortless. o Good (11–15): Speech is understandable with minor pronunciation mistakes. Communication is mostly smooth. o Fair (6–10): Frequent pronunciation issues or hesitations disrupt communication but the message is still clear. o Poor (0–5): Pronunciation issues or hesitations significantly hinder understanding.
3.	Grammar and Vocabulary (20 points) o Excellent (16–20): Uses a wide range of vocabulary and complex grammatical structures with minimal errors. o Good (11–15): Adequate vocabulary and mostly accurate grammar with minor mistakes. o Fair (6–10): Limited vocabulary and grammar with frequent errors but meaning is clear. o Poor (0–5): Very limited vocabulary and grammar. Errors obscure meaning.
4.	Interaction and Teamwork (20 points) o Excellent (16–20): Active participation, smooth turn-taking, and strong collaboration. Responds effectively to partner's ideas. o Good (11–15): Participates actively with minor issues in turn-taking or interaction. o Fair (6–10): Limited participation or interaction. Some missed opportunities to engage. o Poor (0–5): Minimal or no interaction with partner.
5.	Creativity and Engagement (10 points) o Excellent (9–10): Dialogue is creative, engaging, and interesting. o Good (7–8): Dialogue is engaging but lacks creativity. o Fair (5–6): Dialogue is somewhat engaging but not creative. o Poor (0-4): Dialogue is not comprehensible

Figure 3 presents the formative assessment rubric used to evaluate students' speaking performance. It displays the criteria and rating scale that informed the feedback process throughout the instructional cycle. Nevertheless, the use of a speaking rubric in formative assessment also presents certain limitations. One notable drawback is its narrow scope, as it focuses only on spoken performance and does not capture students' understanding or contribution to a project as a whole. Consequently, while the rubric is useful for evaluating oral skills in a focused manner, it may need to be

complemented with other assessment tools—such as project-based evaluations or written reflections—to provide a more holistic view of student learning.

Constructive Feedback: Enhancing Learning Through Detailed Responses

Constructive feedback is a widely adopted formative assessment method due to its ability to provide detailed input and enhance student motivation. According to Abi et al. (2022), this form of assessment plays a crucial role in supporting student development by offering thoughtful comments that recognize achievements while guiding improvement. Unlike summative assessments, which often provide only scores or grades, constructive feedback engages learners in a reflective process that fosters deeper understanding and personal growth.

In practice, constructive feedback is delivered through a balanced approach that begins with positive reinforcement, such as praise for well-executed elements, followed by suggestions for areas that need improvement. This method ensures that students feel acknowledged for their efforts, which can increase their confidence and willingness to engage with the learning process. Educators typically use this strategy during project-based or performance tasks, where qualitative feedback can offer richer insights than numerical scores.

Table 7. Constructive feedback

Names	Feedback
Rahma and Keysha	First finishers!! You two look confident and fluent. However, you have to be more careful in pronouncing "introduce, eleven, psychologist, health" and I didn't find the defending opinion expression.
Althaff and Ridho	Your fluency is incredible! The video is about to be perfect, unfortunately. I didn't find the defending opinion expression.
Selly and Muazarah	Good job! Your fluency is nice. Moreover, you have to be more considerate in choosing the place to take the video since it was too noisy and there was no caption, so I find it hard to figure out the articulation of the 1st speaker.
Andhita and Salsa	You look confident and calm and I found the expression of defending, which is good. However, you need to have more drilling on pronouncing "about, healthier, lifestyle,whole"
Tine and Keyla	It's a good video showing a really authentic activity of daily life >> some teens like chips, the fluency is also good. However, you have to be careful on pronouncing "once, tasty, easier"
Milanie and Silmi	It's a good video, you both look calm and I find the defending opinion. Nevertheless, you have to be more expressive and careful in pronouncing "enough" and "p" "f" "v" sound.
Banu and Gibran	Good job boys. Gibran's voice is like voiceover lol. However, be careful in pronouncing "great, fruit, sometimes, vegetable, based" and I didn't find defending opinion expression.
Syakhila and Raisya	You both look confident and calm. However, I didn't find defending opinion expression. Be careful on pronouncing "breakfast, water, fresher, each, toast,"
Sissy and Salma	Your pronunciation is quite accurate, I also find the defending opinion expression. keep it up! Your fluency is understandable, but you can work on speaking more smoothly and confidently to improve the overall flow.
Carisa and Shofa	Great job on your video! You showed excellent confidence and delivered your points clearly. However, I noticed that while you used expressions for giving opinions effectively, there were no defending opinion expressions. Including those could make your argument more compelling.
Anggun, septi, and	Great work on your video! You showed confidence and included defending

Names	Feedback
finda	opinion expressions effectively—well done! However, be mindful of your pronunciation, especially with the word *balance*, *food,* to ensure clarity. Keep practicing, and you'll improve even more.
Kamila and Fairuz	Good job on the video! The activity felt authentic, especially the case of eating spicy seblak, which made it engaging. However, be careful with your pronunciation of words like *introduce* and *vegetable* to make them clearer. Also, I didn't notice any defending opinion expressions, try adding them next time to strengthen your points.
Almer and Raihan	Good job on the video! You covered a lot of subtopics about a healthy lifestyle, which was impressive. However, be careful with your pronunciation of words like *lifestyle*, *guess*, and *once*. Also, try to maintain a more serious tone to match the topic better. Keep it up and keep improving!
Tasya and Zahra	reat job on the video! The topic about seblak is authentic and engaging, and I noticed you included defending opinion expressions—well done! Keep up the good work and continue refining your speaking skills.
Zainal, Raka, and Arfan	Good job on the video! Despite the power outage, you managed to deliver it well. However, be careful with the pronunciation of *great*, *some*, and *absolutely*. Also, try to include defending opinion expressions next time to make your argument stronger.

Table 7 shows an example of how constructive feedback was given to students in Class XI 5, particularly during their project presentations and post-task reflections. However, a notable drawback of constructive feedback is that it may lack specificity when it comes to assessing individual student performance, particularly in group or collaborative projects. Without clear differentiation, it becomes difficult to determine each student's unique contribution or learning outcome. As a reflection, future implementation of this assessment method could benefit from being more closely aligned with individual project components, ensuring that feedback not only supports group development but also addresses individual progress within the context of the task.

Overall, the integration of Discovery Learning and Project-Based Learning fostered a more student-centered and communicative classroom environment. Students became more actively engaged in using English and demonstrated increased confidence through inquiry, collaboration, and meaningful tasks. Assessment tools such as portfolios, speaking rubrics, and constructive feedback played a key role in tracking their progress and encouraging self-reflection. However, a closer look at the process revealed that while these tools effectively captured overall development, they were less sensitive to individual contributions—especially within group projects. There were instances where some students' efforts were difficult to distinguish in the final product, making it harder to assess personal learning accurately. This underscores the importance of designing assessment practices that still value collaboration, but also pay closer attention to how each student engages and grows throughout the project—for example, by incorporating peer evaluations or individual reflections alongside group assessments.

CONCLUSION

This research investigated how Discovery Learning and Project-Based Learning (PjBL) were integrated into English as a Foreign Language (EFL) instruction, centered

around the theme "Healthy Life for Healthy Future" in an eleventh-grade classroom. The results demonstrated that combining these instructional approaches significantly improved student motivation, engagement, and language development by the integration of project making in the assessment task. By having the project, the student feel motivated because it helps students to know things to improve in future project. Through an analysis of teaching material design, project-based tasks, and assessment practices, the study illustrated how these methods collectively contributed to a student-centered and active learning environment aligned with 21st-century skill requirements.

Discovery Learning promoted student autonomy, inquiry-based learning, and inductive reasoning, while PjBL offered meaningful opportunities for collaboration and real-life application. When implemented together, they cultivated a vibrant classroom atmosphere where learners practiced critical thinking, communicative skills, and purposeful language use—most notably through the creation of video speaking projects published on social media platforms. Assessment methods such as portfolio evaluation, speaking rubrics, and formative feedback supported students' comprehensive development, although each had its limitations, indicating the potential benefit of using varied evaluation tools.

In summary, this combined approach offers a promising alternative to traditional EFL teaching by integrating inquiry-driven and project-based learning that fosters active, reflective, and meaningful engagement. While the implementation demonstrated increased student motivation and communicative competence, particularly through the creation of video projects, the study did not explore in depth how individual accountability is assessed within collaborative tasks. This gap indicates the need for more refined assessment models that balance group collaboration with individual evaluation—such as peer and self-assessment, or longitudinal tracking of individual performance across multiple projects. These insights are especially relevant within the framework of Kurikulum Merdeka, which advocates for active, student-centered learning grounded in real-world contexts. To fully realize the potential of this curriculum, future efforts should focus on equipping educators with practical strategies for implementing flexible, formative assessments that support both group dynamics and individual learning growth in project-based settings.

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