



Integration of Artificial Intelligence and Project-Based Learning Models in Designing Speech Act Comprehension Test Instruments

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ABSTRACT

This study is a Research and Development (R&D) aimed at developing a speech act comprehension test instrument based on the integration of Artificial Intelligence (AI) and the Project-Based Learning (PJBL) model for students of the Indonesian Language and Literature Education Study Program (PBSI), Faculty of Language and Arts (FBS), Universitas Negeri Padang (UNP). The development of the test instrument followed the 4D model (define, design, develop, and disseminate), conducted up to the develop stage, which included student needs analysis through questionnaires and interviews, instrument design (pre-test, AI- and PJBL-based project assignments, post-test), and validation by experts in learning, linguistics, and graphic design. The instrument was designed in accordance with constructivist principles, emphasizing active student engagement in knowledge construction through projects and contextual activities. The results of the study indicate that the instrument's content feasibility reached 77.5% (valid category), language feasibility 84.61% (very valid category), and graphical feasibility 88.46% (very valid category), with an overall validity score of 83.52% (very valid). These findings confirm that the integration of AI and the PJBL model in the speech act comprehension test instrument is suitable for evaluating students' speech act comprehension in a contextual, applicative, and collaborative manner, while also functioning as a pragmatic learning medium that supports analysis, application, and student reflection.

Keywords: artificial intelligence, project-based learning model, speech acts, test instruments

Integrasi Artificial Intelligence dan Model Project-Based Learning dalam Perancangan Instrumen Tes Pemahaman Tindak Tutur

ABSTRAK

Penelitian ini merupakan penelitian dan pengembangan (Research and Development/R&D) yang bertujuan menghasilkan instrumen tes pemahaman tindak tutur berbasis integrasi kecerdasan buatan (Artificial Intelligence/AI) dan model Project-Based Learning (PJBL) bagi mahasiswa Program Studi Pendidikan Bahasa dan Sastra Indonesia (PBSI), Fakultas Bahasa dan Seni (FBS), Universitas Negeri Padang (UNP). Pengembangan instrumen tes mengikuti model 4D (define, design, develop, dan disseminate) yang dilaksanakan hingga tahap Develop, meliputi analisis kebutuhan mahasiswa melalui angket dan wawancara, perancangan instrumen (pre-test, tugas proyek berbasis AI dan model PJBL, post-test), serta validasi oleh ahli pembelajaran, kebahasaan, dan kegrafikaan. Instrumen ini dirancang sesuai prinsip konstruktivisme, yang menekankan keterlibatan aktif mahasiswa dalam membangun pengetahuan melalui proyek dan aktivitas kontekstual. Hasil penelitian menunjukkan bahwa kelayakan isi instrumen mencapai 77,5% (kategori valid), kelayakan kebahasaan 84,61% (kategori sangat valid), dan kelayakan kegrafikaan 88,46% (kategori sangat valid), dengan nilai validitas keseluruhan 83,52% (sangat valid). Temuan ini menegaskan bahwa integrasi AI dan model PJBL dalam instrumen tes pemahaman tindak tutur layak digunakan sebagai alat evaluasi pemahaman tindak tutur secara kontekstual, aplikatif, dan kolaboratif, sekaligus berfungsi sebagai media pembelajaran pragmatik yang mendukung analisis, penerapan, dan refleksi mahasiswa.

Kata kunci : artificial intelligence, model model project-based learning, instrumen tes pemahaman, tindak tutur

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INTRODUCTION

Language learning is essentially oriented not only toward mastering linguistic structures but also toward the ability to use language appropriately according to social contexts and communication situations. In linguistic studies, this aspect is the focus of pragmatics, a branch of linguistics that examines the meaning of utterances based on the context in which they are used (Tarigan, 1990).

One of the main issues studied is speech acts, which are part of social events involving specific situations and places (Nur et al., 2024). Austin also stated that speech acts are communication processes that convey and express the speaker's purpose (Raharja et al., 2022). Through speech acts, speakers not only say something but also perform certain actions, such as giving orders, requesting, refusing, or conveying attitudes (Sumarlam, 2023). Therefore, an understanding of speech acts must consider the purpose, context, and impact of communication to create effective and meaningful interactions, both academically and socially.

In learning speech acts, students are not only required to understand theoretical concepts but also to be able to analyze and apply them in various real-life communication situations. However, in practice, PBSI FBS UNP students still experience difficulties in understanding and applying speech acts due to limited learning media (Sari & Tressyalina 2024). In line with this, the lack of learning media that encourage active student involvement also impacts students' low ability to respond to speech acts functionally (Ali et al., 2025). Furthermore, Kami & Boroallo (2025) also explain that the limited availability of applicative evaluation instruments can hinder the effectiveness of learning in assessing students' ability to analyze and apply them in real-world situations. Based on this, an innovative learning approach is needed, not only theoretical but also contextual and collaborative, so that students can practice understanding and responding to utterances functionally in real-life communication contexts.

Initial findings from student interactions and interviews with PBSI FBS UNP lecturers also indicate that students still experience difficulties understanding speech acts because they tend to interpret utterances literally without considering the context of the utterance. This difficulty is also influenced by the limited learning media and the lack of evaluation instruments capable of measuring student abilities in a practical manner.

This situation encourages the need for innovation in learning approaches that can increase students' active involvement in understanding language in a way that is more relevant to the communication situations they face. One relevant approach is the Project-Based Learning (PJBL) model, because it emphasizes learning through the completion of contextual projects (Pratiwi et al., 2024). The PJBL model not only serves as a learning method but can also be utilized in designing evaluation instruments that require students' direct involvement in the learning process by developing solutions to actual problems (Hapsari et al., 2021). Thus, the PJBL model can be applied as a test instrument that emphasizes real-life project-based learning, collaboration, and problem-solving.

Furthermore, with the development of digital technology in education, artificial intelligence (AI) is increasingly being utilized to support more effective learning and evaluation processes. In language learning, AI can analyze speech, provide automated feedback, and present assessments tailored to individual abilities (Kurniawan & Tambunan, 2024). AI has been utilized in learning due to its ability to provide automated feedback, contextual simulations, and efficiently analyze learner data (Thamrin et al., 2024). Furthermore, Razilu (2025) suggests that AI can identify learning weaknesses, recommend follow-up materials, and provide personalized and adaptive learning, thereby increasing learner effectiveness, efficiency, and engagement. Based on this, AI can be utilized as an efficient tool in authentic learning.



The collaboration between AI integration and the PJBL model has the potential to enhance students' understanding of speech acts in a contextual and applicable manner. PJBL encourages active engagement through collaborative projects, while AI provides authentic assessments with instant and adaptive feedback. Therefore, designing a speech act comprehension instrument integrated with AI and the PJBL model is a strategic effort to improve students' understanding of speech acts while encouraging applicable and authentic learning.

Based on this background, this research focuses on developing a speech act comprehension instrument integrated with AI and the PJBL model. Specifically, this research aims to (1) analyze students' needs for speech act evaluation instruments. (2) design a speech act comprehension test instrument integrated with AI and the PJBL model. (3) test the feasibility of the speech act comprehension test instrument integrated with AI and the PJBL model through expert validation.

The results of this research are expected to contribute to the development of innovative and applicable learning evaluation instruments for lecturers, as well as help students improve their understanding and ability to apply speech acts contextually in real communication situations.

This research is also informed by various previous studies, particularly those focused on the development of evaluation instruments and the application of the PJBL model assisted by AI technology. Here are some relevant studies:

- 1) Research by Mahmudah & Izzah (2025), entitled "Development of a Project-Based Learning Model Assisted by Artificial Intelligence (AI) in Teaching Scientific Writing for Grade XI Students." This research shows that integrating AI into the PJBL model can help students improve their scientific writing skills in a more structured and creative manner.
- 2) Research by Rustiyana (2025), entitled "Development of a Project-Based Coding Learning Model (PjBL) Using Generative

AI to Enhance Creativity in Elementary School Students in West Bandung Regency." This research emphasizes the role of generative AI in fostering student creativity through coding projects.

- 3) Research by Walidaroyani & Pawestri (2025), entitled "The Effect of Project-Based Learning with ChatGPT Integration on Improving Students' Sociology Learning Outcomes." This research found that the integration of ChatGPT into PJBL significantly improved students' understanding of sociology material.

Therefore, this background encourages the researcher to investigate how forms of realistic social conflict, non-realistic conflict, and the positive functions of social conflict appear in the film *Komang* by Naya Anindita. Second, this research aims to describe the forms of realistic social conflict, non-realistic conflict, in-group, out-group, and the positive functions of social conflict in the film *Komang* by Naya Anindita from Lewis

Based on the background, the problem statement in this research is: How do the forms of realistic social conflict, non-realistic conflict, and the positive functions of social conflict appear in the film *Komang* by Naya Anindita from Lewis A. Coser's perspective.

The objective of this research is to describe the forms of realistic social conflict, non-realistic conflict, and the positive functions of social conflict in the film *Komang* by Naya Anindita from Lewis A. Coser's perspective. From an academic perspective, this research contributes to the development of film sociology studies by applying Coser's conflict theory to contemporary Indonesian works.

From an academic perspective, this research contributes to the development of film sociology studies by applying Coser's conflict theory to contemporary Indonesian works. From a practical perspective, this research benefits filmmakers in understanding how social conflicts can be depicted functionally, and for society in managing cultural and religious diversity through films as educational

tools and conflict resolution.

Lewis A. Coser's theory of social conflict (1956) explains that conflict is not only destructive but also functional in society. Coser distinguishes conflicts into realistic (based on real interests) and non-realistic (based on emotions or stereotypes), as well as in-group (within groups) and out-group (between groups). The positive functions of conflict include group solidarity, social innovation, and strengthening social structures (Coser, 1956).

In this context, social conflicts in the film *Komang* can be analyzed as the dependent variable influenced by differences in religion and culture as the independent variable, with a focus on their positive impacts in promoting tolerance and social change.

Based on the literature review conducted, the author successfully identified four previous studies with high relevance to the topic under study. These studies will contribute as theoretical foundations, strengthen the research arguments, and serve as references in determining the direction and methods of this research. Each previous study is analyzed based on its objectives, approach, results, and connections to the issues raised by the author. This enriches perspectives and strengthens the validity of the current study.

First, the study titled "Representation of Social Conflict in the Film *Gadis Kretek*: Critical Discourse Analysis of Sara Mills" (Qabibi, R. N., Jayanti, R., & Afkar, T., 2024). The objective of this study is to describe the representation of conflict in female characters in the film *Gadis Kretek* by Ratih Kumala. The results show that female characters in the film experience social pressure and face dual roles in patriarchal cultural structures. The similarity lies in the depiction of conflicts in values and social culture, while the difference is in its main focus on women's gender issues alone.

Second, the study titled "Social Conflict in the Film *Gundala*: Dahrendorf's Conflict Theory" (Cahyati, N., & Subandiyah, H., 2022). This study aims to describe social conflicts and social changes

experienced by society in the film. The results indicate that structural conflicts in society are represented through injustice and corruption. The similarity is in social conflicts and structural imbalances in society, while the difference is in the genre of the film *Gundala*, which is a superhero-political film.

Third, the study titled "Social Conflict in the Film *Ben & Jody*: Swingewood's Perspective" (Novitasari, 2023). The objective is to explain resistance to economic domination. The similarity with the film *Komang* is that both highlight structural conflicts involving indigenous communities and cultural values. The difference lies in the setting of the conflict in *Ben & Jody*, which is in forests and villages.

Fourth, the study titled "Social Conflict in the Novel *Tan* by Hendri Teja through Lewis A. Coser's Conflict Theory" (Andriyana & Mubarok, 2020). This study aims to reveal ethnicity-based social conflicts through Lewis A. Coser's theory. The results show that conflicts are functional, forming identity and solidarity. The similarity with the film *Komang* is that both address multicultural issues and identity. The difference is that *Tan* focuses on ethnic discrimination, while *Komang* focuses on interfaith love conflicts and culture.

From the researcher's perspective, the study titled "Social Conflict in the Film *Komang* by Naya Anindita: Lewis A. Coser's Conflict Theory" has strong relevance to the identified previous studies. The first and third studies show how social conflicts can be influenced by gender issues and cultural values, which are also the focus in the film *Komang* by Naya Anindita, describing interfaith love conflicts and culture using Lewis A. Coser's theory. Although the contexts of each study differ, the common theme of social conflicts provides a strong foundation to enrich the analysis and shows the contribution of this research in understanding complex social dynamics in the context of films. As a study on the new film *Komang* by Naya Anindita, this research fills the gap in Indonesian film studies post-pandemic, where religious



tolerance issues are increasingly urgent (for example, related to the Marriage Law). The novelty of this research lies in its practical contributions and recommendations for multicultural education through film media, which can enrich the discourse on conflict sociology in Indonesia. It also expands the application of Coser's theory from literature/novels to filmmaking, demonstrating the adaptability of Western theories in the Southeast Asian context.

This research is raised because it fills existing gaps with significant novelty, thus providing strong scientific contributions in film and social conflict studies. First, theoretically, it strengthens the foundation with Coser's proven theory, but applied to a new medium and current issues religious-cultural conflicts in Bali, relevant to national challenges like pluralism in Indonesia. Second, practically, this analysis can serve as a reference for future research on minority representations in media, helping to reduce social stereotypes through understanding functional conflicts. Third, its urgency is high in the digital era where streaming films like *Komang* influence public opinion; without such analysis, complex social dynamics in romance narratives will remain overlooked, even though they have potential as tools for reflection and social critique. Thus, this thesis not only enriches interdisciplinary perspectives sociology but also contributes to the validity of more inclusive and contextual social conflict studies.

METHOD

This research employs a sociological approach to literature, which reveals societal aspects through text analysis to examine social phenomena. Sugiyono (2013) and Razak (2017) state this approach is used to deeply understand social phenomena through direct researcher involvement. It helps unravel complex social interactions and capture meanings, experiences, and feelings of research subjects. In this context, a qualitative method is used to interpret forms of

social conflict in the film *Komang* based on cultural contexts and character interactions, reflecting societal life and vice versa. Through this approach, the researcher analyzes literary content or text to understand various forms of social conflict, such as realistic conflict, non-realistic conflict, and the positive functions of social conflict linked to cultural values in the film *Komang* by Naya Anindita, using Lewis A. Coser's social conflict theory.

The type of research is descriptive qualitative because the data presented consists of arrangements of words, phrases, dialogue quotes, or sentences. The data found are interpreted and presented descriptively based on facts, actual events, and systematically, as this research aims to describe the forms of social conflict and positive functions present in the film *Komang* by Naya Anindita using Lewis A. Coser's social conflict theory.

The primary data source in this research comes from the film *Komang* by Naya Anindita, watched via the Netflix platform. The film *Komang* by Naya Anindita was released on March 31, 2025, with a duration of approximately 107 minutes. It was produced by Kharisma Starvision Plus, with producers Chand Parwez Servia and Mithu Nisar, and the screenplay written by Evelyn Afnilia.

The research data consist of quotes from dialogues, sentences, and paragraph excerpts that are transcribed and indicate the presence of realistic conflict, non-realistic conflict, and the positive functions of social conflict in the film *Komang* by Naya Anindita.

The data collection technique in this research uses the observe-and-note method. The observe technique is used to observe data in the form of the film *Komang* screening, while the note technique is used to record relevant data according to research needs. In this technique, the researcher will write down dialogues and minutes for each scene in every scene that will serve as research data sources. The steps taken in collecting data through observe-and-note in this research are as Carefully and repeatedly watch the film *Komang*

by Naya Anindita. Transcribe the film Komang, marking relevant parts of the transcription results. Record all data found in the film Komang by Naya Anindita. Code the data with codes matching the problem formulation. Group the data based on the predetermined problem formulation.

This research uses the Miles & Huberman model analysis technique (1992), an analysis that can strengthen, select, focus, discard, and organize data in a way that allows final conclusions to be drawn, providing descriptions or verifications. The steps in data analysis in this research are as Data reduction presented in the form of a corpus data table of dialogue quotes and scene descriptions so that relationships between data are clearly visible. Analyze using Lewis A. Coser's theory based on dialogue quotes in the film Komang by Naya Anindita. Conclude based on the analysis results of the data found in the film Komang by Naya Anindita.

In this research, data validity testing is conducted through credibility testing. Credibility testing is done by increasing perseverance in research and discussion with peers. Through increased perseverance, the researcher will observe the obtained data carefully and repeatedly. This careful and repeated checking is done to ensure the data found are correct. Credibility testing through peer discussion is done by showing the research results to peers to learn other perceptions. If there are similar perceptions, it can help the researcher strengthen the truth of the research results. Determine relevant peers in the research field. Prepare analyzed research results for presentation. Conduct open discussions to exchange opinions and objective views. Analyze received input if strong differences in views are found, the researcher conducts reflection or re-tracing of data to ensure the truth of findings. Conclude from the discussion results that the data obtained meet a high level of trust if there are similar perceptions. Document the discussion results and record them as evidence of the credibility testing process, thus strengthening the research validity.

RESULT

1. Define Stage

The define stage begins with a series of preliminary analyses to obtain a comprehensive overview of the test instrument development needs. Two main types of analysis were conducted at this stage:

First, a needs analysis was conducted through interviews with lecturers and a questionnaire distributed to students. This analysis aimed to explore perceptions and obstacles in learning speech acts, while also evaluating the limitations of the evaluation instruments currently used. Interviews with pragmatics lecturers from the Faculty of Social and Political Sciences (FBS) at the Indonesian Language and Literature Study Program (PBSI) at UNP revealed that the main obstacle to learning speech acts lies in students' tendency to interpret utterances literally without considering context. Currently, lecturers have utilized textbooks and interactive quizzes such as Kahoot and Wordwall as evaluation tools. However, no instrument capable of in-depthly assessing students' contextual understanding has been found.

Next, a student needs analysis was conducted by distributing a questionnaire to 35 students using Google Forms with a Likert scale of 1–5 (from strongly disagree to strongly agree). The analysis showed that 94.3% of students needed a test instrument capable of assessing their understanding of the meaning and context of speech acts, not simply memorizing theory. The results of the student needs questionnaire can be seen in Figure 1.

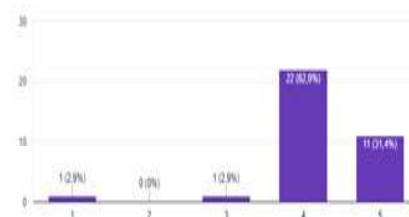


Figure 1
Student Needs Questionnaire



Second, document analysis was conducted in the form of a review of the Speech Act Comprehension Plan (RPS). This activity aimed to assess the alignment between learning objectives, speech act material, and the potential integration of the PJBL model and AI technology in the evaluation process of speech act learning. The results of the review of the RPS for the Indonesian Pragmatics Course for July–December 2025 indicated that the course learning outcomes (CP-MK) emphasized critical speech act analysis and the implementation of authentic data-based projects, but there was no adequate instrument to support this evaluation. Thus, the findings of the definition stage reinforced the urgency of developing a speech act comprehension test instrument that integrated AI and the PJBL model in a contextual and applicable manner.

2. Design Stage

The design stage was conducted after the definition stage, which included needs analysis and document analysis as the basis for developing an AI-based test instrument using the PJBL model. Based on the results of the definition stage, the test instrument was designed in the form of three types of questions: a pre-test, a project assignment using the Tutura (AI) application, and a post-test. This instrument division is used to identify students' initial abilities, facilitate AI-assisted project-based learning, and measure student understanding after the entire learning process. Furthermore, the instrument design also takes into account the suitability of the material to the learning objectives and the integration of AI into the evaluation process, taking into account technical aspects such as interactivity, ease of navigation, display clarity, and the AI's ability to provide automatic feedback. The next step is to design a speech act comprehension test instrument that integrates AI and the PJBL model. The following describes each section of the designed test instrument.

a) Pre-Test Questions

This pre-test was designed to measure students' initial critical thinking skills, such as

analyzing, evaluating, and making decisions when speaking, both conceptually and contextually, in social communication. The pre-test was designed in two types: objective questions with 30 multiple-choice questions with five answer alternatives, used because they are effective in objectively measuring students' mastery of the material and cognitive abilities and supporting consistency in assessment results. The second type is objective questions with 10 true-false questions, which require students to carefully distinguish between statements that are appropriate and inappropriate based on the concept of speech acts and the context in which they are used in communication. Examples of each type of question are provided below.

(a) Example of a multiple-choice objective question

In a class, a lecturer says, "The midterm exam will be held next week." If this utterance produces an effect (perlocutionary) where all students immediately open their notebooks and begin studying seriously, then the lecturer's illocutionary purpose is...

- To report the academic schedule.
- To predict the future of the course.
- To instruct students to prepare for the exam.
- To test students' understanding of dates.
- To cause students to panic and skip class.

(b) Example of a true-false objective question

The utterance "Hello, how are you?" is a pure assertive speech act that reports the speaker's condition.

b) Project Assignment Questions Using the Tutura Application (AI)

One of the question formats designed in this test instrument is a project assignment that integrates AI and the PJBL model. This project assignment contains assessment objectives and work instructions designed to guide students in analyzing real-life communication cases related to the use of speech acts, with the output being a mini-research project. This question format serves not

only as a measurement tool for learning outcomes but also as an evaluation tool that allows students to demonstrate analytical and application skills in a contextual manner.

The integration of AI in this test instrument is carried out through the use of the Tutura application as a speech act analysis tool. The Tutura application is an artificial intelligence-based platform that supports speech act analysis through text, video, and conversational exercises, drawing on the theories of Austin, Searle, Grice, and Leech. The use of the Tutura application in this project assignment aims to support the speech analysis process more systematically through relevant features, so that the evaluation process is inseparable from the use of technology in pragmatics learning. In addition to AI integration, the format of this project assignment is designed with reference to the PJBL model so that students can learn actively, collaboratively, and directly engage with the material, linking the material to relevant everyday contexts, including the application of technology and real-life problem solving. The following is an illustration of the speech act comprehension test instrument integrated with AI and the PJBL model that has been designed.

In the project assignment using the Tutura application, students work in groups using the following steps:

First, Formulating a Basic Question: Students are directed to select a speech act case involving interaction within the campus environment, whether in a face-to-face conversation, an academic consultation, or digital communication. After selecting the case, the group identifies the speech act phenomenon to form the basis for determining the project title and basic question. This stage emphasizes clarity of context, communication goals, and the parts of the interaction to be analyzed as the foundation for the next stage.

Second, Designing the Project: Students design a strategy for collecting speech data to be

analyzed, including the method, collection time, file format, and data readiness before analysis using the Tutura application. This stage aims to enable students to process and analyze speech data accurately.

Third, Scheduling: Students create a schedule and organize the group's workflow in a structured manner to ensure the project runs effectively and on target. The goal of this stage is to ensure each group member has a defined role and ensure optimal work coordination.

Fourth, the core stage of developing the test instrument is Implementing and Monitoring. In this stage, students analyze data using the Tutura application's features. These features include Text Analysis to examine speech, Video Analysis to assess nonverbal aspects, and Conversation Practice to test student understanding. The entire process is monitored regularly to ensure activities are running on time.

Fifth, Evaluating Work Results. After analyzing the case, students conduct a class presentation to assess the results of the mini-project. This assessment is not limited to the class presentation report but also includes the overall quality of the analysis and the contributions of each group member.

Sixth, Evaluating the Learning Experience Throughout the Process. In this stage, students reflect on the entire analysis process, including new insights gained and plans for future speech improvement.

By systematically developing the test instrument workflow and utilizing the Tutura application features, this speech act comprehension test instrument, integrated with AI and the PJBL model, functions not only as an evaluation tool but also as a structured, contextual, and reflective pragmatic learning medium. Each stage is designed to be interconnected to help students understand, analyze, and improve speech acts in a gradual and meaningful manner.



Figure 2
Pratest Device Front Page

c) Post-Test Questions

The post-test questions are designed as a final test to measure the development of students' analytical skills after completing the entire learning series and project assignments. The pre-test was designed with two types of questions: 30 objective multiple-choice questions and 10 objective true-false questions, each with the same indicators and aspects as the pre-test. The difference between the post-test and the pre-test lies in the cognitive level.

The following are examples of each type of question.

(a) Example of an objective true-false question

In a class, the class leader reminds students of an assignment deadline.

A : "Don't forget, the financial report must be on the lecturer's desk by 9 o'clock tomorrow morning."

B : "Okay, I'll try to finish it tonight."

A : "_____"

Based on the conversation above, the most appropriate sentence to fill in the blank and

demonstrate an explicit illocutionary act emphasizing absolute adherence to the deadline is...

- "I'm just reminding you of the schedule, with no other intention."
- "If you're late, you must be prepared to face the consequences."
- "I emphasize that this deadline is very tight and non-negotiable."
- "You must cancel all other schedules to finish on time."
- "I want you to present to the director immediately tomorrow morning."

(b) Example of a true-false objective question

Example of a true-false object question True-False Statement

The utterance "I hereby declare the class over" is a performative speech act that is successful only if uttered by a lecturer or institutionally authorized party.



Figure 3
Prost-test Device Front Page

3. Development Stage

After the design process was completed, the speech act comprehension test instrument integrated with the AI and PJBL model was validated by three experts in their respective fields: a learning expert, a linguistic expert, and a graphic expert. The test instrument was assessed on a Likert scale from 1 to 4. The following formula was used to determine its validity:

$$\text{Validity Score} = \frac{\text{score obtained}}{\text{maximum score}} \times 100\%$$

After being calculated using the formula, the validity of the AI-based test instrument with the PJBL model was categorized based on the following table.

Table 3
 Validity Categories of the Integrated AI and PJBL Model Test Instrument

Achievement Level (%)	Category
81-100	Very Valid
61-80	Valid
41-60	Fairly Valid
21-40	Less Valid
0-20	Not Valid

The assessment focused on three main aspects: content suitability, language, and graphics. The details for each aspect are as follows.

Table 4
 Learning Media Validity Results by Validator

	Feasibility		
	Content	Language	Graphic
Sum of Item	10	13	13
Maximum Score	40	52	52
Score Obtained	31	44	46
Percent	77,5	84,61	88,46
Category	very valid	very valid	very valid

Based on the table above, the validation results showed that the content feasibility was 77.5% (valid), the language feasibility was 84.61% (very valid), and the graphic feasibility was 88.46% (very valid). The overall instrument average reached 83.52%, categorized as very valid. These findings confirm that the developed instrument is accurate, complete, uses appropriate language, and has an attractive graphical display, making it suitable for use as an assessment tool for students' speech act comprehension.

4. Dissemination Stage

The dissemination stage involves packaging and distributing the test instrument to the target audience (Thiagarajan et al., 1974). The final product, revised during the development stage, is disseminated to students in the Indonesian language pragmatics course at the Indonesian Language and Literature Education Study Program, Faculty of Language and Literature, Universitas Negeri Padang, through the Learning Management System (LMS). The disseminated product will be implemented as an evaluation instrument for pragmatics learning, specifically for speech acts, to measure student abilities.

DISCUSSION

The process of designing a speech act comprehension test instrument integrated with AI and the PJBL model was carried out through the stages of problem identification and setting learning objectives, designing the instrument's structure and components to suit the characteristics of the speech act material, and testing its feasibility based on content, language, and graphical aspects. This instrument consisted of a pretest, a project assignment based on the Tutura (AI) application as an implementation of PJBL with AI support, and a posttest to measure student understanding. Validation was conducted by experts using a 36-item Likert-scale questionnaire, resulting in an average score of 83.52% (very valid), thus making the instrument suitable for use as a learning



evaluation tool.

The results of this test instrument development also align with the constructivist learning theory proposed by Jean Piaget and Lev Vygotsky. Constructivist theory emphasizes that learners construct knowledge through active involvement and interaction with the learning environment. The developed AI-integrated test instrument and PJBL model are designed to encourage active student engagement through project assignments and activities that require higher-order thinking.

According to Piaget, the learning process occurs through the mechanisms of assimilation and accommodation. Assimilation is the process of integrating new information into existing knowledge structures, while accommodation is the process of adjusting knowledge structures to fit new information. The developed test instrument facilitates both processes through the presentation of questions and project assignments that encourage students to connect prior knowledge with the speech act concepts being studied.

The strength of this research lies in the systematic data analysis and multidisciplinary validation, involving experts in learning, linguistics, and graphic design, resulting in a comprehensive instrument that supports holistic pragmatic evaluation. However, this study has limitations, namely a relatively small sample size (35 students) and a focus on one study program, so that the results cannot be generalized to the student population.

This research has limitations in the development aspect. This is because the dissemination procedure, the final component of the 4D, was not implemented.

CONCLUSION

This research successfully developed a speech act comprehension test instrument integrated with AI and the PJBL model, suitable for use as a pragmatic learning evaluation tool for PBSI FBS UNP students. The instrument development was carried out through the stages of definition, design,

and development, beginning with an analysis of student needs and a review of learning documents that indicated the need to develop a speech act comprehension test instrument integrated with AI and the PJBL model. The test instrument was then designed in the form of a pre-test, an AI-based project assignment with the PJBL model, and a post-test that emphasized contextual and applicable understanding. Expert validation results showed that the test instrument met the criteria for content, language, and graphical feasibility with an average score of 83.52% (very valid), thus supporting contextual and applicable evaluation. This instrument encouraged active student engagement through AI-based projects, facilitated contextual analysis of speech acts, and aligned with the principles of constructivist learning and the Zone of Proximal Development. The strengths of the research lie in the multidisciplinary validation and systematic data analysis, while the limitations lie in the relatively limited number of subjects and the scope of the research which is still focused on one study program, so that further research with a broader scope is needed to test the effectiveness and implementation of the instrument more comprehensively.

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