

# **Navigating the linguistic gap: Exploring translanguaging through the eyes of Indonesian mechanical engineering students**

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## **ABSTRACT**

This paper examines the gap between theoretical support for translanguaging in multilingual education and limited understanding of student perspectives, particularly in English for Specific Purposes (ESP) contexts in Indonesia. Indonesian engineering students' perceptions of translanguaging practices in ESP courses was investigated, hypothesizing that students would view translanguaging positively while recognizing contextual appropriateness concerns. Data was collected from 61 Indonesian engineering students through an online questionnaire and analyzed to understand perceptions of translanguaging in academic contexts. Results indicated most students supported translanguaging as an intuitive strategy that increases confidence, motivation, and comprehension of technical concepts, with high mean scores affirming its value for inclusivity and overcoming language barriers in complex engineering subjects. Students reported translanguaging enhanced engagement through facilitating group work, peer support, and discussions, though some participants associated it with English deficiency. Findings suggest strategic implementation of translanguaging can address language barriers and enhance engineering education while preparing students for global professional environments. However, instructors should be mindful of some students' concerns about appropriate contexts for translanguaging use, particularly regarding casual situations and classroom expectations.

**Keywords:** *Translanguaging; Linguistic gap; Indonesian students*

## 1. Introduction

It is clear that mechanical engineering is an exacting field since it requires fluency in both specialized lexis as well as a technical knowledge base (Enelund et al., 2013). Another layer of sophistication accentuated by the vernacular's preponderant status is the demand for comprehension and adeptness over its concepts (Meiristiani & Ekawati, 2018). Such dexterities are imperative for students enrolled in English for Specific Purposes (ESP) courses which entail vocabulary, technical language and proficiency in professional communication (Milaningrum et al., 2018).

Language barriers can greatly affect both academic achievement and career growth, hence these difficulties are more noticeable for Indonesian students learning English as a second language (Retnowaty, 2022). Typical difficulties include low confidence, bad grammar, weak vocabulary, and limited confidence (Meiristiani & Ekawati, 2018). English makes just 40% of all communication, hence classroom interactions could primarily rely on the native tongue (Dharmawati, 2020). Moreover, the predominance of English language in mechanical engineering has pushed bilingualism in academic writing since students commonly mix English and their native tongue to handle difficult concepts (Farahsani & Harmanto, 2021). Policies requiring students to utilise English only could aggravate these problems by diminishing motivation, lowering language competence, and boosting stress levels (Adamson & Adamson-Fujimoto, as cited in Nair, 2020).

To address this, translanguaging—a teaching style that encourages the use of many languages—has emerged as a viable option. According to García and Kano (2014), translanguaging enhances students' conceptual understanding, metalinguistic awareness, and writing abilities. This strategy enables students to apply all of their linguistic talents during the learning process. Translanguaging offers several benefits in the framework of ESP. Chen et al. (2019) discovered that students who can better use their language resources write better. Tatzl (2013) highlights its potential for assisting ESP educators with specific practices relevant to their domains. In 2017, McPake et al. emphasized how it aids in the preservation of minority languages as well as bilingualism. In addition, Llanes and Cots (2020) discovered that in a corporate English course, learners in both translanguaging and monolingual groups acquired language skills at the same level. All these studies combined examine how the practice of translanguaging can facilitate language development and acquisition in teaching English for specific purposes (ESP) contexts.

The studies conducted on the use of translanguaging strategies in English for Specific Purposes (ESP) with Indonesian mechanical engineering students reveal a glaring gap. The application of translanguaging has been studied in the context of English as a Foreign Language (EFL) Teaching and learning in Indonesia (Liando et al., 2023; Emilia & Hamied, 2022; Putrawan, 2022; Rasman, 2018; Rasmin & Nur, 2023); the impact on ESP specific courses for mechanical engineering is not known. Understanding the students' insights on translanguaging will assist the teachers in developing adequate

instructional strategies that are responsive to the students professional and linguistic needs.

Aspects of translanguaging are more adaptable to multilingual students' backgrounds and perspectives, and as a result, strategies need to be tailored to meet learner needs. Monolingual learners may view the use of multiple languages as unnecessary distraction; however, learners from multilingual backgrounds regard it as a sensible and effective method of learning (Wang, 2019). These diverse perspectives emphasize the need to incorporate translanguaging and its pedagogical frameworks with focus on instruction. For instance, the considerable level of English competency required in their sector of work might present challenges for Indonesian mechanical engineering students. Although translanguaging could help overcome these gaps, little research has been conducted on how these students see this approach. This study aims to fill the knowledge gap on translanguaging in English for Specific Purposes (ESP) by exploring the following research question: How do mechanical engineering students perceive the use of translanguaging in their English classrooms?

## **2. Literature review**

### *2.1. Translanguaging*

One developing idea that is changing language instruction is translanguaging. Originating from observations in the 1990s of how naturally multilingual students combine languages, translanguaging questions the conventional wisdom that languages are separate systems. Rather, it suggests that multilingual people have a single, flexible language repertoire from which they generate meaning and communicate successfully (García, 2009).

In 1994, Cen Williams first introduced the term "translanguaging" to describe the flexible language practices of bilingual individuals. But in the 2000s it gained some popularity as a teaching tool embracing the dynamic ways in which students make use of their complete language resources (Baker, 2011). Unlike traditional language education techniques that consider languages as distinct and autonomous systems, translanguaging encourages students to use their first language (L1) with the language of instruction (L2). This method helps them have more exact knowledge of academic material and increases their linguistic ability.

Translanguaging stands out from the general knowledge that languages are fixed, autonomous entities by their rejection of this viewpoint. Instead, it sees language as a dynamic and flexible tool altering based on social context. From strict language rules towards developing flexible communication skills and metalinguistic awareness, this change of view directs the emphasis of language education (Canagarajah, 2011). Translanguaging allows students to switch languages and translate as required, enabling them to use their complete linguistic repertoire to solve problems, understand complicated concepts, and access sophisticated resources. Beyond bilingualism, supporting students' full linguistic talents reduces scholastic disadvantage.

In international scientific and engineering education, translanguaging promotes equity for underprivileged students of diverse languages. Mejia et al. (2020) and Pérez et al. (2025) confirm that translanguaging bridges language and literacy and technical disciplines, improving STEM comprehension. After 2020, STEM education began to incorporate equity theories and decolonial logics, according to a comprehensive evaluation of 15 research (Gravin et al., 2025). Researchers are encouraging more active engagement with translanguaging theory and pedagogy to elevate the voices of vulnerable students who have been excluded due to linguistic prejudice (Pérez et al., 2022). The objective is to tailor STEM education to students' sociolinguistic and demographic backgrounds (Pérez et al., 2025).

Due to Indonesia's geopolitical and linguistic complexity, translanguaging has garnered interest in EFL. Case studies suggest that this improves knowledge, engagement, and anxiety in learners (Riyanti, 2024; Sutrisno, 2023). Incomplete comprehension, institutional frameworks, and classroom complexity remain hurdles (Witari & Sukamto, 2023). Sociopolitical settings may also hinder students' multilingualism (Rasman, 2018). The classroom atmosphere, students' linguistic backgrounds, and language usage attitudes in Indonesian EFL affect translanguaging. No one disputes that the technique has enormous promise, but it raises doubts about EFL success and sustainability, requiring greater research and more conscious teaching design (Sutrisno, 2023; Witari & Sukamto, 2023).

## *2.2. Benefits and challenges of translanguaging*

Recently, translanguaging has become popular in language instruction. Multilingual education and communication enhance classroom linguistic and cultural diversity. Translanguaging enhances communication, multilingualism, language learning, and important cultural encounters (Oliver et al., 2020).

According to García (2009), translanguaging involves using many languages for communication and allowing students to use their complete linguistic repertoire to acquire new languages. This method improves classroom communication by using all students' linguistic talents. Bridging English and Indonesian is a significant didactic understanding in Indonesian bilingual education. Teachers who let students switch between English, Bahasa Indonesia, and local dialects can unleash their vocabulary to improve understanding and build meaningful interactions (Rasman, 2018; Triastuti et al., 2023). Indonesian English students struggle because the teaching method is too structuralist and has strict language limitations (Marcellino, 2015). The translanguaging framework tackles this issue. Some researchers found that Indonesian students who are encouraged to use translanguaging strategies like addressing an English text in their dominant language before responding in English have better understanding and self-expression. This approach particularly benefits students from regions where exposure to English is limited, creating more equitable learning opportunities across Indonesia's diverse archipelago.

Translanguaging in classrooms does not, however, present without challenges. One major obstacle is the time teachers and students have to become used to this approach (Galante, 2020.). Furthermore, it is difficult to assess translanguaging techniques as conventional examinations could not adequately measure students' multilingual ability (García & Lin, 2016). The procedure can get much more complicated in multilingual classrooms, particularly when students speak several first languages, which would hamper mutual comprehension (Vaish, 2019). Moreover, translanguaging may be seen as a danger to language standardizing and question mainstream language ideas especially in educational institutions that stress homogeneity in language use (Creese & Blackledge, 2010).

Translanguaging, defined as the strategic use of learners' entire linguistic repertoire, has shown increasing relevance and promise in Indonesian EFL (English as a Foreign Language) classrooms. Research highlights its effectiveness in developing multilingual competencies (Rasman, 2018), improving comprehension of complex materials (Yolandana et al., 2024), and enhancing academic engagement and student self-perception. Recent research by Retnowaty (2025) further demonstrates how translanguaging enhances idea generation during prewriting activities by allowing students to effectively coordinate verbal and nonverbal modes to co-construct meaning and creatively convey concepts. In Indonesian classrooms, different types of translanguaging such as intra-sentential, inter-sentential, and tag translanguaging occur in more than one form and each is associated with particular teaching goals (Liando et al., 2023).

A number of educators in Indonesia consider the use of a student's first language (L1), more so Indonesian, to be an only option because of poor English skills. Even so, most students view translanguaging as a positive practice claiming it helps them comprehend their English lessons (Asra et al., 2024). This helps sustain the claim that translanguaging is useful in alleviating anxiety while promoting active participation and developing a meaningful relationship with the content.

The combination of some other issues which includes over dependence on L1, institutional constraints and ambiguity surrounding the concepts of translanguaging, makes it challenging. However, with all these factors under consideration, translanguaging is emerging as actually a robust pedagogical approach. Research indicates that despite such challenges, translanguaging improves the academic performance of bilingual students (López et al., 2017). To realize the benefits of transforming teaching and student achievement educators need to evaluate the use of translanguaging critically to consider its advantages alongside their students' linguistic profiles, skills, and learning requirements.

### *2.3. Translanguaging from students' perspectives*

Translanguaging is becoming more and more popular among teachers, hence knowledge of how students view and experience this method becomes more important.

Although teachers and language teachers have conducted most of the studies, an increasing emphasis is on learning about students' opinions on translanguaging.

Numerous studies exploring student engagement with translanguaging in the classroom reveal that most students perceive it as a valuable tool for boosting language acquisition and strengthening communication skills. Carstens (2016) underlined that, especially in terms of learning African language terminology, South African students felt translanguaging helpful for developing both their second language (L2) and primary language (L1). Similarly, Indonesian students found translanguaging helpful for understanding English lessons and engaging in conversations (Asra et al., 2024; Ningrum et al., 2023). A bilingual, or translanguaging, approach integrates several languages simultaneously in a manner that honours the different linguistic resources students possess (García and Lin, 2016). It promotes ease of communication and encourages students to participate in different interactions.

Raja et al. (2022) also reported positive experiences with teacher-controlled translanguaging. Positive experience with teacher-directed translanguaging is validated with Sweller's (2011) cognitive load theory. He posited that permitting students to verbalize their concepts in their stronger language alleviates cognitive strain, thus enhancing conceptual understanding. Makalela (2015) noted instructors employing multilingual descriptions resulted in significantly greater retention of concepts as compared to monolingual approaches. Lin (2019) noted decreased anxiety levels paired with increased participation when instructors used translanguaging strategies, with students reporting that they felt "visible" and appreciated for their linguistic identities. Cenoz and Gorter (2020) found students taught in a translanguaging context outperformed their peers taught in a monolingual context by 17% on metalinguistic tasks. Wei (2018) explained that translanguaging provides effective bridging between informal language and academic discourse. These scientific findings collectively explain why students generally respond positively to teacher-directed translanguaging, as their cognitive processes are better supported, their identities validated, and their learning efficiency enhanced.

Students have, meantime, also complained about issues translanguaging in the classroom. Speaking in their mother tongue in front of teachers or students causes a frequent fear of feeling guilty or condemned (García & Lin, 2016). Based on their 2017 study on the perceptions of Puerto Rican undergraduate students on classroom translanguaging, Rivera and Mazak (2017) noted that circumstance might alter attitudes. Furthermore, underscoring the challenges of its adoption and application, Serna-Bermejo and Lasagabaster (2022) found that occasionally teachers and students had different or even negative ideas on translanguaging strategies.

In the context of higher education, particularly among STEM students, recent studies suggest a generally positive reception of translanguaging. Students often report that translanguaging helps them understand lessons better, improve their second language (L2) skills, and boost their motivation (Krismanti, 2022). In English Medium Instruction

(EMI) settings, both teachers and students acknowledge the value of translanguaging for knowledge construction and the interpretation of scientific content, despite institutional policies promoting English-only instruction (Rahman & Singh, 2022). However, students in EMI STEM classrooms may simultaneously hold monolingual ideologies, which sometimes conflict with their use of translanguaging, creating a tension between their practice and the policies in place (Aitzhanova, 2020).

### **3. Method**

#### *3.1. Research design and participants*

This quantitative study, conducted in 2024, employed research methods to collect numerical data and draw inferences about a larger population (Antwi & Hamza, 2015). The sample comprised 61 male Indonesian mechanical engineering students from a private university in Balikpapan. All participants were fluent in Bahasa Indonesia and at least one foreign language, categorizing them as bilingual or multilingual. The age range of participants was between 20 and 42 years. They were enrolled in English II during their second semester, having previously completed English I. Notably, the majority of participants (31.1%) had studied English for more than ten years; however, they still reported their English proficiency as elementary.

#### *3.2. Data collection*

Data were collected using a web-based questionnaire administered through Google Forms. Participation in the survey was entirely voluntary, and no incentives or compensations were provided to the participants. To ensure confidentiality, no personally identifiable information was collected initially. Participants were only asked to provide their names and email addresses after completing the questionnaire. The questionnaire was designed in Indonesian to ensure participant comfort and comprehension.

The survey had two primary components. The first section of the questionnaires provided some demographic information including gender, age, languages, how many years one has been studying English, and how well they speak the English language. The second section is in the form of 24 close-ended questions that dwell specifically on the processes of Translanguaging taking the works of Moody et al. (2019) and Nambisan (2014) as a template. The questionnaire was directly adapted from these established studies, maintaining the validated structure and content reliability established in their original research contexts. This adaptation ensured that the instrument had already undergone rigorous development and validation processes, allowing for potential comparability of results across studies. Each of the items was evaluated by research participants using a Likert scale of 1 as 'strongly disagree' through to 4 as 'strongly agree'.

Students were briefed on the purpose and the scope of the Google Forms questionnaire even before they took it up. Their comments on the use of translanguaging in academics were guided on its use, recording, analysis, and use or integration in the work. Participants were informed that they did not have to continue where they were

allowed to discontinue the exercise at any time without any adverse outcomes if that was their preference to do so.

### 3.3. Data analysis

The survey's statistical data was analyzed using a trustworthy frequency and percentage distribution method. The mean was used to calculate descriptive statistics for analysis. This approach allowed for a clear representation of central tendencies in participant responses, providing an effective overview of translanguaging perceptions across the sample. The mean scores for each questionnaire item helped identify which aspects of translanguaging were most positively or negatively perceived by the participants, establishing a foundation for understanding the general patterns in the data that fulfilled the exploratory aims of this initial study in the Indonesian EFL context. Moreover, the overall attitude of the participants was calculated in relation to each statement and each question in the survey, creating a comprehensive statistical foundation for the analysis.

To add more detail of students' views, translanguaging was subdivided into two groups: the first group positive views and the second group negative views. This was done with the aim of improving evaluation because for the most part it improves the clarity of the general attitude towards translanguaging techniques. Table 1 contains criteria that enable one to interpret the mean values of the responses on the Likert scales. It is noted that for the mean score to indicate to one a positive perspective, it must be above 2.50. In other words, if it ranges less than 2.51, then it is regarded as negative.

**Table 1**

Mean scores criteria for interpretation.

Range	Interpretation	Perceptions
3.26 – 4.00	Strongly agree	Positive perceptions
2.51 – 3.25	Agree	Positive perceptions
1.76 – 2.50	Disagree	Negative perceptions
1.00 – 1.75	Strongly disagree	Negative perceptions

## 4. Findings and discussion

The results of the questionnaire, meant to investigate Indonesian mechanical engineering students' opinions about translanguaging, were reported in this part. The results were organized based on each survey item, with tables provided to display mean scores and frequency distributions for clarity and detail.

### 4.1. Student' perceptions on translanguaging

The results in table 2 showed that in bilingual engineering education, translanguaging was generally seen as a natural, suitable, and necessary technique. Strong student support for translanguaging as both a successful academic technique and a tool

for establishing an inclusive classroom atmosphere was shown by high mean scores for its part in language learning (Mean = 3.57) and promoting student relationships (Mean = 3.54).

On translanguaging as an indication of linguistic insufficiency, however, opinions on its effect on language proficiency were split (Mean = 2.97). Likewise, opinions on whether teachers should avoid translanguaging were divided (Mean = 2.38), with no clear agreement on whether restricting its usage would enhance language learning results.

**Table 2**

Student' perceptions on translanguaging.

No.	Statement	Strongly agree	Agree	Disagree	Strongly disagree	Mean
1	Translanguaging in class is a natural practice for bilinguals.	21	37	3	0	3.3
2	Translanguaging indicates a lack of linguistic proficiency in your foreign language.	13	35	11	2	2.97
3	Translanguaging in class is an appropriate practice.	33	24	4	0	3.54
4	Translanguaging is essential for learning a new language.	36	24	1	0	3.57
5	Translanguaging develops my confidence in English.	35	22	4	0	3.51
6	Translanguaging in class is fun and motivating.	30	29	2	0	3.46
7	Lecturers should avoid translanguaging because it will prevent foreign language learning.	10	19	16	16	2.38
8	If a lecturer used translanguaging in class, it would be helpful for bilingual students.	29	27	5	0	3.39

This study examined students' perceptions of translanguaging practices in the classroom through eight distinct statements, each evaluated using a Likert scale. Overall, the findings indicated a strong endorsement of translanguaging as a beneficial and integral component of language education. Specifically, the statement "Translanguaging is essential for learning a new language" received the highest mean score of 3.57, with 36 students strongly agreeing and 24 agreeing. This highlighted the perceived critical role of translanguaging in language acquisition. Similarly, "Translanguaging in class is an appropriate practice" (Mean = 3.54) and "Translanguaging develops my confidence in English" (Mean = 3.51) garnered substantial support, with 33 and 35 students strongly

agreeing, respectively. These results underscored the recognition of translanguaging as both suitable and confidence-enhancing within the educational context.

The perception of translanguaging as a natural and engaging practice was also evident in responses to "Translanguaging in class is a natural practice for bilinguals" (Mean = 3.3) and "Translanguaging in class is fun and motivating" (Mean = 3.46). Reflecting general acceptability and the good influence of translanguaging on the learning environment, 59 students found it interesting and inspiring; 58 students either strongly agreed or agreed that translanguaging was a natural practice. Additionally, the statement "If a lecturer used translanguaging in class, it would be helpful for bilingual students" achieved a mean score of 3.39, with 29 students strongly agreeing and 27 agreeing, indicating a strong belief in the instructional benefits of translanguaging for enhancing bilingual students' learning experiences.

Still, this investigation also exposed areas of ambivalence and conflict. With 48 students agreeing or strongly agreeing and 13 students opposing or strongly disagreeing, the mean score of "Translanguaging indicates a lack of linguistic proficiency in your foreign language" was 2.97. This suggested different opinions on whether translanguaging displayed inadequate foreign language proficiency. Moreover, the remark "Lecturers should avoid translanguaging because it will prevent foreign language learning" earned a slightly low mean score of 2.38, with approximately equal distribution of 29 students encouraging avoidance and 32 opposing it. This polarization exposed a lack of agreement on whether translanguaging should be restricted to maximize successful language acquisition.

Finally, the results revealed that bilingual students saw translanguaging as a normal, reasonable, and essential conduct that raised confidence and drive for language learning. Although most students agreed on its educational benefits and positive impact in the classroom, questions on its connection with language competency and teachers' different opinions on its avoidance underlined the necessity of additional research. These results showed that although translanguaging was generally seen as beneficial, complex issues required attention to maximize its application in settings of bilingual education.

#### 4.2. *Situational importance of translanguaging for lecturers*

Table 3 looked at the several ways teachers may use translanguaging. Every mean rating above 3.28, indicating great consistency across settings. Using translanguaging to "build bond/solidarity with students," got the highest mean score—3.54; using it "to joke with students," got the lowest mean score—3.28.

**Table 3**

Importance for lecturers to use translanguaging in specific situations.

Situations	Strongly agree	Agree	Disagree	Strongly disagree	Mean
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To explain concepts/English vocabulary/material in the field of engineering	30	29	2	0	3.46
To give directions/instructions	29	29	2	1	3.41
To give feedback to students	28	30	3	0	3.41
To praise students	27	28	5	1	3.33
To build bond/solidarity with students	34	26	1	0	3.54
To joke with students	25	30	4	2	3.28
To clarify activity/class rules	28	27	4	2	3.33
To help low proficiency students	31	25	3	2	3.39
To enable participation by lower proficient students	27	30	2	2	3.34

Table 3 showed strong support for translanguaging across various classroom environments in bilingual engineering education. English language usage, engineering knowledge acquisition, and translanguaging to explain concepts scored an average of 3.46, with 30 students strongly agreeing and 29 agreeing. This proved to be highly effective in elucidating complex technical subjects. Similarly, using translanguaging to provide directions or instructions and offering comments to students both yielded mean scores of 3.41, with 29 and 28 students respectively strongly agreeing. These statistics revealed that translanguaging was perceived as a practical approach for enhancing classroom responsiveness and communication.

With a mean score of 3.54, 34 students strongly agreed and 26 agreed, reflecting the highest level of support for using translanguaging to form bonds or solidarity with students. This emphasized the importance of translanguaging in fostering a welcoming and inclusive classroom environment. Compliments to students received a slightly lower mean score of 3.33, with 27 strongly agreeing, 28 agreeing, and 5 disapproving. This demonstrated some variation in its perceived effectiveness for positive reinforcement.

For clarifying activities or class rules and enabling participation by lower proficiency students, mean scores of 3.33 and 3.34 were recorded, respectively. These scores, supported by 28 and 27 students strongly agreeing, indicated widespread approval of translanguaging for ensuring understanding of rules and fostering inclusivity for students with limited English proficiency. Supporting low proficiency students received a mean score of 3.39, with 31 students strongly agreeing and 25 agreeing, reinforcing the value of translanguaging in meeting the needs of diverse learners. On the other hand, using translanguaging for joking with peers received the lowest mean score of 3.28, with 25 students strongly agreeing and 30 agreeing, while 6 students disagreed.

The findings highlighted the alleged efficiency of translanguaging in improving communication, increasing inclusiveness, and clarifying difficult technical concepts. The average scores ranged from 3.28 to 3.54, and the findings highlighted the effectiveness of all three of these areas. Particularly noteworthy is the fact that its most popular use, which is creating bonds or solidarity with students (mean score 3.54), highlighted the

significance of its role in fostering an environment in the classroom that is friendly and inclusive.

While delivering praises (mean score 3.33) and joking with classmates (mean score 3.28) received slightly lower scores, the overall favourable response revealed that translanguaging was an effective pedagogical strategy for strengthening classroom interactions and meeting the requirements of different students. These findings confirmed translanguaging's potential as a practical and inclusive technique for bilingual education, particularly in terms of improving comprehension, engagement, and creating a supportive learning environment.

#### 4.3. Student use of translanguaging in classroom contexts

Table 4 presented responses regarding the importance of students using translanguaging in specific classroom contexts. Mean scores ranged from 3.16 to 3.44, with the highest scores for "To discuss contents in small groups" and "To enable participation by lower proficient students" (Mean = 3.44). The lowest mean score was 3.16 for "To joke with peers," suggesting a more cautious approach to translanguaging in informal interactions.

**Table 4**

Importance for students to use translanguaging in specific contexts.

Contexts	Strongly agree	Agree	Disagree	Strongly disagree	Mean
To discuss contents in small groups	31	27	2	1	3.44
To provide assistance to peers	27	31	2	1	3.38
To brainstorm	28	31	1	1	3.41
To joke with peers	22	29	8	2	3.16
To enable participation by lower proficiency students	33	25	3	1	3.44
To answer lecturer's questions	30	27	3	1	3.41
To ask permission from lecturer	31	25	4	1	3.41

Table 4 aggregated students' perceptions of using translanguaging in various educational settings using mean values between 3.16 and 3.44. With highest mean scores of 3.44, "To discuss contents in small groups" and "To enable participation by lower proficiency students," clearly indicate tremendous support for translanguaging in cooperative and inclusive academic activities.

"To brainstorm" and "To respond to lecturer's inquiries" both had mean ratings of 3.41, indicating commendable attitudes towards the application of translanguaging in interactive and participatory learning contexts. The context "To provide assistance to

peers" had a mean score of 3.38, indicating a favorable evaluation of translanguaging for peer support. Conversely, "To joke with peers" had the lowest mean score of 3.16, implying a more cautious approach to its use in casual, social contacts.

Translanguaging was mostly supported as a way to boost academic engagement and classroom inclusivity. Its employment in social or non-academic settings elicited more varied replies, indicating a complicated view of its applicability in different circumstances.

#### **4. Discussion**

This paper explored how Indonesian mechanical engineering students feel about translanguaging in their English language courses. The findings revealed several insights that could impact how translanguaging may be integrated into engineering education. The findings also underscored an acceptance of translanguaging as a natural and helpful approach in bilingual engineering education.

Strong advocates of translanguaging in bilingual engineering education environments can be cited as reasoning behind parallel biographical engineering education in Table 3, Situation 1. The impact of English language usage, acquisition of engineering concepts, and translanguaging in the explanation of particular topics averaged 3.46, with 30 students strongly agreeing and 29 agreeing. The approach was successful at resolving complex technical subjects' textbook difficulties (Mejia et al., 2020). The results underscored the importance of explaining how enumerated translanguaging might approach engineering education claims on its effectiveness as a natural, supportive means. For instance, students would first bring up the concept in English, introducing the phrase in the standard technical language, and later in Indonesian to expound the meaning aimed at comprehension. Such as in oral discourse students would use "thermal conductivity" in English but define "konduktivitas termal" in Indonesian to explain the capacity of materials to transfer heat. And for "torque" it would be given in English but in the description of the calculation process would be "gaya puntir" in Indonesian. Shear force is most used in English but the explanation "gaya geser" in Indonesian describes better understanding and communication in class.

Most students strongly agreed or disapproved that translanguaging improved English learning, confidence, and motivation. These findings support Garcia and Wei (2014) and Canagarajah (2011) findings that integrating students' full linguistic resources improves teaching and promotes diversity in the classroom. By letting students swap languages, teachers fostered respect for their linguistic preferences and increased cognitive participation in courses.

Although a great majority of students remained positive, some expressed concerns about translanguaging as indicating lack of proficiency in English. This was a true depiction of the common mindset concerning bilingualism where being able to speak multiple languages is perceived as a disadvantage as opposed to a cognitive and educational asset. Despite challenges such as monolingual ideologies and language

policies, students and educators view translanguaging positively, seeing it as a tool for improving understanding and facilitating academic growth (Begum et al., 2024; Wang, 2020).

Essentially, permissive attitudes are extended in use to providing assistance to students who are linguistically weak along with explaining and commenting on difficult concepts and also developing a rapport with students. These results complemented the findings by Mazak and Herbas-Donoso (2015), who pointed out the role of purposeful translanguaging in encouraging students, simplifying complex topics, and establishing a conducive atmosphere for learning. Increased access to technology as well as reducing language barriers were responsible for the enhanced participation and understanding of students by the teachers.

As expressed by the study participants, translanguaging was less frequently endorsed in social contexts such as peer humour. Humour can sometimes be dependent on linguistic devices such as puns, cultural allusions and stereotypes which are not easy to explain in other languages (Attardo, 2017; Ahieieva, 2020). According to Velasco and García (2014), the provision of conducive humour which is acceptable for everyone, is able to culture them, is possible on the basis of carefully articulated principles of the use of translanguaging in such conditions. Both in professional and technical environments, it was stressed out that academic focus should be strong; casual use of varied languages may risk meeting the learning aims.

This study also strongly supports the utilization of translanguaging in cooperative contexts such as group discussions, assistance among peers as well as in brainstorming sessions. These findings were consistent with Seltzer's (2019) work, where it was indicated that translanguaging fosters self-constructed strategies which enhances group-based learning. The students, in turn, could explain tricky concepts more effectively in this type of environment, assist each other in deeper engagement with the subject, which led to enhanced scholarly achievement and improved relationships among classmates.

About the application of translanguaging in formal settings, especially in response to instructor queries or in need of justification, opinions were divided. Many students agreed on the main advantages even if some voiced uncertainty or disagreement. The several points of view highlight the need of clearly stating expectations and deliberately using translanguaging in official interactions. Clearly defining the translanguaging application criteria will help to guarantee that it supports academic goals and preserves the integrity of official academic discourse, therefore reducing any confusion.

These results underlined not only for present actions but also for various significant consequences and suggestions for next studies. Teachers first concentrated on the strategic use of translanguaging in areas where it would be most advantageous, like helping students with less language proficiency and clarifying difficult technical subjects. Professional development initiatives were meant to provide teachers with the tools to deliberately and adaptably use translanguaging ideas, hence maintaining their relevance in the particular dynamics and needs of different classrooms.

Dealing with the translanguaging-related shortcomings was also quite crucial. Encouragement of a strengths-based approach meant that multilingualism was seen as a good way to help students modify their opinions about translanguaging and future research examined the components generating these conflicting impressions, particularly in casual settings, to develop strategies maximizing the benefits of translanguaging while overcoming any challenges associated to specific situations.

Establishing ongoing feedback systems also helped teachers improve their translanguaging strategies so they stayed sensitive to student requirements and preferences. Studies on the long-term consequences of translanguaging on language competency and academic achievement provide a more thorough understanding of its general influence on bilingual education. These studies guided strategies and activities aiming at maximizing translanguaging's possibilities to improve learning results and inclusiveness in multilingual classrooms.

## **5. Conclusion**

This study indicated that translanguaging may assist Indonesian engineering education in surmounting language barriers. The majority of students believed that translanguaging was a natural, sensible, and essential approach that improved their language acquisition (Mean = 3.57) and their relationships with one another (Mean = 3.54). By embracing students' multilingual abilities, translanguaging enhanced their English skills, boosted academic success, and enriched their learning environments. It raised students' motivation and confidence, therefore fostering both intellectual and personal development. This survey also revealed divergent opinions on translanguaging as a sign of linguistic inadequacy (Mean = 2.97) and on whether teachers should refrain from it (Mean = 2.38).

Although translanguaging was generally acknowledged for its educational benefits and positive effects in the classroom, investigations on its link with language proficiency and different teacher opinions underlined the need for further research. Longitudinal studies that monitor the impact of translanguaging practices on the development of English proficiency over extended periods would yield valuable insights that surpass the existing cross-sectional understanding. Furthermore, comparative studies investigating the effectiveness of translanguaging across various academic disciplines—such as assessing whether engineering students experience different benefits compared to humanities students from multilingual approaches—would contribute to the development of more refined pedagogical frameworks. Investigating the intersection of translanguaging and digital learning environments within Indonesian contexts could also respond to the evolving educational demands in a progressively technology-mediated educational landscape.

These issues, while generally accepted, highlighted the necessity of addressing obstacles to enhance their implementation in bilingual education contexts. This study underscores the significance of systematic implementation and dedicated educators in

addressing misconceptions surrounding translanguaging within educational contexts. Positive student perceptions supported changes to the curriculum, suggesting that multilingualism could improve students' preparedness for global professional environments and the complexities of engineering challenges. The findings of this study suggest that leveraging linguistic diversity through translanguaging in academic settings has the potential to bridge linguistic gaps, enhance engineering education, and prepare students to face global challenges.

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