



ANALYSIS OF CODE-MIXING USAGE IN THE MECHANICAL ENGINEERING COMMUNITY: A SOCIOLINGUISTIC STUDY

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Abstract

This research aims to investigate code mixing that occurs in the mechanical engineering community. There are two main focuses in this research: the reasons that influence code mixing and the translation techniques used as well as the causes if code mixing is not possible in certain situations. This research method is a qualitative descriptive method with an interactional sociolinguistic approach. Data sources are WhatsApp social media conversation transcripts, post-hoc interviews, and discourse analysis. The research results show that code mixing is carried out by speakers against their interlocutors because they discuss certain topics and quote other people. Participants often use English terms in technical conversations because they are more common and specific than their Indonesian equivalents, so communication becomes smoother and more effective. Apart from that, the use of code mixing is also shaped by the norms and habits formed in a multilingual work environment. The translation methods used by participants are semantic and communicative. This study provides insight into linguistic dynamics within the mechanical engineering community and highlights the importance of understanding the social and linguistic factors that influence communication in professional contexts. This study did not analyze translation effectiveness in detail due to data limitations. Therefore, this research also suggests that the object of further research be expanded to include more translation techniques and more comprehensive discourse analysis

Keywords: code mixing, mechanical engineering, translation techniques

INTRODUCTION

In linguistics, code mixing is an interesting linguistic phenomenon. We can see people using one or more of two languages in everyday conversations. This linguistic diversity is called code by sociolinguistics experts, which is formed because of patterns related to social factors (Holmes & Wilson, 2022). Code mixing has a broader meaning than just using more than two languages but also indicates social membership, ethnicity, and group

membership in a particular culture (Syrov, 2021). One of the social members in question is the mechanical engineering community, where jargon related to mechanical engineering is intertwined in everyday conversation. This community has a character with a linguistic background, communication patterns and social dynamics that are suitable for investigating the phenomenon of code mixing in it. Mechanical engineering is a discipline within engineering. As stated by Kirck in

the book *Basic Engineering Science*, the general meaning of an engineer is someone who is able to solve problems. The profession of an engineer focuses on the application of knowledge, skills, and perspectives, in the creation of tools, structures, or processes used to convert a resource into a form needed by society (Richards, 2024). In this research, the technique referred to more specifically is mechanical engineering which focuses on maintenance or solving problems with a machine or process that requires repair.

LITERATURE REVIEW

Code mixing generally has close ties to the concept of Code Switching. The difference between the two lies in the size of the language unit. Code switching tends to occur in larger language units such as entire phrases or sentences, while code mixing tends to occur in smaller language units, namely in one lexical item such as a word or phrase (Sa'ida & Rahman, 2022). For example, "*Daya hisapnya kurang, apakah valve-nya bermasalah?*" ("There is not enough suction power, is there a problem with the valve?") This is an example of code mixing where valve is an engineering term in English which means a device used to control fluid flow (Singh, 2024).

The continuity between social members and linguistic behavior, which in this context is the mechanical engineering and code mixing communities as already mentioned, is the domain of sociolinguistic studies. Sociolinguistics studies the relationship between language and society. Sociolinguistics deals with why we speak in different ways in different social contexts and by identifying the social function of a language and how it is used to convey social meaning (Holmes & Wilson, 2022).

Despite the phenomenon of code mixing, there are some situations where code mixing cannot be used. This situation is caused, among other things, by the complexity and limitations of language. As

stated by Novianti, translation is needed in the target language in detail by the teacher for the students so that it is easy to understand. Translation is carried out to fill the language skills gap between teachers and students in the learning process (Novianti & Said, 2021). Novianti's research shows that translation occurs at the clause, sentence, or even word level (language complexity) and also occurs as a form of affirmation from teachers to students in the teaching process in order to avoid misunderstandings (language limitations). Other causes are cultural and contextual factors. In Siddiq's research, cultural norms and multilingual habits of Indonesian society influence teachers' decisions to use translation (cultural factors) and practical reasons related to the complexity of teaching, curriculum and student abilities (contextual) (Siddiq et al., 2020).

The latest research as a comparison is research by Farahsani (2023) analyzing methods for translating mechanical engineering terms from English to Indonesian. Farahsani's research concluded that mechanical engineering terms were translated using three translation methods, namely literal, faithful and semantic translation methods (Farahsani et al., 2023). The similarity between those studies and current study in this article is the focus on code-mixing; however, they differ in terms of research subjects. Their study focuses on EFL classes, while this study focuses on the mechanical engineering community. From this comparison, this research intends to discuss the factors that influence code mixing in the mechanical engineering community.

This research focuses on the phenomenon of code mixing only because it examines English mechanical engineering terms used in Indonesian conversations. Apart from that, this research also aims to discuss what factors make code mixing used and discuss what translation techniques to use as in

Farahsani's research if code mixing cannot be applied in certain situations.

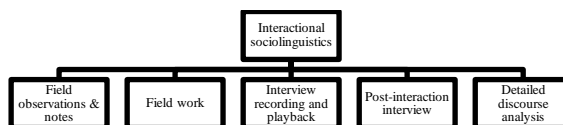
METHOD

This research uses qualitative methods to examine the use of code mixing and translation techniques when code mixing cannot be used along with the factors that influence it. A qualitative approach was chosen because this method can help research to understand social phenomena in depth through analysis and interpretation of data obtained from various sources, such as interviews, documents, direct observation and linguistic field notes (language utterances spoken by people in the community mechanical engineering). Qualitative researchers usually spend time in the field collecting information through in-depth interviews, direct observation, historical documents, and so on (Cyr & Goodman, 2024).

Observations were made at a shoe manufacturing company in the city of Subang, West Java, Indonesia, where there is a local mechanical engineering community who is responsible for maintaining and analyzing damage to manufacturing machines. There are 3 participants who will contribute to the research. All participants are able to speak Indonesian and have at least 5 years of professional experience in the field of mechanical engineering. All participants can be categorized as practitioners and academics.

The research data was processed using an Interactional Sociolinguistic discourse study approach which facilitates a more comprehensive interpretation and explanation of the construction of meaning and interactional behavior. Gumperz argues that the application of an Interactional Sociolinguistics approach to studies in the field of language improves understanding of what is contained in verbal communication (Toomaneejinda &

Saengboon, 2021). The following chart illustrates the keys to IS research methods.



In accordance with the Interactional Sociolinguistic observation method, some research methods within the Interactional Sociolinguistic framework will be used. Observations will be made of speakers during ongoing interactions in the form of recorded text chat history in the *WhatsApp* application. Text recordings contain a history of conversations within a group containing matters related to the machine. These things include machine repair requests by machine operators and post-machine repair reporting by technicians. Participants will then be interviewed, followed by a detailed linguistic transcription. A sociolinguistic discourse analysis will be conducted afterward

RESULTS AND DISCUSSION

Before discussing the reasons that might influence code mixing, it is important to classify the types of code mixing found in discourse analysis. Based on Muysken's theory, code mixing can be categorized into three main types: *insertion*, *alternation*, and *congruent lexicalization*. (Hutriani, 2019). This classification helps in understanding code mixing patterns that occur in the mechanical engineering community and provides a more structured analytical framework.

In analyzing the factors that influence code mixing, Hoffman's theory is an important reference. Hoffman identifies several primary motivations for code mixing (Diyanty & Heriansyah, 2021). This theory helps understand why participants tend to use code mixing in technical discussions, making it a valuable analytical tool in this research.

Talking about certain topics

Limited vocabulary skill makes individuals prefer to use code mixing when conveying their opinions, because it helps clarify the content of the conversation to the person they are talking to. Hoffman's theory states that an individual uses code mixing to discuss certain topics (Diyanty & Heriansyah, 2021).

Participants often used English terms in *WhatsApp conversations* because they felt these terms were more common, available and specific compared to their Indonesian equivalents. So that in this way participants feel that the other person understands better and there is smoother communication without further explanation. For example, in a conversation fragment, the participant said:

A: "Licensed untuk 3 mesin udah dikirim sama vendor, siang ini saya update ya."

B: "Iya pak makasih."

A: "The license for 3 machines has been sent by the vendor, I will update this afternoon."

B: "Yes sir, thank you."

This example is insertion type code mixing because it only contains foreign lexical item "licensed" in one sentence. Regardless of the grammatical error in the word "licensed" which should be "license key", the recipient can still understand it by an affirmation. This observation was supported by post-event interviews in which interviewee explained. "Team members (people who operate the machine) definitely understand what it means."

This statement highlights that the use of terms in English is not just about language convenience but also reflects the existence of norms that have been formed to discuss a particular topic that is understood by both parties. Here's another example:

A: "Mesin 9 sudh 2 head lagi"

A: "Machine 9 is now running 2 heads"

The example still demonstrates insertion-type code-mixing. The word "head" here refers to a part of the cutting machine. This sentence indicates that there was a previous problem with one of the cutting heads and informs the recipient that repairs have been completed on both cutting heads and the machine can return to operate.

The results of the interview revealed that speakers think that using the word "kepala potong" (cutting head) was too long, by meaning that it contains too many syllables: *ke-pa-la po-tong* (5 syllables), while the word "head" has 1 syllable. Apart from efficiency, speakers also express doubts that if using terms in Indonesian will confuse the person they are talking to.

Code mixing can be an efficient way to communicate, especially when there is a need to clarify the content of a conversation or when using certain words or phrases is more effective in conveying the intended meaning. According to Keller, it is explained that code mixing can increase speaking fluency and provide higher communication effectiveness in certain contexts. This is also supported by a study by Ehinger and Lattey which shows that code switching can improve speaking fluency (Keller, 2020).

Quoting others

Code mixing can be influenced by social and cultural factors. For example, Holmes states that when a speaker tries to explain something but the listener does not understand what he means, the speaker may use a mixture of languages to make their point clear. This happens because the speaker wants to ensure that the message conveyed can be understood by the listener (Diyanty & Heriansyah, 2021).

D: "Tachimetri jgn dimatiin"

E: "Iya pak."

D: " Don't turn off the tachimetry "

E: "Yes sir."

In this example, “*tachimetri*” refers to the tachometer feature available on the machine. This is also an example of the use of lexical type code mixing same as the previous examples. Based on the results of the interview, the speaker used this term because during the initial training when the machine first arrived, this feature was introduced by the machine vendor as “*tachimetri*”, even though in Indonesian there is an equivalent word, which is “*takometer*”. In accordance with Holmes' theory, code mixing can occur when a speaker quotes someone else's words (Hutriani, 2019). Therefore, quoting terms from vendors can be categorized as an influence from the use of terms by other people.

Translation techniques

Although the base language may have limited equivalent words, speakers should avoid code-switching for several reasons: listeners' habits or backgrounds that are unfamiliar with other languages, a lack of understanding of the other languages used, communication goals that require clarity in a single language, and the use of popular terms without suitable equivalents in other languages (Winoto & Ariawan, 2022). These factors indicate that code-switching may not always be effective in every communication context, thus necessitating specific translation techniques.

In analyzing translation techniques, this research uses Newmark's theory which explains various translation methods. This theory provides a foundation for understanding how participants translate technical terms in the context of the mechanical engineering community, ensuring that the meaning and nuances of the source language are appropriately preserved in the target language. Participants were asked to translate sentences that appeared in the *WhatsApp group chat history* where there was code mixing. The translation results are then

analyzed and categorized according to relevant translation technique theories.

Semantic translation reflects the form of the source language (SL) along with the original context and culture of the target language (TL). Semantic translation focuses on finding equivalents at the word level while maintaining continuity with SL culture. This method aims to transfer the contextual meaning of the SL with the structure and syntax closest to the SL. In contrast to accurate translation, semantic translation must consider the aesthetic component of the SL text at the expense of meaning within reasonable limits (Farahsani et al., 2023). Here is an example demonstrating semantic translation.

First example:

SL: “*Konfirmasi lagi. Yang **trial** mau kondisinya gimana? Apakah pakai **pattern** file yg udah di modif VT? Komponen apa aja?*”

TL: “*Konfirmasi lagi. **Uji coba** mau kondisinya bagaimana? Apakah pakai file **pola** yang sudah dimodifikasi VT? Komponen apa saja?*”

(Please confirm. What conditions do you want for the trial? Will you use the pattern file modified by VT? What components?)

In this example, there is the original phrase “*trial*” is a term borrowed from English which is used in the Indonesian context to refer to the trial or trial phase. Translation: “*Uji coba*” is a direct and clear Indonesian term for “*trial*” or “*test*”. This translation maintains the meaning and context of the trial, making it easier to understand and formal in Indonesian. Another phrase: “*pattern file*” is also a borrowed English term and refers to a specific type of file used in the trial. The translation: “*file pola*” is a direct translation into Indonesian. This maintains the meaning associated with specific file types while making it more suitable for Indonesian readers.

Second example:

SL: “Lagi di cek sama *engineering*”

TL: “Mesin sedang diperiksa oleh *mekanik*”

(The machine is being checked by the technicians)

In this example, source text (SL) and target text (TL), there is an interesting word choice in the translation process. In the source text, the word "engineering" literally means "rekayasa" in Indonesian. However, in this context, "engineering" refers to the department or individuals working in the engineering department. The translator chose to use the word "mekanik" in the target text, which means "mechanic" or "technician."

This choice reflects the communicative translation method, which aims to convey the contextual meaning of the source text in a way that is acceptable and understandable to target language readers. In this case, although "engineering" may be understood by some local communities, the word "mekanik" is more general and direct in describing individuals who perform such technical work. The communicative method prioritizes clear and precise understanding by the target reader (Farahsani et al., 2023).

CONCLUSIONS

This research shows that the use of code mixing in the mechanical engineering community is caused by several reasons, namely discussing certain topics and quoting other people. Code mixing facilitates more effective and efficient communication among community members, especially when using technical terms that are more familiar in English compared to their Indonesian equivalents. The use of code mixing is influenced by the norms and habits formed in a multilingual work environment.

For future research, it is recommended that the research object be expanded so that it can include more translation techniques that might be used by participants. In addition, discourse analysis involving pauses or other cues in conversation should be included to better align with Interactional Sociolinguistics research methods. In this way, research will be more comprehensive and able to provide a deeper understanding of the dynamics of the use of code mixing in a broader communication context.

REFERENCES

- Cyr, J., & Goodman, S. W. (Eds.). (2024). *Doing Good Qualitative Research*. Oxford University Press New York. <https://doi.org/10.1093/oso/9780197633137.001.0001>
- Diyanty, P., & Heriansyah, H. (2021). Code Mixing: Why Do English Teachers Use It in the Classroom. *Research in English and Education (READ)*, 6(4), 180–188.
- Farahsani, Y., Harmanto, M. D., & Nimashita, H. (2023). Translation Method in Translating Mechanical Engineering Terms from English to Indonesian. *Proceedings of the International Seminar on Language, Education, and Culture (ISoLEC)*. https://doi.org/10.2991/978-2-38476-038-1_45
- Holmes, J., & Wilson, N. (2022). *An Introduction to Sociolinguistics*. Routledge. <https://doi.org/10.4324/9780367821852>
- Hutriani, M. F. (2019). *INDONESIAN-ENGLISH CODE MIXING USED BY THE PRESENTERS OF BREAK OUT MUSIC PROGRAM*. Universitas Andalas.
- Novianti, R., & Said, M. (2021). THE USE OF CODE-SWITCHING AND CODE-MIXING IN ENGLISH TEACHING-LEARNING PROCESS. *DEIKSIS*, 13(1), 82–92.
- Richards, D. E. (2024). *Basic engineering science*. LibreTexts.

- Sa'ida, R. S., & Rahman, Y. (2022). ALIH KODE DAN CAMPUR KODE PADA FILM WHO AM I - KEIN SYSTEM IST SICHER. *E-Journal Identitaet*, 11.
- Siddiq, R. A., Kustati, M., & Yustina, L. S. (2020). Teachers' Code Mixing and Code Switching: Insights on Language Barriers in EFL Classroom. *Al-Ta Lim Journal*, 27(1), 80–91.
<https://doi.org/10.15548/jt.v27i1.606>
- Singh, D. K. (2024). *Dictionary of Mechanical Engineering*. Springer Nature Singapore.
<https://doi.org/10.1007/978-981-99-1722-8>
- Syrov, D. (Ed.). (2021). *Discourses on Nations and Identities*. De Gruyter.
<https://doi.org/10.1515/9783110642018>
- Toomaneejinda, A., & Saengboon, S. (2021). Interactional Sociolinguistics: The Theoretical Framework and Methodological Approach to ELF Interaction Research. *LEARN Journal: Language Education and Acquisition Research Network*.
- Winoto, S., & Ariawan, V. A. N. (2022). ANALISIS CAMPUR KODE DALAM PEMBELAJARAN DARING SISWA SEKOLAH DASAR. *COLLASE*, 5(1).