Challenges in the Use and Understanding of English Technical Jargon Among Malay Architecture Undergraduates in Malaysia

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Abstract

The ability to use and especially understand technical language is crucial to increase one's understanding and command over any field of study, especially in the current era where graduates are expected to become adept not only in technical skills, but also in communication skills to adjust to rapid changes in the industry. However, few studies have been conducted on the challenges faced especially by architecture students in understanding English technical jargon in their field, even though past research has highlighted this issue in the local context before. Hence, a quantitative study was conducted to explore the level of understanding, use and challenges faced by tertiary architectural students pertaining to architectural jargon in their studies. A questionnaire adapted from sources of past literature was used to answer the research questions. Data was collected from 117 Malay architectural students in Malaysia and analysed to produce descriptive findings of the results. Interestingly, the results showed that the students tended to understand technical jargon, however, the challenges they faced were in knowing how to use the terms correctly, which points to issues not in receptivity, but in production. Giving examples, explaining the correct ways to use the terms and providing opportunities for them to continuously use the terms were among the suggestions that the students gave to further improve the teaching of technical classes in university. Thus, the findings provide a good basis for universities and lecturers especially to further improve the language ability, especially in technical jargon usage, among Malay undergraduate architecture students in Malaysia.

Keywords: *Architecture students; English language; architecture jargon; communication; tertiary education*

Background

In technical fields, such as in architecture, engineering, science, medicine and pharmacy, the use of jargon is prevalent. The ability to use and especially understand technical language is crucial to increase one's understanding and command over the field, especially in the current era where graduates are expected to become adept not only in technical skills, but also in communication skills to adjust to rapid changes in the industry. Woodward-Kron (2008) highlighted that specialist language or jargon is "intrinsic to students' learning of disciplinary knowledge" and to "make meaning and engage in disciplinary knowledge" (p. 246). Laufer (1992) also highlighted that learners who recognise more than 95% of words in a text are 55% and above

more likely to reach a reasonable comprehension of that text, which subsequently influences their ability to understand lectures, papers and textbooks as well as to understand the relation between specialist words. This shows the inescapable need for students to understand and learn jargon in technical fields, especially in tertiary education.

On top of that, according to Waldeck et al. (2012), workplaces are becoming increasingly cross-functional in nature, where communicators (such as those positioned in marketing and sales) need to have a degree of technical knowledge, whereas those in technical fields (such as engineers, programmers and designers) need to possess adequate communication and social skills to interact with others. This has also been supported by researchers such as Salleh, Md Yusof and Memon (2016), which points to the need for graduates to not only understand technical jargon, but to also be able to explain it and communicate it well.

Problem Statement

In order to manage architectural projects, which requires both competence in designing and in working with teams, there exists a high demand for architecture graduates and professionals who are equipped with the right skills and attributes (Salleh, Md Yusof, & Memon, 2016). This encompasses not only the planning, designing and modelling of projects, but also the writing of contracts, leadership of professionals, and negotiating among others. However, research in the past has seemed to focus mainly on the development of creativity among architecture students (Taneri & Dogan, 2021; Davidsen, Ryberg & Bernhard, 2020; Doheim & Yusof, 2020; Teresa, Pereira, & Icart, 2019), and very few studies have examined the ability of graduates to learn and understand their field through technical jargon.

Previous literature has explored the role of learning technical vocabulary, particularly in areas such as medicine and engineering. According to Chung and Nation (2003), much research has also focused on examining high frequency and academic words, yet less focus has been placed on the study of technical vocabulary. Specifically, there seems to be very few studies conducted on examining the learning strategies of students in learning technical vocabulary.

Objectives

Thus, this paper seeks to bridge this gap by conducting a quantitative study to explore the potential challenges in using and understanding English technical jargon by examining the perspectives of Malay architecture undergraduates in Malaysia. The following research questions were thus developed to achieve this objective:

RQ1: What are the challenges faced by architectural students in understanding English technical jargon in their field?

RQ2: What strategies have been adopted by architectural students to overcome challenges in understanding technical jargon in their field?

RQ3: What strategies can be adopted by instructors to effectively demonstrate and teach English technical jargon in the field?

Literature Review

There have been, in the past, several studies conducted which looked into the communicative needs of architecture students. For instance, S.Perinpasingam, Arumugam and Thayalan (2015) conducted a study among trainee architects in Malaysia to uncover their English language needs at the workplace and found that almost all their respondents (87.5% out of 50 trainee architects) believed speaking skill to be the most important skill, followed by listening, reading, writing, and grammar. However, the main issue the respondents faced was in their lack of confidence in speaking, especially in using persuasive language skills to sell their ideas related to the models that they have developed. This relates to the point made earlier by Waldeck et al. (2012), where there is an importance for technical graduates to be able to communicate their ideas well.

Later on, another study was conducted in Malaysia by Nik Mohammad, Abu Samah, and Muhammad (2018) which explored the communicative capability challenges of architectural undergraduates. This qualitative study was conducted through written interviews where the respondents were asked to share their views on the problems they face in using English, what they expected their English classes to be like, and their own efforts to improve their English skills.

The findings from the studies of S.Perinpasingam, Arumugam and Thayalan (2015) and Nik Mohammad, Abu Samah, and Muhammad (2018) especially point to the need to improve speaking skills, whereby lack of vocabulary seemed to be the prominent issue that the undergraduates faced, as well as lack of confidence, which pointed to the need for vocabulary enhancement. However, in exploring technical proficiency and vocabulary learning strategies, little has been explored in the context of architecture students, whether locally or overseas. However, several studies have been conducted in other fields, which serve as a relevant reference point for conducting this study.

A study conducted by Wanpen, Sonkoontod and Nonkukhetkhong (2013) looked at the technical vocabulary proficiencies and vocabulary learning strategies of engineering students in Thailand. The study, which sampled 47 undergraduate engineering students, utilised a Technical Vocabulary Learning Strategies (TVLSs) questionnaire that was adapted from Schmitt's (1997) vocabulary learning strategies. Among the strategies

used by the respondents were using English language media, skipping or passing a new word, testing oneself with word tests, and continuing to study words over time.

The use of English language media to improve vocabulary learning was also studied by Rusanganwa (2013) through two parallel quasi-experimental research in the context of Rwanda. The study was conducted among 63 students of physics and applied mathematics who were taught vocabulary through two methods, which were by (1) a traditional explanation and definition of the terms, and (2) a multimedia programme that projected words on the screen where students needed to give their views and meaning of the word or identify and pronounce the word. The study found that the multimedia group outperformed those in the traditional group in the final test, which shows the potential of using multimedia as a learning tool for vocabulary learning.

One pilot study that attempted to translate medical documents into plain language to enhance communication skills was conducted by Bittner et al. (2015). The study, which was conducted in Germany among 27 undergraduate medical students, involved participating in a new course that was designed to improve patient-centered communication using simple language, followed by a self-evaluation questionnaire. The results showed significant pre-post course improvements in the students' "ability to explain the meaning of a medical report in plain language" and "jump back and forth between medical terminology and plain language" (p. 1140).

From the review of the literature above, it points to a dearth in the literature, which calls for further examination and studies to be done, especially in the study of understanding technical language, particularly among learners of a second language such as in Malaysia.

Theoretical Framework

An interesting theoretical thinking that has been explored by numerous scholars is the phenomenographic tradition, where studies in education can be conducted by examining the relation between the subject (in this case the student) with his/her world in terms of their conceptions of the world. One very interesting study done in this field was conducted by Svensson et al. (2009) which theoretically examined the use of language in understanding a subject matter. They found that with regards to students' conceptualisation of the world in developing knowledge, the use of language is especially of importance. A point was made by them whereby the meaning of expressions that students use to express their understanding of a subject matter often does not correspond to the meaning of the expression in the subject matter that the students are trying to learn.

This theoretical way of examining language use in improving understanding is especially interesting in the context of studying English technical jargon among students in Malaysia, where English is considered as a

second (if not foreign) language. As lecturers that teach Malay undergraduate architecture students using English as the medium, in our own observation of students in the classroom, many would switch between English and Bahasa Malaysia to discuss terms and concepts based on their own understanding of the world around them, yet little research seems to have explored this phenomenon for when students learn technical jargon. This study therefore adopts this framework and seeks to uncover not just the challenges that students face when learning technical jargon, but their own strategies to overcome the lack of understanding, especially in the current context of online and distance learning (ODL) due to the COVID-19 pandemic.

Methodology

To recap, therefore, the main purpose of this study is to explore the potential challenges in using and understanding English technical jargon among Malay architecture undergraduates in Malaysia. The quantitative approach was adopted to answer the research questions that were developed for this study. Through this process, its aim is to explore the challenges faced by architectural students in understanding English technical jargon in the field. The study was conducted via an online survey that was administered to undergraduate architecture students from two branches of a public university in Malaysia within the Faculty of Architecture, Planning and Surveying. The survey consisted of 14 questions that were subdivided into four sections to gather information relating to the respondents' demographic profile, use of language, challenges faced in using and understanding English architectural terms and lecturers' roles in teaching architectural terms. The questions were partially generated based on the qualitative findings that were reported by Nik Mohammad, Abu Samah, and Muhammad (2018) that explored the communicative capability challenges of architectural students.

In total, 117 responses were obtained, all answered by Malay undergraduate architecture students who comprised the biggest race in the university. From the total, 60 students were male and 57 were female. To note, the field of architecture in this university is a four-year programme that comprises eight semesters. The table below thus shows the breakdown of respondents by semester.

Table 1. Breakdown of Respondents by Semester

Semester 1	13 respondents (11.1%)
Semester 2	5 respondents (4.3%)
Semester 3	31 respondents (26.5%)
Semester 4	21 respondents (17.9%)

Semester 5	19 respondents (16.2%)
Semester 6	8 respondents (6.8%)
Semester 7	13 respondents (11.1%)
Semester 8	7 respondents (6%)

Based on Table 1, for the purpose of analysing the results, the students were segregated into two main clusters, where 59.8% (n = 70) were from semesters 1-4, while the remaining 40.4% (n =47) represent those from semesters 5-8. The reason behind this segregation was to determine whether there exist stark differences between the students' experiences in the understanding and use of English architectural terms in their studies based on the amount of time they have been exposed to the context of architectural studies to explore differences in these two phenomena.

Findings

The first question that was asked relates to the choice of language when conducting group discussions in class. This was to firstly gauge whether the students felt comfortable conversing in English, or if they preferred to use their native language (Bahasa Malaysia) when conducting discussions in their respective groups. The results are as given in Figure 1 below.
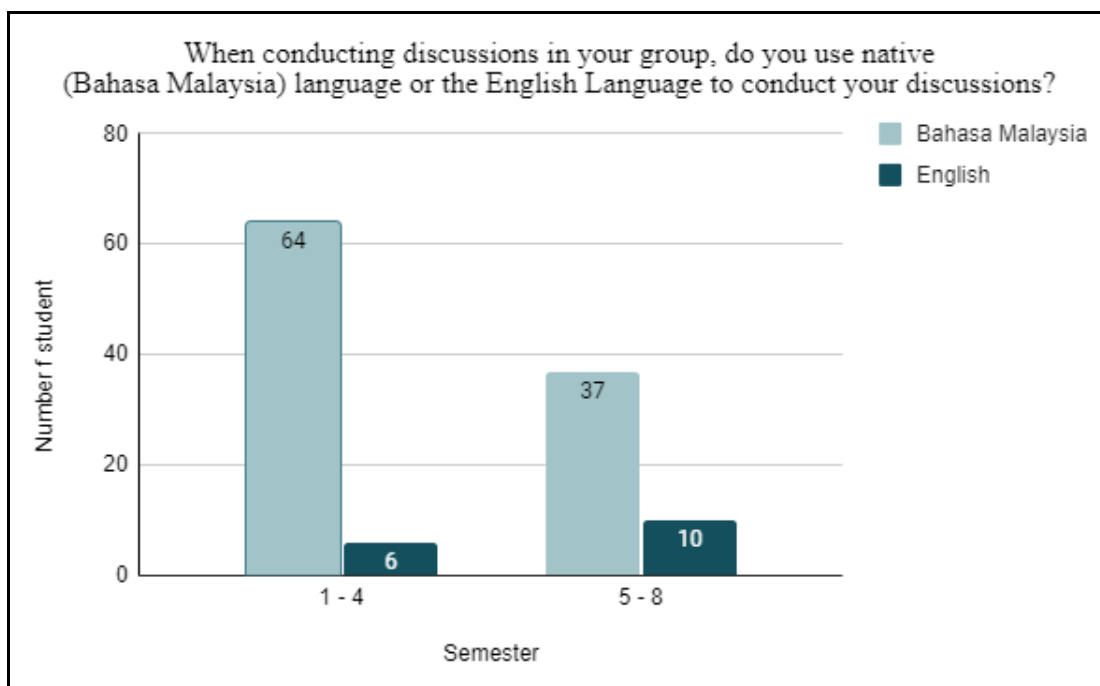

Figure 1. Use of language in discussions

As expected, the results show that the main choice of language for the students when they conduct discussions among peers for their classes was to use their native language. As can be seen in the above bar chart, 64 out of 70 respondents from Semesters 1-4 answered that they used their native language (Bahasa Malaysia) compared to using English. The same goes to the upper semester respondents which are from Semesters 5-8. A similar pattern was observed, where the majority of the respondents from this second category answered that they also mainly used Bahasa Malaysia during discussions (n=37) compared to English. This shows that the architectural students that answered this survey mostly use their native language (Bahasa Malaysia) in their discussions regardless of whether they are from the lower semesters or upper semesters.

Next, we were curious to know whether the students used English architectural terms during their discussions, or whether they would explain the terms in their native language when conducting the discussions, the results of which are given in Figure 2 below:
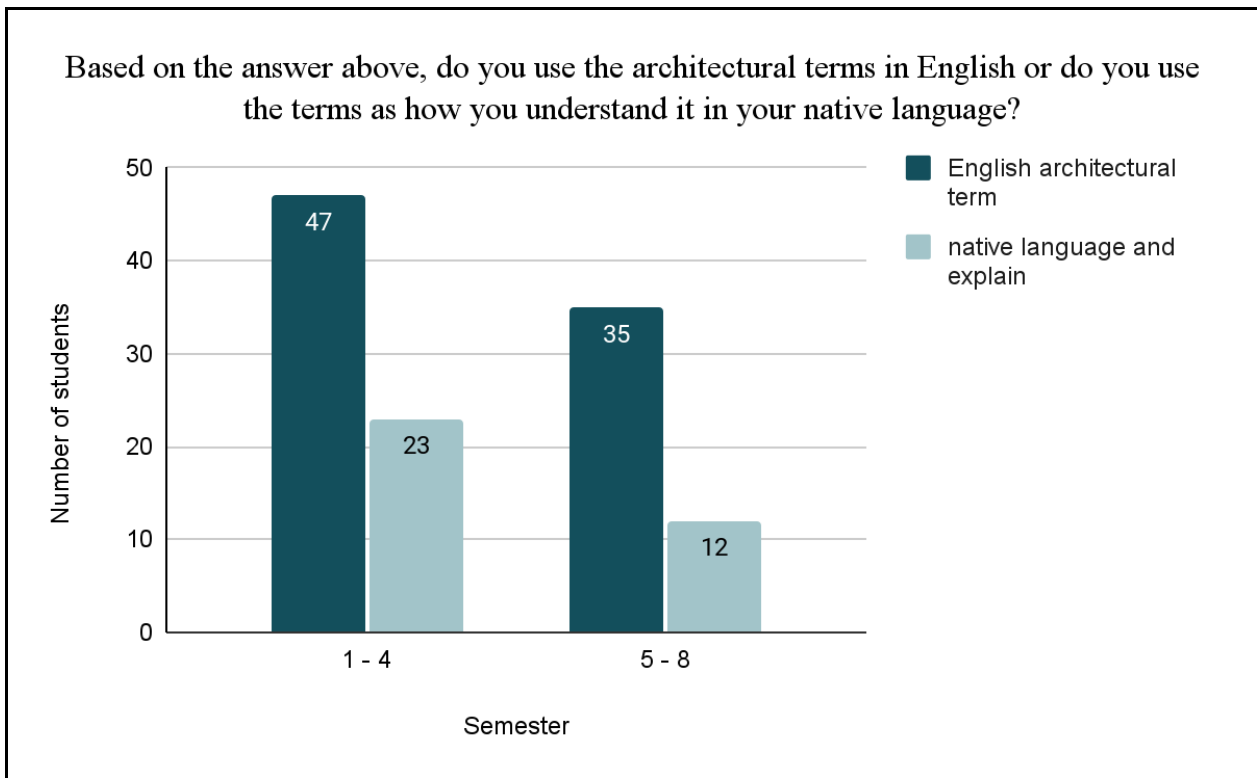

Figure 2. Language choice in use of architectural terms

This second question, which is a continuity question from question 1, reflects the prevalent usage of the English architectural terms in their discussion. Even though the students said they tend to hold discussions in their native language, most used the actual English architectural terms in their discussion. As shown in Figure 2, 47 out of 70 lower semester respondents preferred to use English architectural terms. As for the upper semester students, they showed a similar pattern where 35 out of 47 students used English architectural terms in their discussion.

Following this, we then asked the students whether, in their opinion, they had used the terms correctly or not, the results of which are given in Figure 3 below.

When delivering presentations in design studio sessions, in your opinion, do you use all English architectural terms correctly?
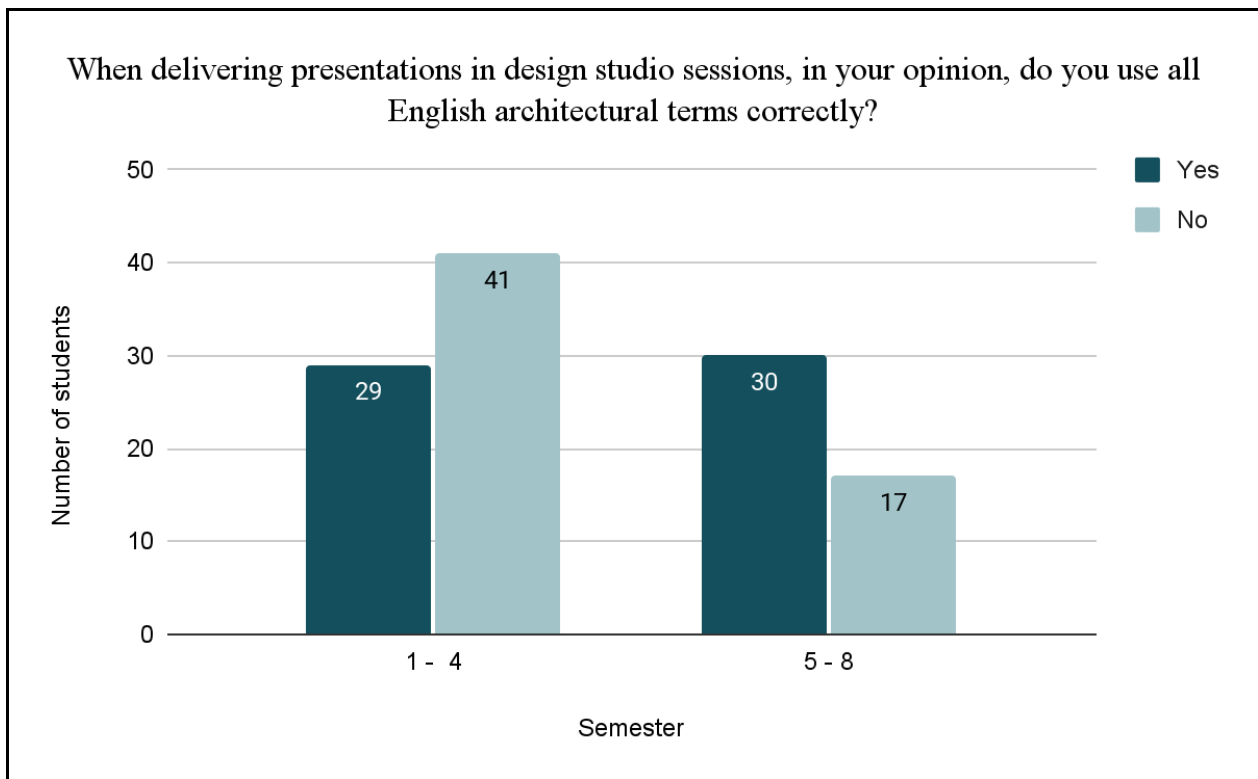
Figure 3. Perception on correctness of use of term

To contextualise this question, normally, students would be assigned an assessment to test whether they understand the knowledge that they have received. This thus enabled them to have an idea of whether their general understanding is correct regarding a subject matter. Thus, Figure 3 shows the data of students' own opinions on the accuracy of terms used when they are required to conduct a class presentation. The graph shows the different results of lower semester and upper semester students as compared to Figures 1 and 2. With reference to Figure 3, 41 out of 70 of the lower semester students answered "No", which is higher than the number of students who answered that they were confident they had used the terms correctly. On the other hand, there were different results for the upper semester students. The graph shows that for upper semester respondents (n=47), 30 (or 62.5%) answered "Yes" as they are confident that the words that they used were correct. This number, encouragingly, is higher than the number of students who answered "No" (n=17), which shows that as the students progressed in their studies, they became more confident in the accuracy of their use of English technical terms in their presentations.

The next question sought to explore whether the students found it challenging to understand English architectural terms, the results of which are given in Figure 4 below:
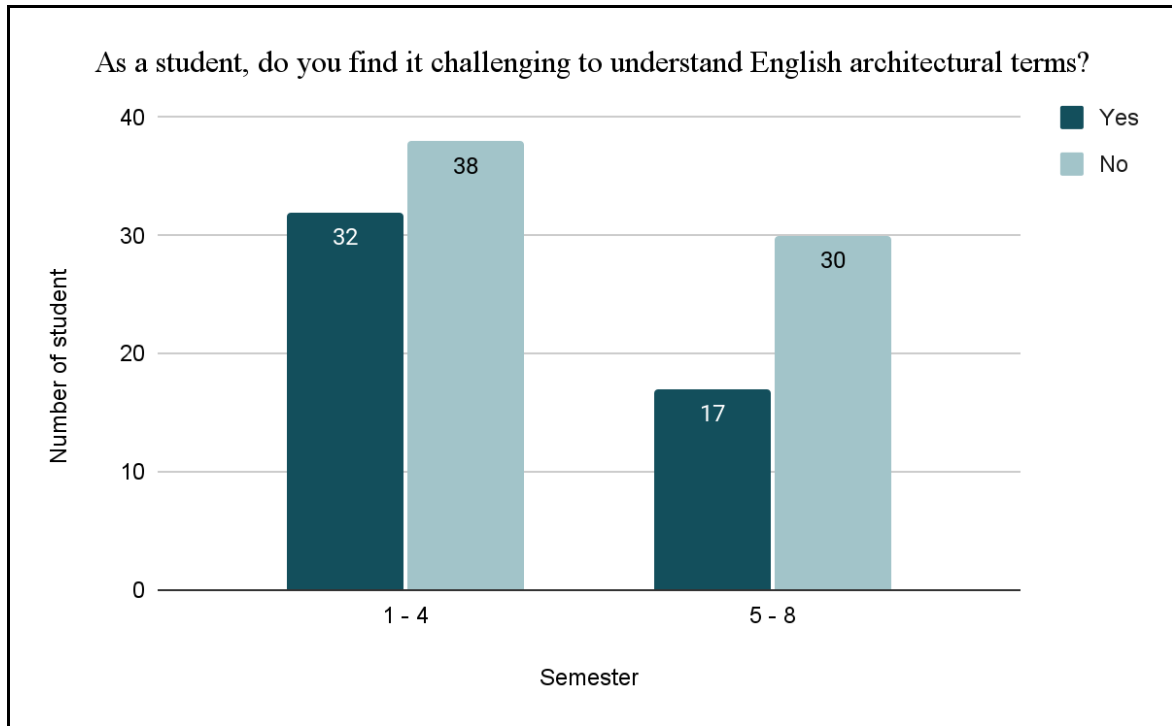
Figure 4. Challenge in understanding English architectural terms

Figure 4 shows that both categories of students agreed that they do not find it challenging to understand English architectural terms. However, the percentage of lower semester students (n=70) who said "No" was 54.3% compared with 45.7% who said "Yes". This shows that while there were many more who did not find it challenging to understand the terms, the difference was not that significant. In contrast, the percentage of upper semester students (n=47) who said "No" was 63.8% compared with 36.2% that said "Yes". This means that again, as students progressed further in their studies, it seemed as though fewer students continued to find understanding English architectural terms to be a challenge.

For those who answered "Yes" to the above question, we then asked them to elaborate in their own words the specific reasons that made it challenging for them to understand the English architectural terms. Forty-two responses were obtained for this open-ended question, which were classified via simple thematic analysis as presented in the following table.

Table 2. Common challenges to understand English architectural terms for Semester 1-4 students

Common Challenges for Semester 1-4 Students
1. Poor command of the English language.   2. Architectural terms are not used by "normal" people.   3. Unable to explain terms in my own words/understanding.   4. Not understanding the meaning of terms.   5. Large number of new terms to learn and remember.
Common Challenges for Semester 5-8 Students
1. Explanations are difficult to understand.   2. Some words are not commonly used.   3. Some words have double meaning (or different meanings in Bahasa).

From Table 2, it can be observed that the challenges faced by those in Semesters 1-4 vary slightly from the challenges faced by students in Semesters 5-8. For the older students, they seemed to have a better grasp of the complexity of the terms and are able to notice that some terms have different meanings, or that different words also carry different meanings in Bahasa Malaysia. Also, they generally point to challenges in recognising uncommon technical terms. Hence, the following question was asked, the results of which are given in Figure 5 below:
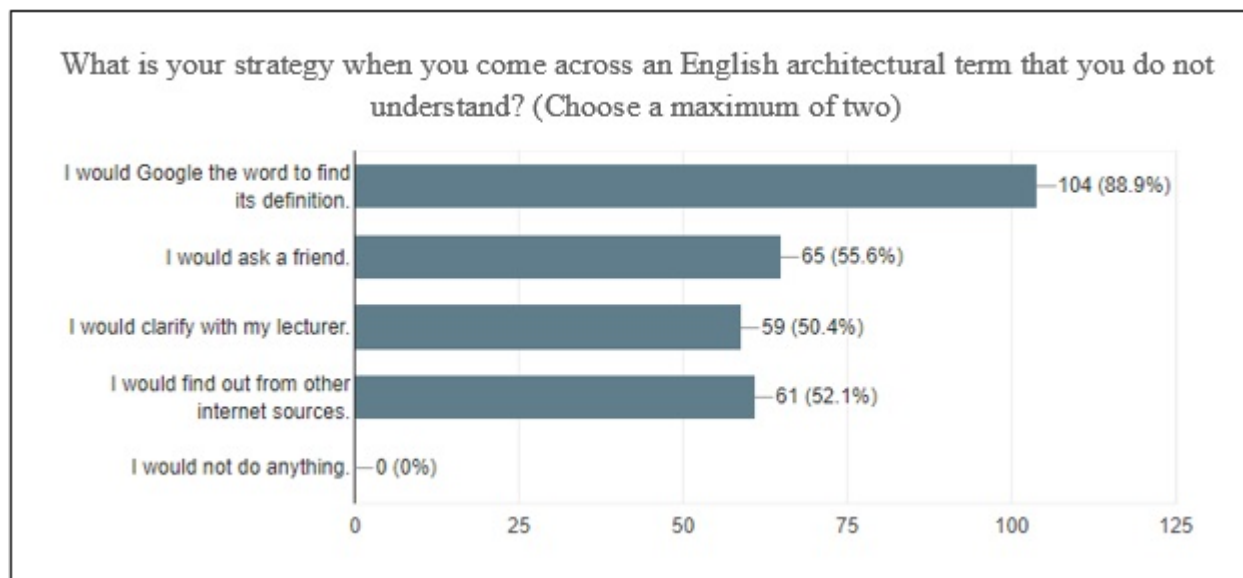

Figure 5. Strategy when faced with a difficult term

Referring to Figure 5, the students were asked to choose among the strategies given when they could not understand the English architectural terms. From the results, most students (88.9% of the total population) favour using Google as their main strategy. The second highest was in asking a friend (55.6%), while the third highest was in finding answers by using other internet sources (52.1%). The last strategy was to ask the lecturers with a percentage of 50.4%. Generally, this chart shows that the students were more comfortable to find answers via online sources rather than needing to communicate with other people.

The next question seeks to examine the exact challenges that the students face which prevents them from using English architectural terms. The challenges listed were derived from past studies, however, the students were also given the option of putting down their own answer if they face any other challenge apart from the ones given. The results of this question are given in Figure 6 below.
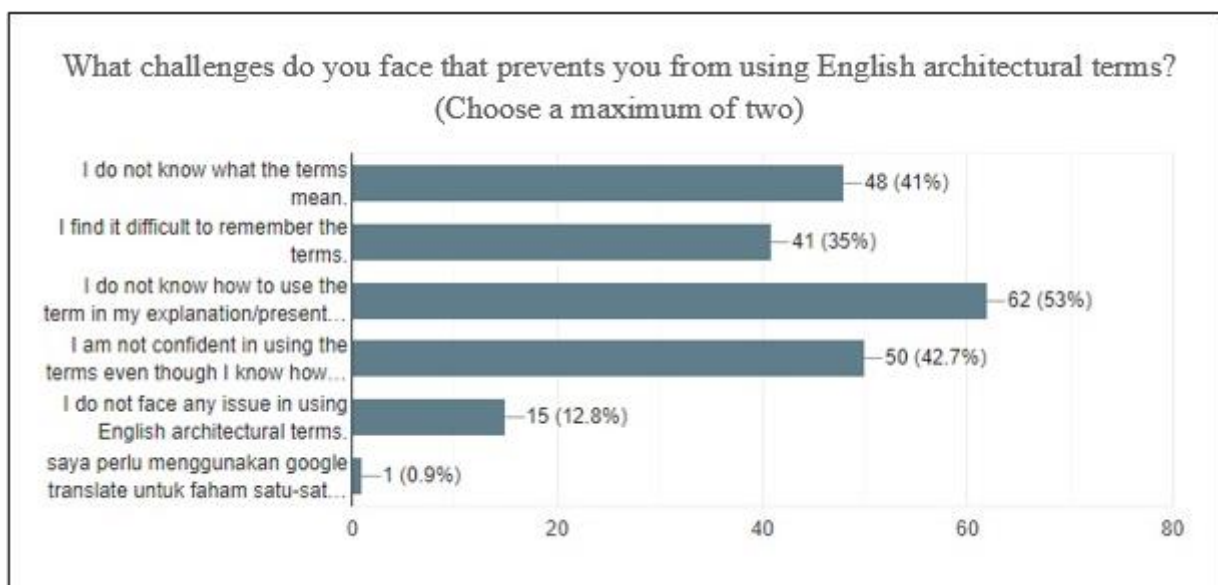

Figure 6. Challenge faced in using English architectural terms

As shown in Figure 6, the students did face some challenges in using English architectural terms. The biggest challenge was that they do not know how to use or explain the term in their presentation with the percentage of 53%. The next challenge was that they are not confident in using the terms (42.7%), do not know the meaning of the terms (41%), and they find it difficult to remember the terms (35%). Only 12.8% with 15 respondents said that they do not face any issue in using the English architectural terms. Also, one student included an answer in Bahasa Malaysia, which translated says, "I need to use Google Translate to understand each and every one of the terms", which in our view correlates to the first option given in the question. The next question transitions into their own experience in learning the terms in the classroom. The students were asked if they understood what is taught by the lecturer, the results of which are given in Figure 7.
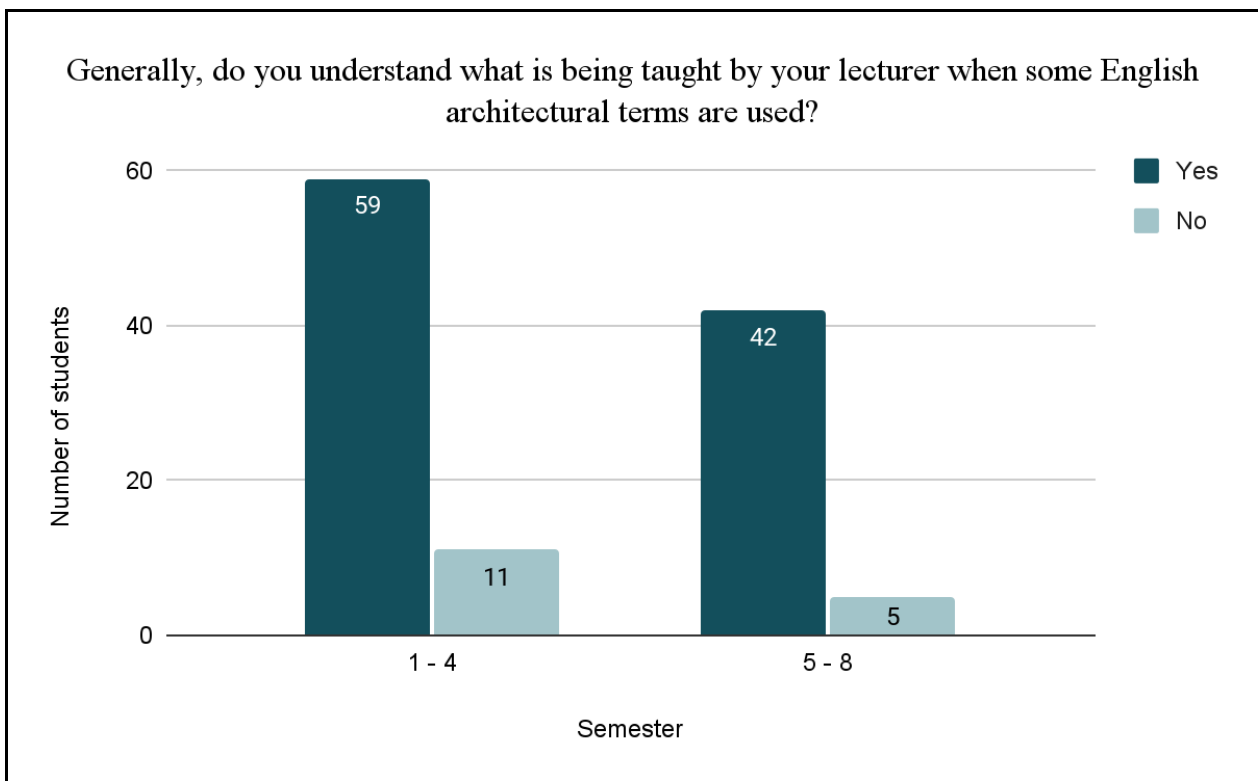
Figure 7. Understanding of what is taught

Figure 7 shows that the students agreed that they understand what is being taught by the lecturer when English architectural terms are used. There is little contrast between the lower semester students with the upper semester students, who both agreed that they understand what is being taught. This shows that generally, understanding is not the main issue when it comes to learning the technical subjects of their course.

Still, for students who answered "No" to the question, we wanted to know what specifically in the classroom leads them to face challenges in understanding the lectures. The students were given several options to choose from, the results of which are given in Figure 8 below:
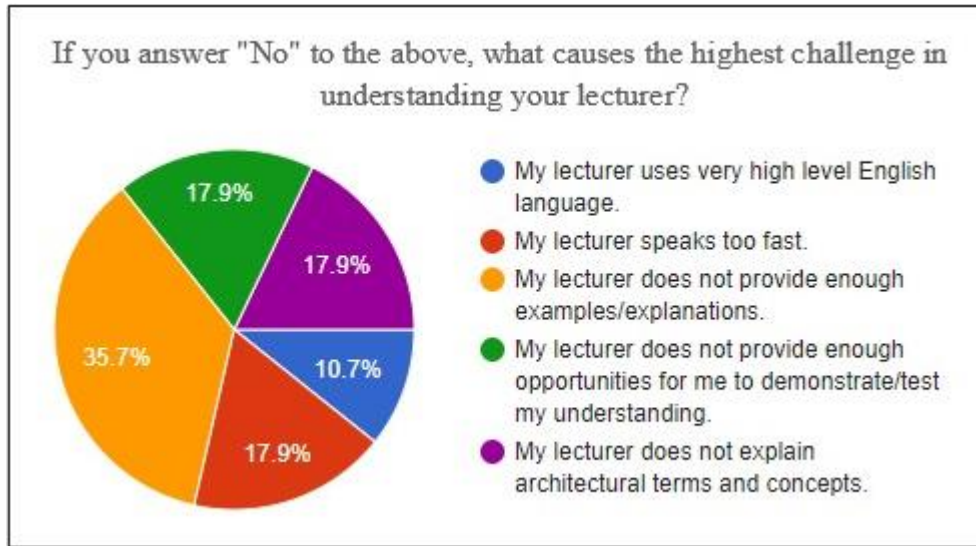
Figure 8. Causes of challenges in understanding lecturer

Figure 8 shows the result from the students who answered "No" from the previous question. From the results, the biggest challenge that made it difficult for them to understand what the lecturer has taught them with 35.7% responses was "My lecturer does not provide enough examples". Interestingly, the next three (3) causes gained equal number of responses at 17.9%. The causes were "My lecturer does not provide enough opportunities for me to demonstrate or test my understanding", "My lecturer does not explain architectural terms and concepts", and "My lecturer speaks too fast". The last reason that contributes to challenges in understanding is "My lecturer uses very high level English" with a percentage of 10.7%.

The last question was an open-ended question that sought to obtain students' suggestions on how educators can help increase their understanding of architectural terms. The responses for this question were again segregated into the two groups of students. Simple thematic analysis was conducted to categorise the responses into common themes, and for both groups, the same themes emerged from the analysis. However, as shown below, there are differing frequency counts for certain categories of suggestions.

Table 3. Suggestions to improve understanding of architectural terms

Suggestion (Main Theme)	**Semesters 1-4**	**Semesters 5-6**
Explain the terms in more detail	22	18
Use mixed languages (English and Bahasa)	14	4
Use extra resources/different approaches	8	3

Repeat the terms	5	4
List down the terms	5	1
Use simple language	3	9

Based on Table 3, both groups of students recommended for educators to explain terms in more detail to increase the understanding of technical terms. Among the recommendations given were to use images, illustrations, examples, videos, and more to illustrate the terms in a visual manner. One interesting finding from the table above is the difference between the suggestion to "use mixed languages" against "simple language". For the younger students, preference was given for educators to mix their explanations in English and Bahasa Malaysia to increase their understanding. However, it seemed that as they grew older and became more exposed to the field, many preferred to instead have simpler explanations in English. Among the responses gained were "use 'easy' language that the student can remember", "use low level English" and "explain the terms simply".

Discussion

From the analysis of the above data, four key points were uncovered to be discussed further.

The first key point relates to the medium of discussion against the actual use of terms practiced by the students. From the findings as highlighted in Figures 1 and 2, we found that when the students (regardless from the lower or upper semesters) are amongst themselves, they prefer to use their native language during discussion. However, the interesting part is that they use English architectural terms and did not translate the terms to how they understand it in their native language. This went against the expectation we had, as according to the theoretical examination of the phenomenographic tradition by Svensson et al. (2009), we expected the students to use their native language to explain the terms rather than use the actual English terms in their discussions. This may be because the students try to familiarise themselves with the new terms that they had learnt during classes and try to apply the terms in communicating with their peers.

However, a difference was observed when we asked if they believed they had used the terms correctly in their presentations. Based on the findings, the upper semester students were more confident that they had used the terms correctly compared to the lower semester students. The difference between the students in this regard may be due to their experience after being constantly corrected by lecturers and peers as they continue to learn. Yet, the spoken language is still weak when using the English language as a medium of interaction amongst the students, which is similar to the findings of S.Perinpasingam, Arumugam and Thaya-

lan (2015). It is encouraging that as students become older and have learned more, they seemed to be able to grasp the terms better; however, there still exist certain challenges for both groups in understanding explanations of terms, which is an area of improvement that may be explored by educators in the future.

A second point of interest in this study is the difference between understanding and confidence in using the English architectural terms among the students. Firstly, it should be noted that understanding the English architectural terms is crucial for the students. Students will go through the architectural programme and learn along the way. The lifelong learning through the programme helps in understanding the architectural jargon. For instance, in Figure 4, the contrast between lower semester students and upper semester students shows that the upper semester students already gained knowledge along the process of studying in the architectural programme and found themselves to be more confident in using and understanding the subject matter. The minimum period for the students studying architecture in Malaysia is six semesters. Throughout the programme, it is hoped that the students will gain confidence in learning and using the English architectural terms. They apply it multiple times and repeat the usage of the English architectural terms. However, our findings show that understanding the terms does not necessarily translate into confidence in using the terms. This relates to the finding of S.Perinpasingam, Arumugam and Thayalan (2015), who found lack of confidence to be the main issue faced by architect trainees in their study.

A third point of interest concerns the strategies that were implemented when the students come across terms that they do not understand. We found that students generally preferred using an online platform such as Google to first check their understanding of a challenging term. This is encouraging, in that the students seemed independent in their learning and were open to figuring out the terms on their own before proceeding to ask for clarification from their friends or lecturers, which is similar to the strategies adopted by the respondents in the study by Wanpen, Sonkoontod and Nonkukhetkhong (2013). However, more strategies can be recommended, such as using more related English language media and testing oneself with the words among others.

The final point of interest in this study relates to the suggestions given by the students to improve the teaching methods of architecture lecturers to increase their understanding and confidence. According to the findings in the study by Nik Mohammad, Abu Samah, and Muhammad (2018), two-way communication with lecturers makes English architectural terms easier to understand. This study, which extends the study by Nik Mohammad, Abu Samah, and Muhammad (2018), obtained findings which seemed to support this. For instance, Figure 8 clearly shows that the students need the lecturer to provide enough examples and explanations. Also, a lecturer with a high level English language was the least concern of the students. They are more concerned with whether the lecturer speaks too fast, the lecturer does not explain, or does not even give the students opportunities to demonstrate their understanding, the last part of which seems to indicate

the need for students to also receive feedback on their understanding of the terms. These concerns may be due to the large teaching ratio of lecturer and students, and especially the limitations caused by ODL due to the COVID-19 pandemic. However, the points shared by the students in this study can definitely be considered for future improvement of the teaching of architectural courses in universities in Malaysia.

Limitations And Recommendations

There were a few limitations in the process of conducting this study, which may also serve as recommendations for future research. Firstly, this research only focused on quantitative data and did not conduct a qualitative study in the form of interviews or observations of students' discussions. True observation is difficult to conduct with ODL, especially as students tend to reserve their discussions for after formal online classes with their lecturers. Thus, a recommended area for future research would definitely be to conduct observations and interviews with students once face-to-face classes resume.

Also, this study did not consider other potential factors that may play a role in students' understanding and confidence in using English. For instance, the involvement of friends or family members in the learning process through informal situations may have an impact on cognitive development, which is an area that was not explored in this study, which may also be explored in future studies.

One area that can be explored further in future studies is a deeper exploration through the phenomenographic approach on the strategies that the students use when they come across a term that they do not understand. Future studies can explore the phenomenon of technical jargon study in terms of strategic competence among students, which according to Canale (1983) refers to the strategies employed by learners to mitigate communication breakdown or to overcome lack of competence in communication. This form of study among language learners is of high interest to ensure that learners are equipped with the appropriate strategies to fall back on, especially once they enter the workplace.

Implications And Conclusion

This study has several implications that can be considered based on the feedback gained from the Malay undergraduate architecture students. One implication is that it may be more beneficial for universities to focus on improving students' confidence and familiarity in using English as a whole rather than focusing on increasing the understanding of specific technical terms as was originally thought of at the beginning of this study. Through our findings, it is heartening to know that as students progress further in their studies, their confidence in the accuracy of their understanding grows. However, their confidence in using the terms does not, which calls for the need to increase the students' opportunities to use the technical jargon more as prac-

tice for the workplace. Also, there exists the need to supply the students with the right resources, platforms and tools for them to check their understanding, as Google may not be the most helpful platform for them to learn. Rather, specific websites, glossaries, books and resources could be compiled or produced to help them learn independently.

In conclusion, this research sheds light on the understanding and confidence in using English technical terms among architectural students in Malaysia. The study was conducted through the lens of exploring the phenomenographic tradition where students who learn English as a second language are required to understand and make sense of technical terms in their studies. There is much room for improvement and exploration in this field, especially among architecture students and graduates, as it is also an area of research that has yet to be explored in further detail. For higher education institutions, focus should then be on overcoming challenges and boosting the confidence level of the students to apply the knowledge and use the terms confidently as they do understand what the terms mean.

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