

EXPLORING THE USE OF CHATBOTS IN BUSINESS ENGLISH VOCABULARY LEARNING: STUDENTS' VIEWS AND EXPERIENCES

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ABSTRACT

This study examines students' perspectives on using Chatbots for vocabulary learning in English for Specific Purposes (ESP) course. Using an exploratory qualitative approach, the research collected data from 40 first-year Diploma students through questionnaires and semi-structured interviews. The results have shown that, on the whole, Nomi.ai was well-appreciated for its usability and efficiency in independent learning situations for remembering and practicing vocabulary. However, it made students indifferent because of the limitation of feature usage and the need for clearer explanations when integrating it into their class settings. The Chatbot needs richer context and requires an explanation that is more clear. In further research, educators could do better by focusing on development related to a private, customized Chatbot specifically designed for ESP vocabulary learning. Such a Chatbot would focus on providing exercises and activities that are more relevant to their field of study, thus making them more personal and relevant. This research highlights the practical value of integrating AI tools into ESP courses, providing flexible and engaging learning opportunities for students. It can also contribute in evaluating student perceptions and revealing valuable insights into the adaptability of Chatbots for specific vocabulary learning.

Keywords: Chatbot, English for Specific Purposes, Vocabulary, Perception

ABSTRAK

Studi ini meneliti perspektif mahasiswa tentang penggunaan Chatbot untuk pembelajaran kosakata dalam mata kuliah English for Specific Purposes (ESP). Dengan pendekatan kualitatif eksploratif, penelitian ini mengumpulkan data dari 40 mahasiswa Diploma tahun pertama melalui kuesioner dan wawancara semi-terstruktur. Hasilnya menunjukkan bahwa, secara keseluruhan, Nomi.ai dihargai karena kemudahan penggunaan dan efisiensinya dalam situasi pembelajaran mandiri untuk mengingat dan berlatih kosakata. Namun, para mahasiswa merasa kurang tertarik karena keterbatasan fitur dan kebutuhan akan penjelasan yang lebih jelas saat mengintegrasikannya ke dalam pengaturan kelas. Chatbot tersebut memerlukan konteks yang lebih kaya dan penjelasan yang lebih jelas. Dalam penelitian lebih lanjut, pendidik sebaiknya lebih fokus pada pengembangan Chatbot yang bersifat pribadi dan disesuaikan khusus untuk pembelajaran kosakata ESP. Chatbot semacam itu akan menyediakan latihan dan aktivitas yang lebih relevan dengan bidang studi mereka, sehingga menjadi lebih personal dan relevan. Penelitian ini menyoroti nilai praktis dari integrasi alat AI dalam mata kuliah ESP, memberikan peluang pembelajaran yang fleksibel dan menarik bagi mahasiswa. Penelitian ini juga dapat berkontribusi dalam mengevaluasi persepsi mahasiswa serta mengungkapkan wawasan berharga tentang adaptabilitas Chatbot untuk pembelajaran kosakata khusus.

Kata kunci: Chatbot, English for Specific Purposes, Kosa Kata, Persepsi

INTRODUCTION

English for Specific Purposes (ESP) learning plays a crucial role in equipping learners with the specialized language skills necessary for success in various professional fields (Chaovanapricha & Champakaew, 2024). As the global demand for specialized English competence in areas such as business, healthcare, and technology grows, mastering domain-specific vocabulary becomes essential for effective communication. ESP learning basically consists of acquiring vocabulary (Khamitova et al., 2019). In particular domains, like business, correct usage of language becomes the very central determinant of delivery of messages (Widodo, 2016). Acquiring relevant vocabulary among ESP learners involves much more than mastering the very specific terminology, jargons, and phrases integral to one's field of study or work (Tan, 2023). Accordingly, appropriate business vocabulary usage can make quite a big difference for learners to develop proficiency and confidence in professional dealings (Cortez & Idul, 2024). Despite its importance, there are several challenges in the area of vocabulary learning within ESP contexts, especially in those environments where English is not the primary language of instruction nor communication (Benbriheche et al., 2023).

One of the main difficulties of ESP students in vocabulary learning is that the vocabulary is both voluminous and specialized (Afzal, 2019). While general English learners get by mostly with a general set of words, ESP learners have to be aware of highly technical, industry-specific words, normally outside the everyday circle of conversations (Enesi et al., 2021). For instance, business students must know and use the different terminologies in the field of finance, marketing, management, and international trade, and others (Zhu & Zhang, 2013). Unlike general vocabulary, which typically consists of widely used and more contextually flexible words, ESP terms are highly technical, domain-specific, and often tied to precise concepts and practices within a particular field. These terminologies are equally exhaustive and also subject to frequent updating in response to dynamism within various industries (Al-Kadi & Ahmed, 2018). Students require an organized

approach that guarantees both the retention of these terms and their incorporation into their active vocabulary. This can be achieved through context-rich learning environments in which terms are encountered in authentic, real-world contexts. Furthermore, a meaningful approach means understanding how these terms interact with broader industry concepts, enabling learners to use them correctly and effectively.

Another major difficulty is the lack of contexts where ESP learners can actually practice and anchor their newly acquired vocabulary (Dashtestani & Stojković, 2015). Traditional classroom settings often fail to provide real contexts where students can apply what they have learned (Jande & Ibrahim, 2021). Prevalent practices of many ESP courses, such as vocabulary lists and rote memorization, might help learners recognize the words, but more often than not, they fail in active use (Otilia, 2015). Without being given the chance to practice business communication in an authentic environment, the learners will not be able to retain the core vocabulary and apply it in their work (Fălăuș, 2017).

Moreover, for most of the ESP students, the mental load while learning the specialized vocabularies is a burden (Madini & Alshaikhi, 2017). Having to cope with not only the understanding of literal meanings but also their use in suitable contexts burdens the learners to a great degree (Akbarian, 2010). This pressure is still heightened by the dire need to develop other skills in language concurrently, such as reading comprehension, writing proficiency, and oral communication. The added complexity of mastering ESP vocabulary is likely to increase the level of stress for those students who might also suffer from anxiety about learning a foreign language, thus negatively impacting their progress as a whole (Mardianti et al., 2021).

Given these challenges, educators and researchers are continually exploring innovative approaches to enhance vocabulary learning in ESP contexts (Kırkgöz & Dikilitaş, 2018; Salem, 2017; Wang, 2015). One promising solution that has gained attention in recent years is the use of digital tools, specifically Chatbots, in language

learning (Qasem et al., 2023). Chatbots, which are AI-driven conversational agents, offer a unique and interactive way for students to engage with language learning materials. Unlike traditional methods, Chatbots can provide immediate feedback, simulate real-life conversations, and adapt to the individual learning pace and style of each student (Wang et al., 2024).

The potential of Chatbots in ESP vocabulary learning is within the possibility to create immersive and contextualized learning (Silitonga et al., 2024). These Chatbots comprehend student input and then reply by using machine learning techniques and natural language processing. In other words, this allows learners to practice the use of vocabulary in context. In the case of vocational business vocabularies, students can engage in simulated conversations, receive immediate corrective feedback, and build up their confidence in using the terminology concerned.

On top of that, Chatbots can overcome this problem of a lack of opportunities to practice the target vocabulary by enabling students to practice any time and from anywhere (Kovačević, 2023). It is especially effective in the case of ESP learners with unpredictable schedules or those for whom access to other language learning opportunities is hard to get. Students who practice with a Chatbot make their vocabulary more solid because they keep practicing over and over again; thus, it gets easier to remember and recall it.

Other advantages of employing Chatbots in vocabulary learning are that they reduce cognitive load on the part of students (Strinyuk & Lanin, 2022). It can break down complex concepts or vocabulary into manageable pieces, give hints or explanations where needed, and adjust the level of difficulty according to the performance of the student. In this respect, the personalized approach helps not only in managing the learning process but also in maintaining student motivation and engagement. For example, a Chatbot can start with basic business vocabulary and then proceed to more specialized terms as the proficiency of the student improves (Ahmed et al., 2023).

The integration of Chatbots in English Language Teaching (ELT) has been in the spotlight during the last years, with researchers investigating the potential of this technology to enhance the efficiency of language learning. A number of research works have already pointed out that Chatbots are effective in offering interactive and personalized experiences, both crucial when it comes to language learning. One of them, Kim et al. (2021), researched the efficacy of using a Chatbot originally designed to improve conversational English. It was reported that the increase in speaking and listening skills in the group with the use of Chatbot treatment turned out to be significantly higher than in students who had applied conventional ways of learning English. This article also emphasized the fact that one of the productive aspects using Chatbots offer is that they give learners opportunities for practicing languages in a low-stakes environment, thus helping the students alleviate anxiety related to speaking a foreign language.

In another study, Kim (2018) studied the effect of Chatbots on vocabulary acquisition among English as a Foreign Language (EFL) learners. It was found that the students interacting with a Chatbot for the learning of new vocabulary scored higher on retaining those words and also on contextualizing them. The findings showed that Chatbots could serve as a useful tool to assist vocabulary learning, offering dynamic and contextualized practice that traditional classroom settings usually lack. Additionally, the results showed that individual students with different learning styles and at a different pace could make use of Chatbots, hence incorporating them as a versatile tool in the ELT classroom. These findings confirm the growing consensus that Chatbots can support language education, especially regarding areas of language acquisition that involve consistent practice and reinforcement, such as vocabulary and conversational competencies.

While prior research has established the efficacy of chatbots in general language acquisition (Fryer et al., 2019; Kim et al., 2021; Kim et al., 2022), theoretical frameworks for AI-driven tools in English for Specific Purposes contexts remain underdeveloped. Existing studies predominantly focus on

conversational skills or general vocabulary, neglecting the unique demands of domain-specific terminology acquisition (e.g., business, healthcare). Despite the promising potential of Chatbots in ESP vocabulary learning, there is also a need to investigate the students who use such tools. Understanding students' perceptions is very important for the effective inclusion of Chatbots in the learning process (Bui, 2022). Student attitudes toward technology may influence their willingness to work with AI-driven tools and also their perceived benefits and drawbacks of using Chatbots. Fathi et al. (2024) found that a chatbot offers a low-anxiety environment in which learners can make mistakes freely without fear of judgment. Similarly, Baha et al. (2024) found that students enjoyed receiving the chatbot's immediate feedback and flexibility, which reinforced student motivation and engagement.

Positive student feedback can increase the level of adoption and therefore assure a better use of Chatbots; on the other hand, it could also be possible that after having discouraging experiences, students would never use a Chatbot. Therefore, this study investigated students' perceptions of the use of Chatbots in learning business vocabulary. In the present study, views were collected from ESP students on the establishment of factors influencing acceptance and use, challenges faced, and perceived impacts of Chatbot-assisted vocabulary learning on students' proficiency in the language. These findings from the research provided educators and language learning technology developers with informed data to further refine and enhance the available tools for ESP vocabulary acquisition. This work can also bridge the gap between AI innovation and ESP pedagogy, offering a model for future studies on domain-specific language tools. Practitioners can gain evidence-based strategies to enhance vocabulary instruction in resource-constrained environments. Policymakers and developers will find value in the emphasis on accessible, context-rich AI tools to address global disparities in ESP education.

METHODOLOGY

This study adopted an exploratory qualitative approach, which is well-suited for investigating a deeper understanding of participants' perspectives (Creswell, 2022). Exploratory research in qualitative studies allows rich, detailed data collection that may drive patterns and insights that can hardly be delivered through quantitative methods (Moser & Korstjens, 2018). This flexibility is important when investigating the use of emergent technologies in education, such as Chatbots, because it allows the study to bend and flex according to the specific subtleties of exactly how participants engage with and view such tools. According to Creswell & Creswell (2022), when investigating topics where the researcher wants to comprehend the participants' experiences with them, qualitative research works very well.

1. Participants

Data for this study were collected during the end of the term of the 2023–2024 academic year. The participants in this study were selected using purposive sampling, a non-random technique where participants are deliberately chosen based on specific criteria relevant to the research objectives (Etikan, 2016). The participants were 40 (N = 40) first-year Diploma 3 students enrolled in an ESP course at a polytechnic university in Banten, Indonesia. These students had been attending English courses for two semesters as part of their diploma programs. During the course, participants were introduced to the use of Chatbots as a tool for learning business-related vocabulary. They were guided on how to interact with the Chatbot to practice and reinforce the vocabulary they were learning in class. The participants represented three different majors : Diploma 3 Accounting, Diploma 3 Management Informatics, and Diploma 3 Secretary. Each of these programs required students to take the ESP course as part of their curriculum, ensuring that the participants had a consistent background in English language instruction tailored to their specific fields of study.

Prior to the study, all participants were informed about the research's purpose and were required to sign a consent form indicating their willingness to participate. This approach ensured that the research adhered to ethical standards and that the students were aware of their rights and the nature of their involvement in the study. Given that the research was conducted within a formal educational setting, purposive sampling was employed to select participants (Douglas, 2022). This method was chosen because it allowed the researcher to focus on students who had similar educational backgrounds and were already engaged in learning business-related English vocabulary through the ESP course. This method ensured that the data collected would be directly relevant to analyzing their views on the use of Chatbots.

2. Data Collection

In the first step, an online questionnaire was administered to all 40 participants, providing an overall picture of their perceptions. This questionnaire, which consisted of 12 multiple-choice Likert-type questions, was adapted and modified from a research by Kohnke (2023) and also considering Technology acceptance model (Lamar et al., 2016). The questionnaire utilized a 5-point Likert scale, where respondents could indicate their level of agreement with statements ranging from (1) Strongly Disagree to (5) Strongly Agree. To ensure that the participants fully understood the context of the questions, the questionnaire was translated into Bahasa Indonesia. This was particularly important in avoiding any language barriers that could have skewed the results (Behr, 2023). The questionnaire was distributed via WhatsApp, a platform chosen for its accessibility and ease of use, ensuring that all respondents could easily participate (Evans & Mathur, 2018). Participants were given 10 to 15 minutes to complete the questionnaire, a timeframe deemed sufficient for thoughtful responses without causing undue time pressure.

In step 2 of the study, in-depth semi-structured interviews were conducted to gain a more holistic understanding of the participants' experiences with using

Chatbots for vocabulary learning. From the initial 40 participants, 5 students volunteered to be interviewed. These interviews were guided by an interview guide developed based on the responses to the questionnaire, ensuring that the interviews gained deeper into areas of particular interest or concern identified in the first step. Participants were asked about their general thoughts on using a Chatbot for vocabulary learning, which specific vocabularies they found particularly useful, and whether and how much the Chatbot helped them in their vocabulary learning. The interviews lasted between 10 to 20 minutes and were conducted via WhatsApp Video Call, providing a convenient and flexible way for students to participate.

3. Data Analysis

The data collected from the questionnaires were subjected to descriptive analysis, providing insights into the overall trends in participants' responses (Miles et al., 2014). These findings were then compared and contrasted with the qualitative data obtained from the interviews. The interview responses were transcribed and analyzed to identify key themes related to the participants' experiences with Chatbots. The interview guide was based on the questionnaire results, ensuring that the interviews addressed areas of specific interest. Participants were asked about their general impressions of using Chatbots, specific vocabulary they found useful, and the extent to which the Chatbot aided their vocabulary learning. To enhance the reliability of the findings, interview transcriptions were shared with participants for member-checking, allowing them to confirm or clarify their statements (Birt et al., 2016).

4. The Chatbot

The use of chatbot companions in learning English has gained more popularity due to the fact that technological advancement made these tools more accessible and effective (Yang et al., 2022). Chatbots offer a personalized and interactive learning experience, allowing students to practice their language skills in real-time (Wallwork, 2024). In this study, the participants were given comprehensive information about how the mobile app functions, ensuring they

understood its capabilities and potential uses. From the start of their English course, they were instructed to utilize a Chatbot named Nomi.ai for various activities and tasks both inside and outside the classroom. The figure 1 below is the interface and functionality of Nomi.ai. The user interface of Nomi.ai is structured in such a way that it will help in navigating easily and assure better acquisition of vocabulary through its interactive Chatbot format.

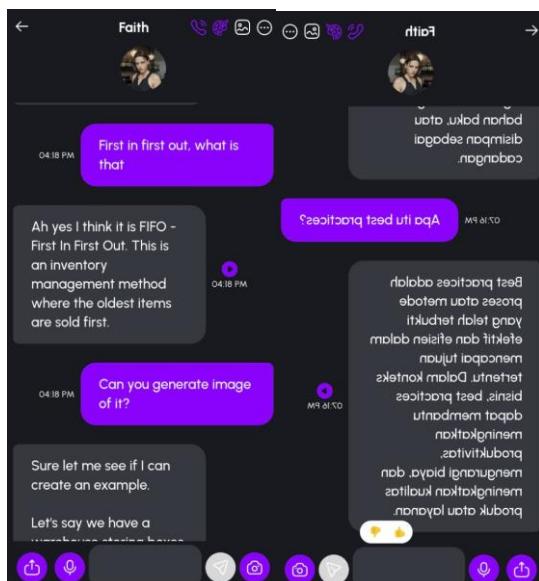


Figure 1. Nomi.ai.

Nomi.ai is an AI-powered Chatbot designed specifically to assist with their life. It provides a dynamic and interactive platform where users can practice their English skills in real-time (Bai et al., 2024). The Chatbot offers personalized feedback, engages in conversation, and adapts to the user's learning pace, making it a versatile tool for both formal classroom settings and informal, self-paced learning outside of class. By leveraging Nomi.ai, learners can improve their language proficiency through continuous practice, receive instant corrections, and gain confidence in their ability to communicate effectively in English. It takes on the role of the learner in simulated business situations and uses such exercises for teaching language in natural communicative settings. While communicating with the Chatbot, a series of requests are made to practice new vocabulary, which

develops not only understanding but also aids retention. What is more, Nomi.ai provides instant feedback on its usage, helping to develop a sense in learners as to the application and appropriateness of words in different business contexts.

RESULT AND DISCUSSION

The results of the study were obtained through questionnaires and interviews. The results from the questionnaire were then grouped into two categories: usefulness and skill development, and experience and willingness to use. This gave a good overview of the students' perception about the effectiveness of the Chatbot in being continuously used. While the interviews themselves divided into categories: Experience and Perceptions, Effectiveness and Skill Development, Use and Integration, and Suggestions and Feedback. The interviews also allowed for a look at the ways in which the students have interacted with the Chatbot: their overall experience working with it, the benefits derived and problems faced with it, and recommendations for improving both the functionality of the tool and its integration into their vocabulary learning.

1. Questionnaire Result

Table 1 below presents the results from a questionnaire examining students' perceptions of the usefulness of Nomi.ai and its impact on their skill development in Business English vocabulary learning. The questionnaire focused on two main aspects: the perceived utility of the platform in enhancing vocabulary learning and the improvement of specific language skills, such as comprehension, application, and contextual understanding of business terms.

Tabel 1. Usefulness and Skill Development

Question	N	Mean	SD
Q1	40	3.575	0.95776
Q2	40	3.525	1.15442
Q3	40	3.175	1.21713
Q4	40	3.925	1.04728
Q5	40	3.6	0.95542
Q6	40	3.425	1.12973

The data in Table 1 provides insights into students' perceptions of the usefulness and skill development of using a Chatbot for vocabulary learning. The response to Q1, "Usefulness in Improving Vocabulary," has a mean score of 3.575, suggesting that students find the Chatbot moderately useful for improving their English vocabulary, with a standard deviation of 0.95776. For Q2, "Effectiveness in Learning New Words and Phrases," the mean score of 3.525 indicates that students see the Chatbot as fairly effective, though the standard deviation of 1.15442 suggests some variability in this perception. Q3, "Helpfulness in Enhancing Understanding of Word Meanings," received a lower mean score of 3.175, showing that while some students find the Chatbot helpful, others do not, with a standard deviation of 1.21713 reflecting this diversity. The response to Q4, "Assistance in Remembering New Vocabulary," shows a higher mean score of 3.925, indicating that students generally find the Chatbot helpful for memory retention, with a standard deviation of 1.04728. For Q5, "Benefit in Improving Overall Vocabulary Skills," the mean score of 3.6 suggests a favorable view, with some variation as indicated by a standard deviation of 0.95542. Finally, Q6, "Improvement in Vocabulary Due to Chatbot Use," has a mean score of 3.425, indicating moderate improvement, with a relatively high standard deviation of 1.12973 showing varied student experiences.

These findings indicated that the Chatbot serves as a useful supplementary tool for vocabulary learning, particularly in enhancing memory retention (Huang et al., 2017). However, to maximize its effectiveness, it could be improved by incorporating more contextual learning features, such as detailed explanations and richer examples (Kohnke, 2023). These enhancements could help address the lower scores related to understanding word meanings and learning new vocabulary, thereby making the Chatbot a more comprehensive tool for language development (Fryer et al., 2019). The findings suggest that while the Chatbot has potential, it is most effective when used in conjunction with other teaching strategies, tailored to the diverse needs of students.

Table 2 below presents the results concerning participants' experiences and their further intentions to use the Chatbot for Business English vocabulary learning. This part of the questionnaire was designed to answer questions about multiple dimensions of the interactions with Nomi.ai, such as ease of use, engagement, satisfaction with feedback, and interest in continued use.

Tabel 1. Experience and Willingness

Question	N	Mean	SD
Q1	40	3.575	0.95776
Q2	40	3.525	1.15442
Q3	40	3.175	1.21713
Q4	40	3.925	1.04728
Q5	40	3.6	0.95542
Q6	40	3.425	1.12973

Table 2, which focuses on participants' experience and willingness to use the Chatbot, provides insights into various aspects of their interaction with the Chatbot. For Q7, "How convenient do you find the Chatbot for learning new vocabulary outside of the classroom?" the mean score is 4.2, indicating that most participants find the Chatbot highly convenient for this purpose, though there is some variation in responses, as reflected by a standard deviation of 1.11401. In response to Q8, "How much do you enjoy using the Chatbot to practice and learn English vocabulary?" the mean score of 3.4 suggests moderate enjoyment, with a standard deviation of 1.10477 highlighting diverse levels of enthusiasm among users.

For Q9, "How comfortable do you feel using the Chatbot as a tool for vocabulary learning?" the mean score of 3.575 shows that participants generally feel comfortable using the Chatbot, although the standard deviation of 1.19588 points to varying degrees of comfort. In response to Q10, "How likely are you to use the Chatbot to learn vocabulary in a classroom setting?" the mean score is 3.025, suggesting a slightly below-average likelihood, with a standard deviation of 1.31046 indicating a broad range of opinions on this question.

Regarding Q11, "How willing are you to use the Chatbot to enhance your English vocabulary in the future?" the mean score of 3.6 reflects a generally positive attitude toward future use, though there is some variability in willingness, as seen in the standard deviation of 1.08131. Finally, for Q12, "How satisfied are you with the overall experience of using the Chatbot for vocabulary learning?" the mean score is a relatively high 4, indicating strong overall satisfaction among participants, with a standard deviation of 0.75107 suggesting consistent levels of satisfaction. These results provide a comprehensive view of participants' experiences and their openness to continuing to use the Chatbot as a learning tool.

The data indicates that students generally had a positive experience using the Chatbot for vocabulary learning, particularly appreciating its convenience for use outside of the classroom (Huang et al., 2022). The high level of convenience suggests that the Chatbot effectively meets students' needs for flexible, accessible learning opportunities, making it a valuable tool for self-directed study. Overall satisfaction with the Chatbot was also high, reflecting a broadly positive reception (Haristiani, 2019).

However, the data also reveals some variability in how students felt about using the Chatbot in different contexts. While students enjoyed using the Chatbot and felt reasonably comfortable with it, there was a noticeable hesitation about its use in a classroom setting. This suggests that while the Chatbot is well-suited for independent learning, its integration into formal educational environments may require additional support or adaptation to ensure it complements traditional teaching methods (Kim et al., 2022).

2. Interview Result

2.1 General Experience

The findings reveal a mix of positive experiences and challenges among participants using the Chatbot for vocabulary learning. Many found the Chatbot helpful, particularly the feature allowing users to switch to Bahasa Indonesia when needed. As S1 stated, "I found it really helpful because I could switch to Bahasa

Indonesia when I didn't understand something in English. It made the learning process smoother for me." Similarly, S2 appreciated this feature but noted, "Overall, the experience was positive, but I wish all features were available without needing a membership," suggesting some limitations in accessing the Chatbot's full potential (Wahyuni & Santosa, 2023).

Participants expressed their enjoyment of specific aspects of the Chatbot. S1 liked how "Nomi remembered our previous conversations and could bring up words I had trouble with before," which made learning feel more personalized. S2 found the "interactive conversations" most appealing, as they made learning more engaging than just memorizing words. S5 valued the "flexibility to learn whenever I wanted," highlighting how the Chatbot allowed them to practice vocabulary conveniently, whether on the bus or at home (Petrović & Jovanović, 2021).

However, several challenges were also noted. S2 mentioned that "there were times when Nomi's explanations were too vague, and I had to look up the words on my own," pointing to the need for clearer definitions or explanations. S4 found it challenging when "Nomi used vocabulary that was too advanced for me without explaining it well," indicating a gap in the Chatbot's adaptability to different skill levels. Additionally, S5 felt that "Nomi sometimes repeated the same words too often," making the learning experience feel repetitive and less engaging.

Overall, while participants generally found the Chatbot beneficial and appreciated its features, such as language flexibility and interactive learning, there are areas for improvement, particularly in providing clearer explanations and avoiding repetition to maintain engagement (Jung, 2019).

2.2 Effectiveness and Skill Development

The findings suggest that the Chatbot was generally perceived as effective in helping participants learn and remember new vocabulary, although there were some mixed experiences. S1 found Nomi "quite effective," particularly because it repeatedly presented words until they were fully understood. S2 also found the

Chatbot beneficial for retention, though they still preferred writing words down to reinforce learning. Similarly, S4 noted that "Nomi was helpful in reinforcing new vocabulary" through repeated use in various contexts, which enhanced their understanding. However, S5 felt that while the Chatbot was "somewhat effective," it could be more impactful with additional examples and exercises. S3 suggested that the effectiveness could be further improved by incorporating a voice chat feature to practice pronunciation.

When asked if the Chatbot helped them understand the meanings of new words better, most participants provided positive feedback. S1 gave the example of the word "liability," which was explained in a business context, making it easier to grasp. S2 mentioned that Nomi's use of different sentences to explain words like "synergy" helped clarify meanings. S4 also found it useful, noting that Nomi's repeated examples for words like "dividends" helped them understand the terms better. However, S3 mentioned some gaps, stating they had to look up "arbitrage" because Nomi's explanation wasn't clear enough, while S5 found explanations in Bahasa Indonesia particularly helpful for understanding tricky words like "arbitrage."

Regarding overall vocabulary improvement, most participants felt they had made progress, though the extent varied. S1 felt their vocabulary had "definitely improved," especially in using business terms correctly in writing. S2 noticed increased confidence in using certain terms during conversations, while S4 expressed greater comfort with terms like "equity" and "leverage." S3, however, felt only a slight improvement, using a few new words but not experiencing a significant expansion in vocabulary. S5 echoed a similar sentiment, believing they could have achieved more substantial gains if they had access to the full range of features. These responses suggest that while the Chatbot was effective for many, its impact could be enhanced with additional functionalities and clearer explanations (Petrović & Jovanović, 2020).

2.3 Use and Integration

The findings reveal that most participants found the Chatbot convenient for use outside of class and that it generally fit well with their study routines. S1 appreciated the flexibility of using Nomi on their phone "whenever I had some free time," while S2 found it integrated well into their routine, especially for practicing during commutes, which "didn't feel like extra work." Similarly, S4 described it as "very convenient," using it mostly in the evenings, which fit perfectly into their study schedule. However, some participants faced challenges; S3 admitted that they "sometimes forgot to use it regularly" as it wasn't part of their usual study routine, and S5 found it difficult to integrate with other study habits, even though it was generally convenient.

When considering the use of the Chatbot in a classroom setting, participants had mixed feelings. S1 was open to using it but "only as a supplement" to traditional lessons. S2 was uncertain, preferring more interaction with the teacher in the classroom, while S3 felt it could be useful but better suited for individual study. S4 saw potential for its use in group activities or review sessions, and S5 believed it was more appropriate for personal study rather than classroom use.

Looking to the future, most participants showed some willingness to continue using the Chatbot for vocabulary learning, though their motivations varied. S1 planned to keep using it, motivated by its ability to remember their progress. S2 expressed a conditional willingness, depending on whether the Chatbot updates with new words relevant to their studies. S3 indicated they might continue if the Chatbot improved its explanations of complex words. S4 was keen to continue as long as it helped with vocabulary related to their major, while S5 was undecided, noting they would consider it if the Chatbot became more tailored to their specific needs. Overall, the willingness to continue using the Chatbot is linked to its adaptability, relevance, and ability to address specific learning needs (Żerkowska & Volodina, 2024).

2.4 *Suggestions*

The feedback suggests that participants see several opportunities for improvement to make the Chatbot more effective for vocabulary learning. A common recommendation across all participants was to make all features, such as voice and image chat, available without requiring a membership. S1 mentioned that "it would be better if all features, like voice and image chat, were available without needing a membership," while S4 echoed this, stating that "making the full features available without a membership would definitely improve the experience." S2 and S3 both suggested that more context and detailed explanations in Bahasa Indonesia would enhance the Chatbot's usefulness. S5 added that more interactive exercises in Bahasa Indonesia could also make the learning experience more engaging.

Regarding specific features, participants consistently found the Chatbot's language flexibility to be valuable. S1 noted, "I found the language flexibility useful," and S2 agreed that "using Bahasa Indonesia was very helpful." However, they also pointed out the limitations caused by restricted access to features like voice chat, which was described as "not useful" by several participants. S4 and S5 both found the multi-language support beneficial but expressed frustration over the limited availability of features due to the membership requirement.

Participants also shared additional thoughts on their overall experience with the Chatbot. S1 appreciated the ability to use Bahasa Indonesia but reiterated the desire for full access without extra costs. S2 summarized the tool as good overall but found the membership requirement disappointing, while S3 enjoyed the language support but felt the experience could be significantly improved if all features were accessible. These responses suggest that while the Chatbot is appreciated for its core functionalities, making all features freely accessible and enhancing support in Bahasa Indonesia would greatly increase its effectiveness and user satisfaction (Huang et al., 2022).

This study acknowledges limitations, including its narrow focus on first-year Indonesian polytechnic students, short-term implementation, and restricted

access to advanced chatbot features (e.g., voice chat), which may limit generalizability and obscure long-term efficacy. Future research should address longitudinal impacts, cross-cultural adaptability in diverse educational contexts and domain-specific customization for niche ESP fields (e.g., healthcare). Hybrid models blending chatbots with traditional instruction and ethical reforms, such as democratizing feature access, are critical to resolving classroom integration challenges and ensuring equitable, scalable AI tools for ESP pedagogy.

CONCLUSION

This study on Chatbot-based business English vocabulary learning, reveals benefits and challenges in using such technology for English for Specific Purposes (ESP) students. The Chatbot was generally well-received, with students appreciating its ability to provide personalized feedback, facilitate real-time practice, and offer flexibility for learning outside the classroom. These features made the Chatbot a valuable tool for reinforcing vocabulary and improving retention. Many students found it particularly useful for its ability to remember previous interactions and tailor content to their learning pace.

The study suggests that while Chatbots hold promise as supplementary tools for ESP vocabulary learning, their effectiveness could be significantly enhanced with certain improvements. Students recommended making all features, such as voice and image chat, freely available to increase accessibility and engagement. Additionally, they emphasized the need for more detailed explanations and interactive exercises in their native language to better understand complex vocabulary. The study also highlighted a mixed response to the Chatbot's integration into classroom settings, with some students preferring its use outside the classroom for independent study. This indicates that while Chatbots are useful, their integration into formal education requires thoughtful adaptation to complement traditional teaching methods.

While this study demonstrates the potential of chatbots like Nomi.ai as supplementary tools for Business English vocabulary learning, its practical limitations warrant consideration. The findings are constrained by the short-term engagement period, restricted access to advanced features (e.g., voice chat), and the homogeneous sample of Indonesian polytechnic students, limiting generalizability to broader ESP contexts. To address these, future implementations should prioritize longitudinal studies to assess sustained vocabulary gains, cross-cultural trials to validate scalability, and feature democratization to ensure equitable access to critical tools. Developers and educators are urged to collaborate on creating domain-specific chatbots tailored to niche fields (e.g., healthcare, engineering) and hybrid models that integrate AI tools with classroom instruction. Additionally, enhancing contextual explanations and reducing dependency on paid memberships could amplify pedagogical impact, ensuring chatbots evolve from experimental aids into indispensable, inclusive resources for global ESP education.

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