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# THE INTERNATIONAL COMPETITION ON SUSTAINABLE EDUCATION



20TH AUGUST 2025

TRANSFORMING EDUCATION, DRIVING INNOVATION AND  
ADVANCING LIFELONG LEARNING FOR EMPOWERED WORLD

## EVALUATING THE EFFECTIVENESS OF TELEGRAM CHATBOTS IN ENHANCING VOCABULARY ACQUISITION AMONG ESL AND EFL LEARNERS

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### ABSTRACT

*This research examines the use of LexiBot, a chatbot hosted on Telegram, in supporting vocabulary learning for English as a Second Language (ESL) students at Universiti Teknologi MARA (UiTM) in Malaysia and English as a Foreign Language (EFL) students at Universitas Dinamika (UD) in Indonesia. Adopting a cross-sectional mixed-methods approach, the project enlisted 49 learners who incorporated LexiBot into their regular language exercises. Survey results yielded encouraging quantitative data, showing that 95% of the UiTM cohort and 91% of the UD group found the chatbot user-friendly. Regarding its overall effectiveness, UD students indicated that LexiBot was helpful 81.5% of the time, whereas UiTM respondents noted that it was very helpful 59.1% of the time. In-person interviews offered qualitative insights that revealed contrasting patterns of engagement: UiTM learners interacted with LexiBot independently, while their UD counterparts tended to rely on teacher-guided use. Although participants valued the contextual assistance LexiBot provided, many called for more interactive elements and detailed explanations. These results highlight how sociocultural and pedagogical environments shape interactions with AI tools. The study concluded that chatbots like LexiBot can effectively foster vocabulary growth if their design is flexible and centred on the learner, accommodating varying degrees of learner autonomy and differing instructional contexts. These findings suggest that course developers should incorporate responsive design, game-like elements, and timely feedback tools into their platforms to maintain learners' attention and encourage their return. Studies that follow users over an extended period are also needed, along with investigations that test the approach across different language skills and in varied classroom or online environments.*

**Keywords:** Vocabulary acquisition, Telegram chatbot, Learner engagement, ESL learning

## INTRODUCTION

The rapid progression of artificial intelligence has profoundly changed the world of educational technology, with language-learning chatbots now occupying a central position. These AI-enabled tools provide learners with the immediacy of real-time conversation, allowing for quick corrections and replies that traditional classrooms often struggle to deliver. Vocabulary acquisition, particularly in the English as a Second Language (ESL) and English as a Foreign Language (EFL) context, remains a foundation of fluency yet often suffers from limited practice time and a dependence on rote memorization imposed by many syllabuses (Salim et al., 2024; Adnan et al., 2024). Workbook exercises and drill sheets rarely connect with students' everyday lives, causing shallow retention and gradual disengagement.

Chatbots offer an inventive solution to these long-standing problems by embedding language practice within authentic dialogue rather than confining it to a worksheet (Yusuf et al., 2024). Learners are free to investigate meanings, grammatical subtleties, and idiomatic phrases in situ, receiving instant clarification or extra examples that keep the discussion moving. This study assesses *LexiBot*, a chatbot available on the Telegram platform, with a specific focus on ESL students at Universiti Teknologi MARA in Malaysia and EFL students at Universitas Dinamika in Indonesia.

The survey seeks to assess learners' views on three interrelated aspects of *LexiBot*: how easy they find it to use, how well it helps them understand language in context, and how much sustained interest and engagement it manages to generate over time. Feedback gathered in this way will inform decisions about how best to weave AI-driven tools into language instruction, regardless of whether classes are held face-to-face, entirely online, or in blended formats.

## METHODS

This study used a cross-sectional mixed-methods approach that combined quantitative and qualitative techniques to build a more comprehensive understanding of how students interact with a vocabulary-practice chatbot. The survey component generated the standardised data necessary for making group comparisons, while the subsequent semi-structured interviews explored themes such as learner autonomy, engagement and comfort with technology, issues to which numerical data provide at best a partial answer. A total of forty-nine students participated: twenty-two from Universiti Teknologi MARA (UiTM) in Malaysia and twenty-seven from Universitas Dinamika (UD) in Indonesia. Each participant had been required to employ *LexiBot*, a Telegram-based chatbot, as part of their regular language coursework. Although the sample size is relatively small, it is adequate for exploratory research that prioritises qualitative depth (Dawadi et al., 2021). Before the interviews, every learner completed a structured questionnaire measuring perceived usability and engagement, along with any vocabulary improvement they associated with *LexiBot*, rating each item on a five-point Likert scale.

## RESULTS AND DISCUSSION

This section presents the findings from the study, highlighting key differences in usability and effectiveness of *LexiBot* among ESL learners at UiTM and EFL learners at UD. The results are summarised in the table below:

### Demographic profile of respondents

There were 49 respondents. UiTM (22) and UD (27). The majority (73.5%) were first-year students, while only 8.16 per cent were in their third year. Meanwhile, 18.36% were second-year students. AI-based tool usage involved 53.06% who had previous experience utilising it. On the other hand, 46.94% had no prior experience.

### Usability of *LexiBot*

The usability of *LexiBot* among ESL learners served to answer the first research question.

**Table 1.:** Usability of *LexiBot*

Item (Ease of use)	Number	Percentage
UiTM (Easy or Very Easy)	21	95
UD (Easy or Very Easy)	25	91

Table 1 indicates the usability of *LexiBot*. Majority (95%) of UiTM students, and 91% of UD students felt it was easy or very easy to use *LexiBot*. Although it is user-friendly, there were technical difficulties, where 18% of UiTM respondents and 22% UD respondents pointed out connectivity problems.

**Table 2.:** Effectiveness of *LexiBot*

Item (Ease of use)	Number	Percentage
UiTM (Helpful)	9	40
UiTM (Very Helpful)	13	59.1
UD (Helpful)	22	81.5
UD (Very Helpful)	5	18.5

Table 2 reveals the effectiveness of *LexiBot*. Most of the UD respondents (81.5%) perceived *LexiBot* as helpful, while only 18.5% perceived it as very helpful. On the other hand, 40% of UiTM respondents perceived this as helpful, while 59.1% perceived this as very helpful.

## Engagement with *LexiBot*

Interview-based findings on engagement with *LexiBot* served to answer the third research question on the level of engagement of ESL and EFL learners when utilising *LexiBot*. Five UiTM and UD students were interviewed in terms of frequency of use, motivation and the degree to which *LexiBot* determined their vocabulary learning habits. The majority of the UiTM respondents utilised *LexiBot* independently and incorporated this into their study routine. Respondent 1 stated, “*LexiBot* helps me review words at my own pace, but I still need additional resources to fully understand new words.” Additionally, students noted that *LexiBot* serves as a tool for teaching contextual clues that provide relevant types and examples that reinforce vocabulary comprehension”. Respondent 2 mentioned “*LexiBot* provides useful information, somehow it lacked interactive elements that could have made learning more engaging”. UD students integrated *LexiBot* as an optional source in class. This chatbot was applied with guidelines, thus teacher supervision was required when it was used. Respondent 3 (a UD student) indicated, “*LexiBot* was useful for practicing vocabulary but mostly used it when I was doing classwork”. This meant that this chatbot could be used by UD learners as a main requirement *LexiBot* in class rather than as a personal choice. On the other hand, respondents from both groups highlighted problems they encountered with *LexiBot*. UiTM’s Respondent 4 describes this as “is useful, but sometimes it does not tell me why an answer is wrong”. This resonates with UD’s Respondent 5, who indicated that the chatbot turned boring after a while, reducing their motivation level to utilise it.

## Discussion

These findings indicate the validity of the effectiveness of lexical acquisition in ESL and EFL settings via chatbots. However, the findings revealed subtleties that call for further analysis. Although both UiTM and UD students’ high usability ratings indicated that *LexiBot* fundamentally fulfilled the criteria for usability. However, the conversation needs to be more than about undisputable achievements for deeper educational considerations. In the AI literature about autonomy and dependency on context, there were distinct differences between participation levels and learning autonomy, by which ESL learners reacted to independently, while EFL learners were asked to utilise the chatbot (Annamalai et al., 2023; Lo et al., 2024).

Such disparity calls for the need for AI to be educational to rethink AI’s framework of adaptability that incorporates sociocultural dimensions. Although *LexiBot* chatbot style is adaptable, their pedagogical preparation must address contrasts in language autonomy and immersion. Such a gap of ESL learners’ self-directed learning and EFL learners’ teacher-supported approach echoes Jeon’s (2021) findings that AI devices need to promote both inquiry and structurally driven learning. The efficiency of *LexiBot* still needs to be evaluated in the learners’ sociocultural and instructional environments. The following versions should involve characteristics that are adjustable to the interaction level, feedback details, and alignment-based needs guidelines offered to learners that agree with the transition towards personalised AI in education (Belda-Medina & Kokošková, 2023)

Moreover, chatbot technologies could be applied reasonably to other educational contexts provided there is adequate curricular and instructional support despite the study analysing two institutional contexts. The results show that chatbot use is not solely defined by information provision, but by



content incorporation with operational instruction frameworks and digitalisation preparedness level possessed by learning institutions. For example, some respondents reported that students living in areas with internet infrastructure that are poorly developed may not be able to be involved in interact with chatbot functionalities.

In discerning the merits of the impact of chatbots in teaching and learning, change is not seen in teaching instruction but rather in teaching enrichment. For instance, through instant response, emotional involvement, and learning modelling. Even so, to achieve the desired result, it is necessary to teach rigorously, and guide based on empirical evidence. The implementation of *LexiBot* demonstrates the promise of such technologies, but with a gracious indication on the importance of purposeful design, continuous evaluation, and policy support to uncover innovation in education across various ecosystems.

## CONCLUSION

This study set out to explore how effective *LexiBot*; a Telegram-based chatbot really is when it comes to helping learners pick up new vocabulary. It focused on two different learner groups: ESL students from Universiti Teknologi MARA (UiTM), Malaysia, and EFL students from Universitas Dinamika (UD), Indonesia. Interestingly, both groups found *LexiBot* easy to use. Many reported that navigating the chatbot was smooth and straightforward. Beyond just ease of use, learners generally agreed that *LexiBot* helped them pick up new vocabulary, especially through contextual cues provided in the conversation. That said, there were some differences worth noting. While both ESL and EFL learners found the chatbot helpful, students from UD (EFL group) rated it as slightly more beneficial overall. This difference might be tied to how the chatbot was used in each setting. ESL learners seemed to thrive more when using *LexiBot* independently, whereas EFL learners appeared to benefit from using it in a more guided, classroom-based setup. This highlights an important point: chatbot design shouldn't be one-size-fits-all. Instead, it should be flexible enough to cater to different learning contexts and levels of learner autonomy.

These findings support what others have also suggested that for chatbots in education to work very well, they need to be responsive and adaptable. As Chaves and Gerosa (2021) note, the most effective chatbots are those that adjust to users' language abilities, comfort with self-directed learning, and even their usage patterns. ESL learners, for instance, often respond better to open-ended questions that allow for exploration and conversation. On the other hand, EFL learners might prefer more structured, step-by-step tasks that align with a formal syllabus. To keep learners engaged—especially in self-paced settings—it helps when chatbots incorporate a bit of gamification. Features like digital badges, countdown timers, or even short stories that require learner input can go a long way in boosting motivation. Add to that clear feedback for both correct and incorrect answers, and suddenly, each interaction becomes a meaningful learning opportunity. Pair that with context-based exercises, and students don't just learn—they reflect and remember.

Of course, to truly make the most of chatbot tools like *LexiBot*, educators need to be strategic about how they integrate them. These bots can serve multiple purposes: quick reviews before class, follow-

ups after lessons, or even as ongoing support for large lectures and asynchronous courses. But they shouldn't replace human instruction—they should enhance it. Looking ahead, there's still plenty of ground to cover. Future research should go beyond just vocabulary. There's real potential in exploring how chatbots can support other areas, like improving spoken fluency, writing accuracy, and grammar knowledge. Also, including more diverse participant groups—across countries, learning environments, and cultural backgrounds—could help us uncover more universal design principles for chatbot-based learning.

It might also be worth investing in long-term studies. Tracking learners' interaction with chatbots over several months, or even a year, could tell us a lot about how these tools influence motivation, retention, and overall language development. Early signs are encouraging. Learners seem to stay engaged and are more likely to practice on their own when supported by intelligent, responsive bots. But as with most things in education, context matters. Cultural norms, classroom practices, and educational systems all shape how learners interact with technology.

Lastly, future studies should consider including wider demographic groups, tracking retention over time, and testing more advanced chatbot functions. These steps could paint a fuller picture of the real impact digital tools like LexiBot can have on language education. In all, this study contributes to the growing conversation around the role of AI-driven tools in ESL and EFL education. It also offers practical ideas for designing more learner-centred chatbots—ones that adapt, respond, and most importantly, support learners in meaningful ways.

## ACKNOWLEDGEMENTS

The authors would like to express their sincere appreciation to the students of Universiti Teknologi MARA (UiTM), Malaysia, and Universitas Dinamika (UD), Indonesia, for their active participation in this study. Special thanks are also extended to the instructors from both institutions for their guidance and support throughout the research process. Their cooperation in facilitating the integration of *LexiBot* into classroom activities greatly contributed to the success of this study.

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