



Enhancing ESP Motivation and Proficiency Through CALL: A Quasi-Experimental Study with Islamic Banking Students

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Abstract: Computer-Assisted Language Learning (CALL) has been widely implemented to support motivation and language development in English for Specific Purposes (ESP) instruction. However, empirical studies examining its use in English for Islamic Banking within Islamic higher education contexts remain limited. This study investigates the effectiveness of CALL in enhancing students' motivation and language skills in an English for Islamic Banking course at an Islamic higher education institution. Employing a quasi-experimental one-group pre-test/post-test design, the study involved 20 undergraduate Islamic Banking students who participated in a CALL-based instructional intervention conducted over six sessions. Data were collected through language proficiency assessments based on an IELTS speaking rubric and a motivation questionnaire based on Keller's ARCS model. The findings indicate a statistically significant improvement in language proficiency ($t(19) = 2.42$, $p = 0.025$, Cohen's $d = 0.53$). In addition, Attention ($d = 0.63$), Confidence ($t(19) = 2.29$, $p = 0.033$, $d = 0.52$), and Satisfaction ($d = 1.17$) showed significant gains, with Satisfaction demonstrating the largest effect size. Meanwhile, the Relevance component showed no significant change ($p = 0.33$), possibly due to students' prior perception of the course content as inherently applicable to their academic and professional goals. The study suggests that CALL can serve as an effective pedagogical approach for supporting learner motivation and language development in ESP courses within Islamic higher education, particularly when instructional activities are aligned with learners' professional contexts in Islamic finance.

Abstrak: Pembelajaran Bahasa Berbantuan Komputer (CALL) telah diterapkan secara luas untuk mendukung motivasi dan pengembangan bahasa dalam pengajaran Bahasa Inggris untuk Tujuan Khusus (ESP). Namun, studi empiris yang meneliti penggunaannya dalam Bahasa Inggris untuk Perbankan Syariah di lingkungan pendidikan tinggi Islam masih terbatas. Penelitian ini mengkaji efektivitas CALL dalam meningkatkan motivasi dan

keterampilan bahasa mahasiswa pada mata kuliah Bahasa Inggris untuk Perbankan Syariah di sebuah lembaga pendidikan tinggi Islam. Dengan menggunakan desain kuasi-eksperimental satu kelompok pra-tes/pasca-tes, penelitian ini melibatkan 20 mahasiswa sarjana Perbankan Syariah yang berpartisipasi dalam intervensi pengajaran berbasis CALL yang dilakukan selama enam sesi. Data dikumpulkan melalui penilaian kemahiran bahasa berdasarkan rubrik speaking IELTS dan kuesioner motivasi berdasarkan model ARCS Keller. Temuan menunjukkan peningkatan yang signifikan secara statistik dalam kemahiran bahasa ($t(19) = 2,42$, $p = 0,025$, Cohen's $d = 0,53$). Selain itu, Perhatian ($d = 0,63$), Keyakinan ($t(19) = 2,29$, $p = 0,033$, $d = 0,52$), dan Kepuasan ($d = 1,17$) menunjukkan peningkatan yang signifikan, dengan Kepuasan menunjukkan ukuran efek terbesar. Sementara itu, komponen Relevansi tidak menunjukkan perubahan yang signifikan ($p = 0,33$), kemungkinan karena persepsi awal mahasiswa bahwa materi kursus secara inheren relevan dengan tujuan akademik dan profesional mereka. Studi ini menyarankan bahwa CALL dapat berfungsi sebagai pendekatan pedagogis yang efektif untuk mendukung motivasi belajar dan pengembangan bahasa dalam kursus ESP di pendidikan tinggi Islam, terutama ketika aktivitas pembelajaran selaras dengan konteks profesional mahasiswa di bidang keuangan Islam.

Keywords: computer – assisted language learning (call); english for specific purposes (esp); english for islamic banking, motivation.

INTRODUCTION

Computer – Assisted Language Learning (CALL) has increasingly been recognized as a powerful tool for enhancing language education, particularly within English for Specific Purposes (ESP). Research indicates that technology can improve the quality of instructional delivery and increase learners' exposure to meaningful language input (Wei et al., 2023). Studies further demonstrate that CALL supports the development of higher-order thinking skills, including critical thinking, which is essential for academic and professional communication (Chapelle, 2016; Fatimah et al., 2019; Vasileiadou & Makrina, 2017). As Tathahira (2020) notes, technology can effectively facilitate the integration of critical thinking principles into classroom activities. In sum, these findings suggest that CALL can enhance

both cognitive and linguistic outcomes, making it an increasingly relevant approach for specialized language instruction.

Within ESP education, CALL has been used to meet learners' specific professional communication needs. Tele-collaboration projects, for instance, have allowed learners to engage in authentic communication while developing intercultural awareness (Bohm, Koeper-Saul & Mossmann, 2019; Sevilla-Pavón & Haba-Osca, 2017). Other scholars, such as Constantinou and Papadima-Sophocleous (2020), have examined how Information and Communication Technology (ICT) supports ESP teaching in various contexts, demonstrating its growing acceptance as an instructional medium. Additional studies indicate that integrating technology into ESP classrooms can improve students' motivation and language skills

(Adara & Haqiyah, 2020, 2021; Fazal et al., 2024; Rodríguez-Peñarroja, 2022; Sukmawati et al., 2023). Although these studies highlight the benefits of CALL in ESP, limited research has examined its effectiveness in highly specialized ESP fields such as English for Islamic Banking.

The growing internationalization of professional sectors has contributed to the rapid development of English for Specific Purposes as a distinct area of language teaching. Because English functions as a global lingua franca across fields such as economics, aviation, and education (McKay, 2016), learners increasingly require targeted linguistic competencies rather than broad general English skills. ESP responds to these needs by designing instruction that aligns with learners' professional goals and communicative requirements (Dou et al., 2023; Mohammed & Alani, 2022). Historically, the demand for ESP emerged due to the inability of general English programs to address the specialized needs of diverse learner groups, including military personnel, medical practitioners, and university educators (Bolton & Jenks, 2022). Research in ESP continues to expand across multiple domains such as English for Academic Purposes, business English, aviation English, and English for science and technology (Starfield & Hafner, 2025) and in varied educational contexts (Bui, 2022; Hyland & Shaw, 2016; Hidayati et al., 2023). These developments show that ESP is a dynamic and evolving field shaped by global professional demands.

CALL has also evolved from basic drill-and-practice software into sophisticated digital learning environments and mobile-assisted language learning platforms (Shokrpour et al., 2019). Its widespread adoption is supported by the ability of multimedia tools such as video, audio, graphics, and interactive text to enhance engagement and accommodate diverse learning styles (Lodhi et al., 2019). Previous studies have examined the adoption of digital

technologies in education (Hussain et al., 2021; Lee & Martin, 2020; Martín Marchante, 2021) and the effects of CALL on learning outcomes (Adara, 2020a; Al-Khayyat, 2016; Greener & Jönsson, 2019; Jiang et al., 2022). In ESP contexts, research has explored CALL-mediated journal writing (García-Sánchez, 2024), learners' perceptions of CALL (Olejarczuk, 2018), and vocabulary acquisition through digitally facilitated approaches (Soltani & Mohseni, 2021). However, little is known about how CALL supports language learning in English for Islamic Banking, particularly in Islamic higher education contexts.

Motivation, a key factor affecting language learning success, plays an important role in determining learners' engagement and achievement. Motivation has been defined as the set of factors that influence individuals' choices and behaviors (Yue et al., 2022), and it has been extensively studied in second and foreign language contexts for more than three decades (Csizér, 2017). Studies show that motivation varies across learning environments, such as between local and overseas settings, and can significantly affect learners' ability to benefit from instructional opportunities (Fryer & Roger, 2018; Yue et al., 2022). Despite its importance, motivation has received comparatively less attention within ESP research, although several studies have examined motivational aspects in ESP contexts (Gerasimova et al., 2022; Jafari Pazoki & Alemi, 2022; Kjirovska-Simjanoska, 2022; Navickienė et al., 2021; Rodríguez-Peñarroja, 2022). Rubić and Matijević (2019) argue that motivation in ESP is often narrowly viewed through the lens of career relevance, while other motivational factors are overlooked. This indicates a need for further research examining motivation in specialized ESP contexts integrated with CALL.

In regards to the background shown in the earlier paragraphs, the present study focuses on the use of CALL to teach English

for Islamic banking to a group of college students majoring in Islamic Banking. These learners require English proficiency to participate in global developments in Islamic finance and to explain Sharia-compliant financial concepts to international audiences. In this study, CALL is used to deliver materials on topics such as introducing Islamic banking, offering financial products, and managing customer interactions. This study addresses the gap in previous research by examining the effectiveness of CALL in English for Islamic Banking, a specialized ESP area that remains rarely explored despite existing studies on teaching strategies in the field (Madkur, 2018; Purnama et al., 2024; Rismasari et al., 2022). The study also contributes to the broader CALL and ESP literature by providing empirical evidence from an Islamic higher education context and by examining both language skills and learner motivation. In regards to the background shown in the earlier paragraphs, the present study focuses on the use of CALL to teach English for Islamic banking to a group of college students majoring in Islamic Banking. These learners require English proficiency to participate in global developments in Islamic finance and to explain Sharia-compliant financial concepts to international audiences. In this study, CALL is used to deliver materials on topics such as introducing Islamic banking, offering financial products, and managing customer interactions. This study addresses the gap in previous research by examining the effectiveness of CALL in English for Islamic Banking, a specialized ESP area that remains less explored despite existing studies on teaching strategies in the field (Madkur, 2018; Purnama et al., 2024; Rismasari et al., 2022). The study also contributes to the broader CALL and ESP literature by providing empirical evidence from an Islamic higher education context and by examining both language skills and learner motivation.

Based on the above discussion, the study proposes the following hypotheses:

H₀: CALL instruction does not significantly improve students' English language proficiency in English for Islamic Banking.

H₁: CALL instruction significantly improves students' English language proficiency in English for Islamic Banking.

METHOD

Research Design and Instruments

The present study applied a quasi experimental research design. The treatment would consist of materials for English for Islamic banking through CALL. The treatment would last for six sessions. Each session would be around one and half hour. While the study did not include a control group, the use of a single experimental group can still provide meaningful results, particularly in exploratory or classroom-based research. By employing pre- and post-tests, the study can measure changes in students' performance before and after the intervention. This design allows researchers to observe potential learning gains attributable to the treatment, even without a comparison group. Furthermore, in contexts where implementing a control group is not feasible due to time constraints, ethical considerations, or institutional limitations, focusing on an experimental group alone can still offer valuable insights into the effectiveness of an instructional approach.

The treatment involved the integration of CALL into six instructional sessions focused on English for Islamic Banking. Each session lasted approximately 90 minutes and aimed to enhance the students' language skills while familiarizing them with key concepts and communication tasks in the Islamic banking domain. The content and tools were tailored to meet both linguistic and professional objectives.

Session 1: Introduction to basic Islamic banking terms and principles through

interactive vocabulary-building activities using multimedia glossaries and digital flashcards.

Session 2: Reading comprehension tasks using authentic Islamic banking texts, supported by digital annotation tools and comprehension questions.

Session 3: Listening activities using CALL-based platforms featuring real-world audio materials such as interviews with Islamic finance professionals and banking podcasts.

Session 4: Speaking practice through online role-play simulations where students took on the roles of bank officers or clients in Islamic banking scenarios.

Session 5: Writing activities involving short reports and email correspondence relevant to banking operations, supported by online writing platforms offering automated feedback.

Session 6: Project-based learning activity where students created and delivered digital presentations on selected Islamic banking topics using presentation software, integrating both content knowledge and language skills.

CALL tools were used not only to facilitate language development but also to create an interactive and contextually relevant learning environment, reflecting the authentic communication tasks expected in the field of Islamic banking.

To evaluate the effectiveness of the treatment, the researchers conducted both a pretest and a posttest to measure the participants' improvement in language skills. To assess spoken language proficiency, an oral test was administered, consisting of questions related to English for Islamic Banking. These questions covered practical communication scenarios such as introducing Islamic banking concepts, explaining Sharia-compliant investment products, and responding to customer inquiries. The oral test was evaluated by two independent raters using a standardized rubric from IELTS speaking test (IELTS, 2023). Thus, we assessed four criteria (fluency and coherence, lexical resource, grammar and

pronunciation) before and after the treatment. To ensure the reliability of the scoring process, inter-rater reliability was calculated and yielded a Cohen's Kappa of 0.85, indicating almost perfect agreement between the evaluators and confirming the consistency of the scoring. In addition to language proficiency, the study also examined participants' motivation levels. For this purpose, the researchers administered a questionnaire adapted from Keller's (2010) Course Interest Survey (CIS), which is based on the ARCS motivational model. The CIS measures four key motivational variables: Attention (learners' interest and curiosity), Relevance (the perceived usefulness and applicability of the content), Confidence (learners' belief in their ability to succeed), and Satisfaction (the degree of fulfillment and reward learners experience). This instrument was selected due to its frequent use in prior research on ESP learner motivation (e.g., Zhang et al., 2023). To ensure clarity and accessibility, the questionnaire was translated from English into Bahasa Indonesia.

Data Analysis

The researchers would use descriptive statistics to test the hypotheses. Therefore, the researchers would measure means and standard deviations of the results of the questionnaires to see the improvements in the participants' motivation toward the ESP course before and after the treatment. In addition, the results of language tests would be used to provide better insights to the improvement in the participants' language skills after integrating CALL to teach the participants in the experimental class.

Research Participants

The present study employed convenience sampling to recruit participants from a university in Bekasi, Indonesia. The target group consisted of students majoring in Islamic banking enrolled in an English for Specific Purposes (ESP) course. The inclusion

criteria for participation were as follows: (1) currently enrolled as an undergraduate student majoring in Islamic banking, (2) actively participating in the ESP course during the study period, (3) having completed at least one semester of study, and (4) voluntarily agreeing to participate by signing an informed consent form. Students who did not meet these criteria were excluded from the study. Additionally, the exclusion criteria included: (1) students who had previously taken similar ESP courses related to Islamic banking using CALL methods, (2) students who were unable to attend more than two sessions of the treatment, and (3) those who failed to complete either the pretest, posttest, or motivation questionnaire. Following table shows the demographics of the participants:

Table 1. Demographic Information of the Participants

Category	Sub-category	N
Gender	Male	8
	Female	12
Age	18	7
	19	13

Ethical Procedures

The researchers ensured that this study adhered to appropriate ethical standards. Permission to conduct the research was obtained from the university administration. Additionally, the willingness of the participants was secured through informed consent forms, which explained the purpose of the study, assured participants of the confidentiality and anonymity of their responses, and clarified that the data collected would be used solely for research purposes. Data collection commenced only after all participants had provided their informed consent.

RESULTS AND DISCUSSION

Results

Following table shows the results of the present study:

Table 2. The Questionnaires' Results

No	Variables	Pre-treatment Mean (SD)	Post-treatment Mean (SD)	Mean Difference (Δ)	t (19)	p-value	Cohen's d	Significant?
1	Test Scores	5.0	6.5	0.5	2.42	0.025	0.53	Yes
2	Attention	3.2 (0.67)	3.53 (0.73)	0.33	2.84	0.01	0.63	Yes
3	Relevance	3.7 (0.45)	3.8 (0.56)	0.10	1.01	0.33	0.22	No
4	Confidence	3.9 (0.46)	4.2 (0.59)	0.27	2.29	0.033	0.52	Yes
5	Satisfaction	3.4 (0.51)	4.22 (0.54)	0.76	5.29	<0.001	1.17	Yes

The results of this study indicate that the use of Computer-Assisted Language Learning (CALL) is associated with improvements in both students' English language proficiency and their motivation to learn English for Islamic Banking. After participating in a six-

session CALL-based intervention, students' average language proficiency scores improved from 5.0 to 6.5. A paired-samples t-test confirmed that this difference was statistically significant, $t(19) = 2.42$, $p = 0.025$, with a moderate effect size (Cohen's $d = 0.53$). This suggests that the CALL materials effectively supported students in developing language skills relevant to their field of study.

In addition to language performance, motivational changes were assessed using Keller's ARCS model. Three of the four motivational components; Attention, Confidence, and Satisfaction showed statistically significant improvements. Attention increased significantly, $t(19) = 2.84$, $p = 0.01$, $d = 0.63$, indicating increased engagement during the CALL-based learning activities. Confidence also improved, $t(19) = 2.29$, $p = 0.033$, $d = 0.52$, reflecting greater self-assurance in using English in Islamic banking contexts. The most substantial gain was observed in Satisfaction, $t(19) = 5.29$, $p < 0.001$, $d = 1.17$, suggesting that students found the learning experience both fulfilling and enjoyable.

In contrast, the Relevance dimension did not show a statistically significant change, $t(19) = 1.01$, $p = 0.33$, $d = 0.22$, indicating that students' perception of the course's applicability remained stable. As shown in Figure 2, Relevance also had the smallest mean difference and the lowest normalized gain compared to Attention, Confidence, and Satisfaction. This indicates that Relevance was the least responsive motivational dimension to change during the intervention period.

Based on these findings, the null hypothesis can be rejected. The results indicate a statistically significant difference between pre-test and post-test scores. The findings suggest an association between CALL instruction and improved students' English language proficiency in English for Islamic Banking.

In addition to the table that describes the results, the following visualizations present an overview of the changes observed in participants' scores before and after the treatment across various dimensions, including overall test performance and motivation sub-scales. While these charts illustrate general trends and improvements, it is important to interpret the findings with due consideration of the study's context and sample size. The graphical representations aim to complement the statistical analyses by providing a clear and accessible depiction of the mean scores and their shifts, helping to highlight areas where notable changes occurred as well as those where results were less pronounced.

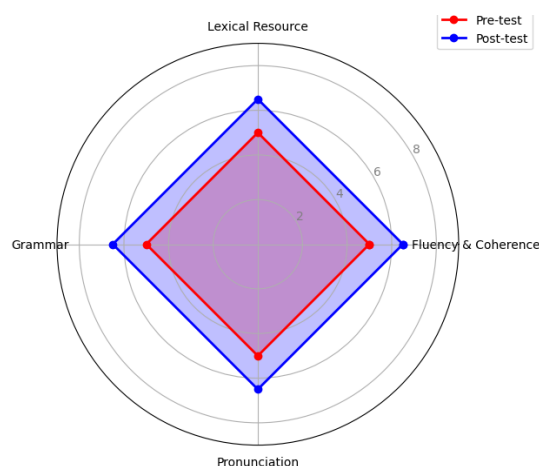


Figure 1. The Participants' Sub-components Scores

Figure one illustrates the comparative performance of participants on four sub-components of language skills (fluency and coherence, lexical resource, grammar and pronunciation) before and after the treatment. The red shaded area represents the pre-test scores, while the blue shaded area corresponds to the post-test scores. Across all four categories, the post-test scores are consistently higher than the pre-test scores, indicating improvements after the treatment. Specifically, the participants showed noticeable gains in Fluency & Coherence, Lexical Resource, Grammar, and Pronunciation, with the post-

test scores approaching or exceeding 6.5 on the scale, compared to pre-test scores around 5. This suggests that the intervention can help with the language skills assessed. The chart visually highlights the positive impact of the treatment, with the blue area encompassing a larger portion of the radar plot, signifying overall skill advancement.

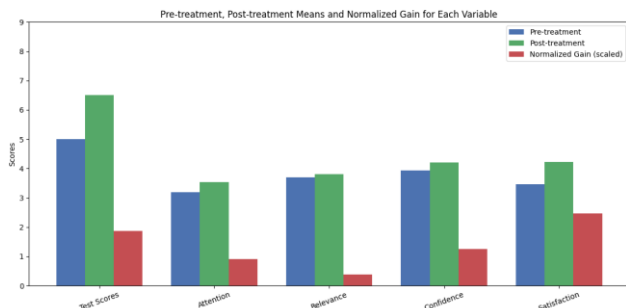


Figure 2. Pre-treatment, Post-Treatment Means and Normalized Gain for Each Variable

The figure presents a grouped bar chart comparing pre-treatment scores, post-treatment scores, and scaled normalized gains across five variables: Test Scores, Attention, Relevance, Confidence, and Satisfaction. For each variable, the blue bar represents the pre-treatment mean, the green bar shows the post-treatment mean, and the red bar depicts the normalized gain scaled to fit the chart. Overall, all variables show improvement following the treatment, though the magnitude of change varies. Test Scores display the most substantial increase, rising from about 5.0 to 6.5, which corresponds with the highest normalized gain among the variables. Satisfaction also demonstrates a notable improvement, increasing from roughly 3.5 to 4.3, accompanied by a relatively high normalized gain. Attention and Confidence show moderate increases, moving slightly upward from their pre-treatment values, while Relevance exhibits only a minimal change, reflected in its very small normalized gain. Therefore, the bars illustrate that although all areas improved after

the intervention, the degree of improvement differs markedly across the variables.

Discussions

The results of this study demonstrate that the integration of Computer-Assisted Language Learning (CALL) in teaching English for Islamic Banking may be associated with positive changes in both students' language proficiency and motivation. However, this finding stands in contrast to several earlier studies that reported limited or non-significant effects of CALL on language performance. For example, Adara's (2020b) study on the integration of Mobile Assisted Language Learning (MALL) on a group of ESL learners' motivation and autonomy shows that MALL's integration does not significantly affect the students' motivation or autonomy. In addition, Feroce et al. (2025) found that the treatment group of bilingual students who used Lexia English CALL program only perform slightly better than the control group. Besides that, a research of Penning de Vries et al. (2020) demonstrates small improvements on the results of corrective feedback among the experimental group participants. These contrasting results suggest that CALL alone is not inherently effective, and its impact may depend heavily on how well it is contextualized and integrated into the curriculum.

In contrast, other studies have found results consistent with the current findings. Several studies demonstrated that CALL environments significantly improved learners' vocabulary, reading comprehension, and domain-specific language use in ESP settings (Dong et al., 2022; Rachmawati, 2025; Widiawati, 2017). These studies emphasized the importance of interactive, multimodal learning tools and authentic materials, which were also central to the CALL design in this study. The difference between studies with positive and negative outcomes may stem from differences in instructional design quality,

content relevance, and learner engagement. In the present research, CALL activities were tightly aligned with students' academic and professional interests in Islamic finance, likely enhancing both their motivation and language acquisition. Furthermore, participants received consistent guidance and feedback throughout the intervention, possibly explaining the stronger results compared to studies where CALL was implemented more generically or passively.

Motivational factors, as measured by Keller's ARCS model, showed notable improvement in this study, particularly in the areas of Attention, Confidence, and Satisfaction. The increase in Attention aligns with recent findings by Adara and Haqiyah (2022), who observed that the integration of CALL significantly improved EFL learners' motivation and engagement in an Indonesian tertiary context. Similarly, Pebiana and Febria (2023) found that mobile-based peer feedback in EFL speaking tasks enhanced both learners' motivation and behavioral engagement, suggesting that interaction-rich CALL environments can stimulate cognitive involvement. However, not all CALL interventions consistently yield motivational gains. For instance, studies have shown that learners may initially respond positively to technology-enhanced learning environments, but over time, the novelty effect can fade, particularly if the digital tools lack variation or interactivity (Adara & Najmudin, 2020). These findings highlight the importance of thoughtful instructional design, learner training, and continuous feedback to sustain motivation in CALL-supported ESP courses. In the present study, the alignment between CALL materials and students' academic and professional goals in Islamic banking likely contributed to the sustained improvement in motivational factors such as Satisfaction and Confidence.

The gain in Confidence observed in this study also resonates with previous research.

Reinders and White (2016) noted that autonomy-supportive CALL environments foster self-efficacy by allowing learners to work at their own pace and revisit materials as needed. Similarly, a recent case study using a task-based approach in ESP for computer and electrical engineering students found that professional communication skills including technical vocabulary and oral presentation ability improved significantly after engaging in real-life, discipline-relevant tasks (Zulfiya, 2025). In addition, Haddadian (2024) found that EFL learners who received integrative feedback—combining teacher and automated responses—showed reduced writing apprehension, indicating improved confidence compared to those who received only automated feedback. However, Su, Qian, and Luo (2024) indicate that among Chinese university EFL students, the degree of familiarity and frequency of using an automated writing evaluation tool like Grammarly is positively correlated with writing self-efficacy; conversely, learners who were less familiar or overly dependent on such tools without support reported lower confidence. This contrast suggests that while CALL can boost confidence, it must be accompanied by appropriate training and scaffolding to avoid cognitive overload or digital frustration.

An especially strong gain was seen in the Satisfaction component, implying that students found the CALL-enhanced learning experience enjoyable and rewarding. The effect size for Satisfaction ($d = 1.17$) was larger than those observed for language proficiency ($d = 0.53$), Attention ($d = 0.63$), and Confidence ($d = 0.52$), indicating that Satisfaction showed the strongest improvement among all measured outcomes. This is supported by Keller's (2010) own findings, which link satisfaction to feelings of achievement and perceived usefulness of learning activities. Shadieff et al. (2020) also found that learners reported high levels of satisfaction when CALL tools

allowed them to produce meaningful, real-world outputs. However, Fatnalaila and Ciptaningrum (2024) found that some ESP learners perceived ICT tools, including CALL platforms, as impersonal and challenging to use, which negatively impacted their satisfaction. In the current study, the integration of context-specific simulations and learner-centered tasks may have helped bridge that gap, making the experience more authentic and personally rewarding.

Interestingly, the Relevance component of motivation did not show a significant increase. This finding is consistent with the descriptive results shown in Figure 2, where Relevance exhibited the smallest mean difference and the lowest normalized gain compared to the other ARCS dimensions. One plausible interpretation is that students' perception of relevance remained relatively stable throughout the intervention period. Similar patterns have been reported in ESP contexts where relevance is often shaped by learners' long-term academic and career goals rather than short-term instructional interventions (Rochmawan & Nugraheni, 2023). Zhang (2021) further argues that perceived relevance in ESP environments is more strongly influenced by real-world application opportunities than by instructional method alone. This suggests that enhancing perceived relevance may require broader curricular integration beyond classroom-based CALL activities.

CONCLUSION

This study investigated the association between the use of Computer-Assisted Language Learning (CALL) and the motivation and language proficiency of students studying English for Islamic Banking. Using a quasi-experimental design with a single experimental group of 20 ESP learners, the findings revealed significant improvements in both motivational dimensions particularly Attention, Confidence, and Satisfaction and in

learners' English language performance. However, the Relevance dimension did not show a significant change, indicating that students' perceptions of the applicability of English for Islamic Banking remained relatively stable throughout the intervention period. These results highlight the potential of CALL as a valuable pedagogical approach for English for Specific Purposes (ESP), especially in niche areas such as Islamic finance. The study also contributes to the growing literature on CALL and ESP by extending the application of Keller's ARCS model to the context of Islamic higher education in Indonesia. Although the study was limited by its small sample size and lack of a control group, it provides preliminary evidence that CALL-based instruction may support language development and learner engagement when learning materials are aligned with students' professional contexts.

While the findings of this study offer valuable insights into the effectiveness of CALL in an English for Islamic Banking context, several limitations should be acknowledged. First, the study employed a quasi-experimental design without a control group, which limits the ability to attribute improvements in language proficiency and motivation solely to the CALL intervention. Without a comparative baseline, it is difficult to rule out the influence of external factors such as prior exposure to similar content or general academic development. Second, the sample size was relatively small ($n = 20$) and drawn from a single institution, which restricts the generalizability of the findings to broader populations. The results may not fully represent the diversity of ESP learners in other Islamic banking programs or educational settings with different technological infrastructures. Therefore, the findings should be considered context-specific and interpreted with caution when applied to other ESP settings or learner populations. Third, the duration of the intervention was limited to six

sessions, which may not be sufficient to observe long-term effects on language acquisition or sustained motivation. Some motivational gains—such as increased attention or satisfaction—may diminish over time without continued reinforcement. Fourth, while the study included both pre- and post-tests and a motivation questionnaire, it relied primarily on quantitative instruments. This approach, while useful for measuring change, may not fully capture the learners' subjective experiences, perceptions of CALL, or contextual challenges they faced during the learning process. Finally, technical and digital literacy factors were not directly measured. Learners' familiarity with CALL tools or access to stable technology may have influenced their engagement and performance, introducing variability that was not controlled in the study. Additionally, no a priori power analysis was conducted to determine the required sample size, and therefore the adequacy of the sample should be interpreted cautiously. Addressing these limitations in future research will be essential to provide a more comprehensive understanding of how CALL can be effectively integrated into ESP contexts, particularly in specialized domains such as Islamic finance. Future studies should replicate the present research with larger and more diverse samples across multiple institutions to strengthen the generalizability and robustness of the findings.

Against this background, the findings of this study support the use of CALL as a pedagogical approach in ESP contexts, especially when the design is closely aligned with learners' professional goals. However, the variation in findings across the literature reminds us that CALL is not a one-size-fits-all solution. Its success depends on thoughtful instructional design, learner support, and contextual adaptation. These results also highlight the need for future research to explore longitudinal outcomes, as some motivational effects—like Attention or

Satisfaction—may diminish over time if CALL tasks are not continually refreshed and personalized. Additionally, integrating qualitative data, such as learner reflections or interviews, would provide richer insights into how students perceive the affordances of CALL tools and how these perceptions evolve over time. Finally, future studies should consider using control groups and larger, more diverse samples to enhance the generalizability of findings and better isolate the causal effects of CALL-based interventions in ESP education.

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