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Exploring the dynamics of English language e-learning: A case study of motivations, beliefs, and strategies among advanced English as a foreign language university students

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In a rapidly evolving e-learning landscape, where learner-centered pedagogy is increasingly embraced, understanding the factors influencing English language acquisition in digital environments is crucial. This mixed-methods study, primarily employing a qualitative approach, investigated the complex interplay of technological self-efficacy, intrinsic motivation, and e-learning strategy use among 31 advanced English language learners in Beni-Suef University. The findings revealed that while students' internal factors like technological self-efficacy and motivation influenced their e-learning approach and engagement, they did not guarantee success and were, in fact, strongly determined by the learning context itself. The study further highlighted the importance of a well-designed e-learning environment, including structured learning objectives, frequent opportunities for interaction, and assessment approaches that support learning, as key factors for maximizing learners' success. These findings emphasize the need for educators to move towards a more holistic approach that considers the complex interaction of learner attributes and the learning environment in the development of effective e-learning programs. Future research should explore these findings across a range of different types of learners and in different contexts to further develop our understanding of the most effective ways to support language learning in online environments.

Keywords: e-learning, language education, Middle East and North Africa, English as a foreign language, learner variables

Introduction

The educational landscape has been significantly transformed by the global shift toward learner-centered pedagogies and the widespread integration of e-learning technologies, particularly in language acquisition (Kang et al., 2020; Montebello, 2021; Suárez & El-Henawy, 2023). This transformation is especially pertinent in contexts where English proficiency is increasingly vital for academic and professional advancement in our digitally driven world (Latif, 2018). As online English language programs rapidly expand, it is crucial to understand the factors influencing learners' experiences and their subsequent learning outcomes (McIlwraith & Fortune, 2016).

However, the specific ways in which these programs meet the needs of students within the Middle East and North African context has received limited research attention, alongside proper foreign language policies that would induce equity in access and efficacy in application (Amin & Sundari, 2020; Bailey & Nunan, 2023; Kirkpatrick, 2017; Warschauer & Matuchniak, 2010).

Extensive research acknowledges the importance of individual learners' characteristics, including language learning strategies, attitudes, motivations, and beliefs, in shaping language proficiency (Dörnyei & Ushioda, 2013). However, the unique characteristics of e-learning environments introduce additional complexities. This highlights the need for exploring the intricate relationship between these factors and the specific nuances of online learning spaces (Blake, 2013; Kang et al., 2020). Furthermore, research into how these learner characteristics interact with technology is less developed and requires further exploration.

This study aimed to contribute to this field by investigating the experiences of a specific group of students: Advanced English language learners at a North African university. This choice of participant group was not incidental. A focus on advanced-level learners provides insight into those who have been successful, and this can assist in informing the learning process for other students. This research specifically investigated the relationships among technological self-efficacy, intrinsic motivation, and the use of language e-learning strategies in these students.

To identify the key factors that influence their e-learning experiences, this study sought to provide insights that could inform the design and implementation of more effective e-pedagogical practices. These practices should be tailored to address the diverse needs and motivations of English as a foreign language (EFL) learners and thus improve e-learning outcomes. This study addresses a research gap by directly investigating the influence of technological self-efficacy and intrinsic motivation on the use of e-learning strategies within a specific group from Beni-Suef University students. To explore this, the study addresses the following research question and related subquestions:

Main research question

How do technological self-efficacy and intrinsic motivation shape the experiences of advanced EFL university students as they engage with e-learning for English language development?

Subquestions

1. What e-learning strategies do these advanced students report using to support their language development?
2. How do learners' attitudes, motivations, and beliefs (including technological self-efficacy) influence their choice of strategies and overall engagement with e-learning?
3. How do contextual factors – such as curriculum design, assessment, and opportunities for interaction – shape students' e-learning experiences and their perceptions of success?

Literature review

The field of second language acquisition recognizes the crucial role of individual learner variables in determining success (Dörnyei & Ushioda, 2011). This is especially true within the rapidly evolving context of e-learning (Blake, 2013; Kang et al., 2020). This literature review explores three such interconnected variables that are central to our study: technological self-efficacy, intrinsic motivation, and the use of e-learning strategies among advanced-level English language learners. This review also addresses how these constructs manifest specifically in online learning environments and the complex interplay between them, while paying particular attention to the unique context of Egypt and other developing nations.

Technological self-efficacy in e-learning

Technological self-efficacy, defined as the belief in one's ability to successfully use technology for learning (Compeau & Higgins, 1995), is a crucial factor in the e-learning landscape. Studies suggest that learners with high technological self-efficacy are more confident in utilizing digital resources, exploring online platforms, and adopting diverse learning strategies (Hanif et al., 2018; Macfadyen & Dawson, 2010). This confidence fosters greater autonomy and self-directed learning. For example, research by Ramsin and Mayall (2019) found that Thai learners with high online learning self-efficacy were more likely to engage in online learning courses, illustrating the importance of this construct in a non-Western learning context.

The landscape of learner preferences in educational settings remains complex, with studies such as those by Mekheimer (2025a) demonstrating that factors like self-efficacy do not always supersede a preference for face-to-face instruction, while other research by Mekheimer (2025b) reveals how learners actively navigate and engage with diverse digital environments. Conversely,

low technological self-efficacy can lead to anxiety, avoidance behaviors, and a preference for traditional learning methods, as suggested by Macfadyen & Dawson (2010). Furthermore, as highlighted by Jeong (2023) in their study of Korean EFL university students, integrating social media into mobile-assisted language learning can boost both motivation and engagement, suggesting that technology can also play a part in the building of self-efficacy and further supporting the argument that it is not just the use of technology but how it is used that matters. Our study sought to further understand this by exploring how these beliefs about their technological abilities impact advanced learners within our specific context.

Intrinsic motivation and e-learning engagement

Motivation, another key driver of learning (Dörnyei, 2001), is particularly important in the context of e-learning, where learners must often take a more proactive and self-directed role (Deci & Ryan, 2000). Intrinsic motivation, driven by internal factors such as enjoyment and a sense of accomplishment, is strongly correlated with success in language learning (Dörnyei, 2001). Learners who are intrinsically motivated are more likely to seek out online resources, actively participate in discussions, and engage in self-directed learning. These types of proactive behaviors lead to deeper understanding and a greater sense of ownership over learning, which was a point also touched on by Sari (2020) in her study on online language courses, and she noted that the participants had three roles: active learners, problem solvers, and knowledge seekers.

These findings underscore that intrinsic motivation is not a stable trait but is instead highly sensitive to contextual factors. For instance, motivation can be significantly undermined in forced online learning environments (Huang & Wang, 2022), and acceptance of technology often depends on the learners' attitudes and perceptions of a platform's usefulness and ease of use (Tan, 2014). The quality of the learning environment is therefore a crucial mediating factor. Building on this, the present study investigated how intrinsic motivation and technological self-efficacy interact to influence advanced learners' e-learning strategies and their attitudes towards integrating technology in their studies (Pan, 2020).

E-learning strategies: A framework for successful learning

Language learning strategies, which learners consciously employ to enhance their language proficiency (Oxford, 1990), also play a key role in the e-learning process. Such strategies can be broadly categorized into cognitive, metacognitive, and social-affective strategies (Cohen, 2014; Oxford, 2013). Foundational frameworks, particularly those of Oxford (1990, 2013) and Cohen (2014), categorize these learning strategies into three main types: cognitive (direct engagement with language information), metacognitive (planning and monitoring the learning process), and social-affective (managing interactions and emotions).

Many studies have found a correlation between the use of such strategies

and improved language proficiency (Teng, 2022; Wenden, 1991). As noted by Teng et al. (2023), in online learning settings, these strategies can further support self-regulation and learners' motivation. It is clear that e-learning can provide opportunities for learners to develop and implement these diverse strategies (Shaanan, 2022); however, the specific ways in which learners, particularly advanced learners, utilize these strategies in a digital environment, and how this use is influenced by motivation and self-efficacy, is an area that requires further research.

Furthermore, we need to better understand the role of context, and especially if certain approaches are more appropriate in some situations than in others, and specifically in the EFL context in North Africa and the Middle East.

E-learning in developing contexts

The educational landscape in developing nations is undergoing a rapid shift towards e-learning, driven by increased access to online resources and the global demand for English proficiency (Latif, 2018; Shaalan, 2022). While e-learning offers exciting possibilities, this transition is not without challenges. Access to reliable internet connectivity and technological infrastructure can be a major obstacle, particularly in rural areas (El-Seoud et al., 2014; Mahmud & Gope, 2009). Cultural values and attitudes towards technology may also influence learners' engagement with online learning (El-Seoud et al., 2014).

Recent studies emphasize the importance of context-specific factors such as content design and student involvement (Chaiyasat et al., 2024) and call for an awareness of e-learning as a dynamic system in which individuals interact uniquely (Mahboob, 2018). However, the specific EFL context of North Africa – and particularly the experiences of its advanced learners – remains distinct and significantly under-represented in the existing literature. To address this gap, our study investigated the interplay of technological self-efficacy, intrinsic motivation, and e-learning strategies within this specific population.

The need for research

The existing literature highlights the importance of technological self-efficacy and intrinsic motivation in successful language e-learning; however, few studies have investigated the ways in which these learner variables, combined with use of e-learning strategies, interact in a specific context, and especially with advanced learners, who are a key group for understanding successful e-learning practice.

More importantly, research needs to be conducted in the EFL context. Our research aimed to address this gap by investigating the experiences of advanced-level English language learners in a North African university, seeking to contribute insights that can inform more effective e-pedagogical practices for this unique learner population. The research also aimed to understand how these constructs interact in this context, and to provide insight into

whether previous findings, conducted in very different contexts, still hold true in this setting.

Methodology

This study employed a mixed-methods approach, primarily utilizing a qualitative design, to gain an in-depth understanding of the complex interplay between technological self-efficacy, intrinsic motivation, and e-learning strategy use among advanced English language learners. While the primary focus is qualitative, the incorporation of some quantitative elements allows for a broader view of the trends while still retaining an emphasis on the rich, detailed, and subjective experiences of the participants within the context of their online English language program.

The use of mixed methods facilitates a more robust approach, allowing for the corroboration of qualitative findings with supporting quantitative data and enabling a more comprehensive understanding of the research problem (Creswell & Plano Clark, 2018). Specifically, the qualitative elements enable an in-depth exploration of learner experiences, while the quantitative elements allow us to identify any statistically significant trends among our participants. The study drew on elements of case study design through the exploration of this phenomenon within one specific institution.

Participants

The participants in this study were 31 advanced-level university students (22 female, 9 male) enrolled in English language programs at a North African university (Beni-Suef University). The age of the participants ranged from 19 to 23 years, with a mean age of 21.2. While all participants had some familiarity with online platforms due to the shift to emergency remote teaching during the COVID-19 pandemic, the majority ($n = 26$) reported that this was their first formal, fully online course for academic credit. A summary of the participants' profiles is provided in Table 1.

Table 1. Participants’ profiles

Feature	Description
Sample size	31 advanced university students
Gender	22 female, 9 male
Age range	19–23 years (mean = 21.2)
Prior online experience	Limited formal experience; primarily emergency remote teaching
Level of study	Enrolled in English language programs (in a Teaching English as a Foreign Language methodology course)
Location	A North African university (Beni-Suef University, Egypt)
Selection method	Convenience and criteria-based sampling (enrolment, 80%+ average, C1 Common European Framework of Reference for Languages (CEFR))
English proficiency	High (80%+ average, C1 CEFR)
Rationale	Insights from successful e-learners, specific to a developing nation context

This specific location was chosen to address the gap in the literature on the ways in which e-learning is used and experienced in the EFL educational context and to better understand how advanced learners navigate the unique challenges and opportunities of such an environment.

These participants were purposefully selected using a combination of convenience and criteria-based sampling methods. The students were initially selected on the basis of their enrollment in a specific online program, specifically in an EFL teaching methodology course for juniors. From there, the criteria included demonstrated high levels of English proficiency, evidenced by their academic performance (average score of 80% or higher in previous English courses) and standardized test scores (a minimum score of C1 on the Common European Framework of Reference for Languages or equivalent). This focus on advanced learners is essential, as they represent a group that has generally been successful in English language learning. This means their practices and beliefs can provide insights into effective e-learning behaviors, while the larger sample size enables us to identify trends across the cohort.

Data collection

Data was collected through a combination of semi-structured interviews, field observations, and document analysis, allowing for a triangulation of the data and a more comprehensive understanding of the research phenomenon.

Initial motivation assessment. The initial motivation assessment combined a brief 8-item Likert-scale survey (1 = strongly disagree to 5 = strongly agree) with a semi-structured set of open-ended questions to gauge the participants’ initial motivations, beliefs, and expectations regarding e-learning for English language development.

The design of this instrument was also supported by the existing literature in the field, particularly studies that have explored learners’ motivation and

beliefs (Dörnyei & Ushioda, 2013; Kalaja & Barcelos, 2007; Montaña-González, 2020), and by ensuring that the language was appropriate for advanced learners. The survey assessed pre-existing attitudes towards online learning, levels of motivation, and self-belief, while the interview explored the participants' experiences, goals, learning preferences, and expectations for the course. This combined approach provided both quantifiable data and qualitative insights and was estimated to take 15–20 minutes to complete. The survey demonstrated good internal consistency (Cronbach's $\alpha = 0.82$), and its face validity was confirmed through a pilot study with 25 advanced EFL learners.

Semi-structured interviews. Individual semi-structured interviews were conducted with each of the 31 participants to provide detailed insight into their e-learning experience, including strategies, beliefs, and experiences. The semi-structured format allowed for flexibility and the emergence of unexpected themes that were relevant to the research questions while still maintaining a focus on the key areas. The interviews were conducted online using Zoom and lasted between 40 and 60 minutes.

Field observations. A subgroup of participants ($n = 8$) was observed during online learning activities. This included observing their engagement with their online course, the e-learning platform they were using, and their interactions (if any) with other learners. Observations were conducted over a period of four weeks for approximately 1 hour per participant per week. Detailed field notes were taken during each observation session to document the participants' behavior, strategy use, and other relevant details. To ensure behavioral diversity, eleven participants were selected for observation based on the diverse range of their interview responses.

Document analysis. A range of documents was collected to provide additional contextual and triangulating data. These included course materials, assignments, and (where available) self-reflection journals submitted by the participants. This offered insight into the type of learning activities and materials they were engaging with and any strategies they used.

Data analysis

The data collected from the surveys, interviews, observations, and document analysis were analyzed using a mixed-methods approach. The qualitative data (interviews, observations, and documents) were transcribed verbatim and analyzed using thematic analysis (Braun & Clarke, 2006). This approach allowed for a systematic identification of recurring patterns and themes related to our research questions. The thematic analysis proceeded via the following steps.

1. Familiarization: The researchers thoroughly familiarized themselves with the data by reading the transcripts, field notes, and documents several times.
2. Coding: Data were then coded using an *in vivo* approach, which involved

using the participants' own words and phrases as codes, in order to ensure the analysis remained close to the participant's experiences and perspectives, and to capture the nuances of their experiences.

3. Theme development: Initial codes were then reviewed and developed into higher-order themes.
4. Refinement: The identified themes were refined and reviewed to ensure that they represented the collected data accurately.
5. Interpretation: Finally, the themes were interpreted in the context of our research questions and with reference to the existing literature. The quantified qualitative data from the interviews, as the weighted percentages of the themes, were then compared with the recurring patterns and themes from the qualitative data to identify convergences and divergences, to give a more holistic understanding of the participants' experiences, and to support the overall analysis. To further support the qualitative analysis, word clouds were generated from the coded data to visualize the frequency of key words and phrases and to help highlight the key points.

Ethical considerations

This study was conducted with adherence to strict ethical principles. Informed consent was obtained from all participants before the commencement of data collection. They were fully informed about the purpose of the research, their right to withdraw at any point, and the procedures for maintaining their anonymity and confidentiality. All participants were given the opportunity to review and verify the accuracy of the transcribed interview data, and all identifying information was removed from the final research report. Furthermore, all participants will be given access to the final results of the research. All data collected, including the interviews, observational field notes, and documents, are stored securely and accessible only to the research team.

Findings

This study explored the complex interplay between technological self-efficacy, intrinsic motivation, and e-learning strategy use among 31 advanced university students enrolled in an online English language program at a typical North African university. The findings gathered from the survey data, semi-structured interviews, field observations, and document analysis, provided a detailed understanding of their experiences.

Initial motivation assessment

Prior to engaging in the online English language program, all 31 participants completed the initial motivation assessment, which combined a brief Likert-scale survey with a semi-structured interview. The survey provided quantifiable data about their pre-existing beliefs and attitudes, while the interviews

provided a rich picture of their initial motivations and their expectations for the course. Table 2 presents an overview of the average scores for the survey section of this assessment.

Table 2. Participants’ initial motivation survey scores (average)

Statement	Average score
1. I am looking forward to learning English through an online platform.	3.7
2. I believe that online learning is an effective way to improve my English.	3.4
3. I am confident that I will be able to succeed in an online English course.	3.2
4. I am motivated to improve my English for my future academic or professional goals.	4.5
5. I feel that online learning is the best option for my current circumstances.	3.5
6. I generally find e-learning to be a useful and positive experience.	3.2
7. I am always willing to try new things to help my learning and improve my scores.	4.0
8. I believe that I am a self-directed learner and I can easily organize my studies.	3.4

The survey data indicated that, as a whole, the participants were more motivated to improve their English for future goals and were also generally open to new learning approaches. However, there was a more neutral and less consistent attitude towards the overall effectiveness of online learning and confidence in their own abilities. The survey also highlighted that many of the participants did not feel that online learning was necessarily the best option for them.

The open-ended data provided a deeper understanding of these results, revealing a range of different motivations, beliefs, and expectations. The vast majority of participants spoke of their motivation as being linked to external factors such as the need for English for future opportunities, and that they hoped the course would help them to achieve specific goals (such as improved test scores). While several participants expressed a desire for a new and unique learning experience and for the online course to be engaging, there was also a degree of uncertainty, and many were not sure of the benefits of this type of learning.

Some also highlighted a preference for traditional learning environments where they could engage more directly with a teacher or their peers.

Furthermore, the open-ended data also showed a mixture of confidence and apprehension concerning their individual abilities, with some participants expressing a strong sense of self-efficacy (stating that they would be successful “if they put in the effort”), and those demonstrating a more cautious approach (and expressing a fear of failure, and a sense of uncertainty about whether they had the right skills or knowledge to succeed in this type of course). This showed the complex and varied nature of the participant group. While there was a desire to improve, not all were equally confident in their abilities, and they all had different expectations for the online course. The findings from the

interviews therefore set the scene for future data analysis and highlighted the importance of the data collection procedures that were used in this research.



Finding 1: A diverse but uneven range of e-learning strategies (answering RQ1)

Analysis of the qualitative data, using NVivo, revealed that participants employed a diverse range of e-learning strategies to support their learning. Mirroring the categories found in the broader second language acquisition literature (Cohen, 2014, Oxford, 1990), these strategies were frequently reported across three main areas: cognitive, metacognitive, and social–affective.

However, the data suggested that many participants did not utilize strategies from all three areas equally and often tended to focus on some at the expense of others. Table 3 provides a detailed overview of the identified strategies, including examples and weighted percentages based on the frequency with which these were reported in the qualitative data.

Table 3. E-learning strategies employed by participants

Strategy category	Themes	Examples	Weighted percentage (%)
Cognitive	Vocabulary acquisition	Utilizing online dictionaries (3.8%), flashcard apps, grammar tools (1.8%), and vocabulary practice websites (1.5%).	3.9%
	Grammar rules	Focus on an explicit study of grammar rules (1.2%), use of online resources, and interactive exercises.	3.2%
	Reading comprehension	Engaging in extensive reading of English materials (1.7%), summarizing texts, and identifying the main ideas.	2.7%
	Writing practice	Active writing practice through online exercises (1.2%), essays and collaborative writing projects (1.4%), and the use of online feedback tools.	2.6%
Metacognitive	Self-monitoring	Identifying strengths and weaknesses (1.1%), reflecting on learning processes (1.3%) and progress, tracking progress with study logs.	3.0%
	Planning and organization	Planning study sessions effectively (1.2%), scheduling time for online activities, setting clear and realistic learning goals and objectives.	3.8%
	Adapting learning approaches	Modifying learning strategies on the basis of self-evaluation (1.4%), experimenting with new approaches, and seeking additional resources as needed.	2.6%
Social-affective	Collaboration	Participating in online discussions (1.1%), group projects, and interactive exercises; seeking collaborative learning environments (1.5%).	2.5%
	Seeking feedback	Actively seeking feedback from peers (0.9%) and instructors through online forums, virtual classrooms, email, and other online communication tools; utilizing tools for instant feedback (1.2%).	2.1%
	Self-reflection	Reflecting on learning processes (1.4%), emotions, and challenges through writing in a journal; engaging in self-assessment; and considering engagement with different aspects of learning.	2.7%
	Emotional management	Managing the anxieties and frustrations associated with online learning, using stress-reduction techniques, or seeking support from peers and instructors (1.1%).	1.1%

The qualitative data confirmed that cognitive strategies were the most frequently reported (with a combined weighted percentage of 12.4%), followed by metacognitive strategies (9.4%), and then social-affective strategies (8.4%). However, some participants only used one area, while others adopted a more balanced and integrated approach, with higher-performing students generally reporting more use of all three categories.

The word cloud in Figure 1, generated from the most frequent NVivo codes in

the interview transcripts, visually reinforces these trends and provides a more nuanced view of the data. The prominence of terms like “learning”, “knowledge”, “activities”, and “work” indicates a general focus on the core elements of language learning. Specifically, “activities”, “work”, and “practice” appear as very common elements among the data, which highlights the importance of doing as a part of their learning process. The prominence of “learning”, “knowledge” and “study” shows that the participants also placed great emphasis on a better understanding of the content.

Although less dominant, the clear presence of “strategies”, “change”, and “process” also shows that metacognitive awareness of learning methods was also quite a common focus. While there is also a sense of “connection”, this is less prominent, suggesting that social and interactive aspects were not as commonly described in the data, when compared with the more cognitive or metacognitive elements. Furthermore, the inclusion of the terms “feel” and “need”, and the central position of “really” as a general modifier, provides further evidence that the participants were talking about their experiences in a more specific and emotive way.



Figure 1. Cognitive, metacognitive, and social-affective strategies used in e-learning

The word cloud generated from the interview transcripts offers a visual summary of the participants’ reported e-learning strategies. The central and largest words – “learning”, “connected”, and “activities”, with terms such as “knowledge”, “work”, and “participant” clearly linked to them – immediately indicate that the participants primarily focused on the practical aspects of their studies. These key concepts are all related to doing, and this suggests a clear emphasis on active engagement with the tasks that have been set for them. However, these terms are surrounded by a secondary layer of prominent terms like

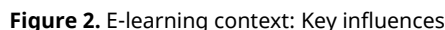
“strategies”, “change,” “feel”, and “need,” indicating that the participants are not just engaged in the work, but they also are aware of the value of choosing approaches strategically and of monitoring their own learning needs. The presence of terms like “attitudes” and “knowledge” shows that the internal views and beliefs of the students were also a factor in what strategies they chose to use. While many terms related to “interaction,” “community”, and “discuss” also appear, and highlight the importance of social engagement for some of the participants, they are less prevalent and indicate that many students chose to adopt a more self-directed approach to their learning and did not fully engage with collaborative opportunities.

Finding 2: The influence of learners’ attitudes, motivation, and beliefs on engagement (answering RQ2)

While some participants initially expressed positive views regarding e-learning, primarily valuing its “flexibility” and “accessibility,” as reflected in the word cloud data (Figure 2), their experiences throughout the course revealed a more complex picture of the relationship between attitude, motivation and belief. While the prominence of terms relating to “motivation”, “belief”, and “learning” in the data validates the importance of these elements, a deeper analysis reveals that these constructs were not always consistently positive. Many participants who initially demonstrated an intrinsically motivated attitude, with a stated desire to improve their English and a high sense of confidence in their abilities, often tempered this by acknowledging that the online format was, at times, problematic and that it required them to be more self-directed than they might have been previously used to. While many still saw value in the course and expressed some form of enjoyment, the data indicated that not all learners were able to maintain this positive outlook throughout the course.

In contrast to their initial views, and regardless of their original motivational approach, many learners reported struggling to “focus” and felt “isolated” due to a lack of connection with the materials, peers, or teachers. The data, supported by the prominence of “really” in the word cloud, reveals the dynamic nature of these elements, and shows that the initial positive attitudes did not guarantee a positive experience. External factors, such as the course design and materials, played a crucial role in maintaining learners’ motivation and self-belief. The e-learning platform itself often served as a reminder of the specific challenges in this environment, particularly for learners who preferred traditional classroom settings.

Furthermore, many participants also reported difficulties with “focus” and feeling isolated. The importance of a clearly defined “process” and “objectives” also emerged, highlighting the need for a structured and supportive environment that could guide learners through the course materials. This reinforces that these learner variables do not exist in isolation but are dependent on the specific ways that a course has been designed.



The word cloud in Figure 3, derived from participant interviews and reflective journals, elucidates the complex relationships among technological self-efficacy, intrinsic motivation and use of e-learning strategies. The prominence of the word “motivation” immediately emphasizes its central role in the learning experience, but it is also clearly interconnected with other elements such as “learning”, “activities”, “process”, and “work”, suggesting that learners are aware of the complex set of actions that are needed to complete the course successfully and that there is a strong recognition of the need to engage with the content in a purposeful manner.

Overall, the word cloud supports the findings that while positive views, self-efficacy, and intrinsic motivation can encourage a learner to adopt a range of

strategies, there is not always a direct correlation between these and the learning outcomes, and that these, alongside other complex factors, all interact to shape an individual's overall learning journey.



Figure 3. Technological self-efficacy, intrinsic motivation, and e-learning strategies.

In summary, while a positive attitude, high motivation, and strong belief in one's abilities are conducive to a successful e-learning experience and a greater use of learning strategies, these are not the sole determinants, and the data demonstrate a more nuanced and complex interaction among these factors. All participants engaged with the material but a range of individualized approaches influenced the type of engagement and the degree to which they found the experience to be positive and productive.

While terms such as “motivation” and “attitudes” appear to be larger and more prominent terms – and these are clearly very important to the learners – they are also very closely linked to the terms “really”, “learning”, “connected”, and “work”. The centrality of terms related to “activities”, “knowledge”, and “process” suggests that all participants are focused on engaging with the requirements of the course and all of them are trying to do so in an effective and strategic way. The inclusion of “strategies” in the image provides further evidence that participants were aware of the importance of choosing and adapting their approach to their learning; however, it also suggests that they have not linked these strategies directly to the other elements in the cloud.

especially their motivation and attitudes, which are, once again, some of the larger and more prominent elements.

The presence of the term “change” further suggests that many participants were willing to reassess and adapt their approach, although it does not demonstrate whether this change was successful or not. Therefore, the data do not highlight a simple relationship among self-efficacy, motivation, and success, but instead indicate a complex interplay of factors that shape the learning experience, as well as an openness to adapting and changing strategies.

In summary, these findings highlight the complexity of the relationships among self-efficacy, motivation, and use of e-learning strategies. While a positive mindset and a strong degree of motivation may certainly encourage more active engagement and the adoption of a wider range of strategies, it does not follow that all highly motivated learners will use all the strategies available to them. Even when learners are aware of the need for different approaches, they do not always know how to best deploy them effectively to ensure their learning success.

The data, which draw on the interviews, the field observation notes, and the analyses of the course materials, emphasize the important role played by external elements that are beyond the direct control of the learner. These qualitative findings consistently indicated a complex relationship among the participants’ strategic approach to learning, their technological self-efficacy, their levels of intrinsic motivation, and their reported sense of success in their online English language learning experience. It was clear from the data that a purely strategic approach alone did not lead to success and that other variables also had an important role to play.

Strategic engagement and self-efficacy. While the data revealed that learners who reported greater self-efficacy in their technological skills were more likely to use a greater range of strategies, there was also evidence that learners could be very strategic while still not making the progress that they had hoped for. The students who consistently employed cognitive, metacognitive, and social–affective strategies, particularly those who were more confident in their ability to use online tools and resources, tended to have a greater sense of agency and autonomy in their learning journey. This did not always translate to an improved overall experience of language acquisition, and this suggests that a purely strategic approach was not always sufficient.

Intrinsic motivation and perseverance. Learners who were strongly motivated to improve their English and who had a desire to use English in the future not only tended to engage more with the material but also demonstrated more self-efficacy and perseverance when faced with challenges, and often spoke of their desire to achieve competence and to be able to use their knowledge effectively, which further validates the relationship between these two constructs. However, the interview and document data also showed that even some highly motivated and self-efficacious students could become overwhelmed and

The word cloud (Figure 4) demonstrates that while participants valued “strategies,” “learning,” and “interaction,” as indicators of learning progress, they also recognized the importance of more affective elements such as “motivation,” “enjoyment,” and “belief”. This is further validated by the observation notes, which highlighted that learners who were more positive and confident were also more likely to engage with a wider range of learning resources. The document analysis, with its focus on autonomy, further reinforced the value of a well-designed course that can provide flexibility and options to all learners.

Therefore, the findings suggest that while there are links among a strategic approach to learning, self-efficacy, and motivation, the design of the course itself also has a crucial role to play in supporting these, as well as providing opportunities for engagement and collaboration.



Figure 4. Engagement in e-learning strategies for improved language fluency.

This qualitative study has indicated a complex and interconnected relationship among students' attitudes, motivations, beliefs, and their self-reported strategy use. This analysis moved beyond a simple correlational claim and instead sought to understand how all these variables work together to influence the overall learning experience.

Attitudes, motivations, and beliefs: A spectrum of influence

The study revealed a diverse range of approaches to online learning, underpinned by varying levels of motivation and self-belief in the effectiveness of e-learning. While some participants valued the flexibility and accessibility of the online environment, and reported feeling “connected” to their teachers and peers, they also indicated a need to understand how their choices aligned with

specific goals. Furthermore, a great many participants also expressed mixed feelings about e-learning or presented an overall negative attitude, highlighting the challenges of maintaining motivation and engagement in the online context. This variability was also demonstrated by the presence of terms such as “difficult”, “trouble”, and “problems”, which showed that a sense of struggle was a common experience across all learners.

Although many learners demonstrated an understanding of effective learning strategies and a belief that such strategies were important for their learning, the data also suggested a need for clear instruction and support to better utilize these strategies. Furthermore, while positive attitudes and high motivation were associated with greater engagement with the course, such elements could not guarantee a successful learning experience, as a significant number of participants, regardless of their previous experience, still found it difficult to engage fully with the opportunities that the course presented.

The word cloud (Figure 4) reinforces this, showing that while “motivation” is a key element for the learners, they also recognized the importance of “work”, “activities”, and “learning”. Furthermore, while some sought out opportunities to be “connected” and to “discuss” with others, there was an acknowledgement that this was not enough on its own and that there was a need for further support. The importance of metacognition was also highlighted by the prominence of words such as “process” and “change”, demonstrating that learners were also aware of the need to adapt their approach and to refine their learning strategies.

Ultimately, this complex picture shows how strong motivation can be a starting point for successful e-learning, yet it is only one element in a larger set of interconnected variables. This highlights the need for individualized support and for contextual elements to ensure the best possible learning experience.

Finding 3: The critical impact of contextual factors on the learning experience (answering RQ3)

The findings of this study have consistently demonstrated that e-learning is a complex and multifaceted experience and that a broad range of different factors influence both the method that is adopted by the learners and their overall perceptions of the course and their self-reported language growth. This final section focuses on the impact of the learning context itself.

While we have already established that individual learner attributes play an important part in this process, we also found the clear and significant impact of various contextual factors. The design and structure of the online learning environment – including the curriculum design, assessment practices, virtual classroom instruction, and opportunities for peer interaction – were all found to be key influences in shaping learners’ experiences, their strategy use, and their levels of motivation and engagement. The data, which draw on the qualitative responses from interviews, the observational data collected in the classroom, and the analysis of the course materials, highlight several important

issues relating to the design of e-learning programs and the types of support that learners need to succeed.



Curriculum design. The data indicated that a well-designed curriculum with clear learning objectives and manageable modules was crucial for promoting students' engagement and motivation. As highlighted in the word cloud data, a well-designed course was perceived as important and effective, and it has been shown that many of the learners preferred material that was clearly structured with easily identified objectives. This finding highlights the crucial role that clear, well-structured teaching materials play in helping learners to understand their path in the course and to better regulate their own learning process. In contrast, a lack of structure led to confusion and a lack of motivation.

Assessments. While participants acknowledged the value of using assessments to keep track of progress, particularly for demonstrating where they had succeeded and where further work was required, the data also demonstrated that some learners found the assessments to be too stressful. However, the responses related to tests and assessments were positive overall and revealed that learners generally valued tests, quizzes, and other assessments as a clear way to practice the skills that they had been learning in the course. However, there was also evidence that they felt that these assessments should be “instrumental” and have a purpose in developing their abilities.

Virtual classroom instruction. Participants greatly valued the opportunities for interaction with instructors that were presented through virtual classroom instruction, and the presence of terms such as “sessions”, “discuss”, and “interact” highlights the importance of this for many learners and how these sessions have helped to develop their sense of connectedness. However, the same dataset also included several terms such as “trouble,” “problems,” “hard,” and “avoid”, which also indicate that the delivery of online sessions was not without challenge.

Peer influence. Although some learners preferred to study alone, there was also evidence that there was a strong desire to feel a sense of belonging within the course, with terms such as “community”, “peers”, and “others” being key elements of their overall experience. Many learners also valued opportunities for collaboration, as well as the potential for help and support, and this also demonstrated their desire to seek interaction with their fellow learners. Therefore, having a positive social experience is key, but the form that this takes may vary significantly according to individual preferences.

The word cloud created for this section (Figure 5), which features “motivation”, “connected”, “learning” “important”, and “effective” as prominent terms, provides a useful overview of all these findings. The cloud shows how all these elements interact to show how the learners were influenced not only by the content and strategies within the course but also by the way in which that

content was delivered and the opportunities they were given to interact with others.



Figure 5. Contextual factors related to e-learning.

In summary, it is essential that e-learning platforms create a well-designed and fully supported environment that promotes opportunities for interaction, as well as offering a clear and structured route to success. These factors are all crucial in shaping how learners engage with online learning and will have an impact on their motivations, their use of different learning strategies, and on their overall sense of satisfaction and language development. Without careful attention to all of these different and interconnected aspects of e-learning, it is difficult to see how learners, and especially advanced-level language learners, will be able to fully benefit from this increasingly prominent mode of learning.

This study aimed to explore the complex interplay of technological self-efficacy, intrinsic motivation, and use of e-learning strategies among advanced-level English language learners in an online program at a North African university. Through a qualitative mixed-methods approach, incorporating an initial motivation survey, semi-structured interviews, field observations, and document analysis, we identified a number of key findings that contribute to a more nuanced understanding of the e-learning process in a developing nation context. While we were not able to demonstrate specific causal links among all the constructs due to sample size limitations, our findings revealed a dynamic and intricate interplay of learner-specific attributes and contextual influences.

as using dictionaries and grammar resources, as well as engaging with reading and writing), metacognitive strategies (including planning, self-monitoring, and reflection), and social-affective strategies (with a particular focus on interaction and feedback). This finding aligns with previous studies that highlight the importance of a multifaceted approach to language learning (Cohen, 2014; Oxford, 1990).

However, while all three types of strategy were utilized, it was also clear that a greater focus was often placed on the more cognitive strategies, with fewer students reporting a regular use of metacognitive approaches and even fewer using social and collaborative elements. Furthermore, those participants who made use of a wider range of approaches also tended to report higher self-efficacy and greater motivation, suggesting that the strategic approach to learning is a positive element to support success which is congruent with prior research (e.g., Derakhshan & Fathi, 2024). This supports the need to encourage all learners to adopt a broader and more flexible strategy repertoire.

Secondly, the study revealed that although learners' attitudes, motivations, and beliefs all played a role in how they engage in online learning, this relationship was not as straightforward as might have been assumed. While some learners expressed positive views, high levels of intrinsic motivation, and a strong sense of self-efficacy, the data showed that these factors did not directly translate to a more strategic approach or necessarily guarantee a more successful learning experience. Many of the learners with a more negative attitude toward the online environment or a low level of intrinsic motivation often struggled to engage fully with the material and were unable to use many of the resources that were available to them, despite their awareness of their value. This contrasts with much of the previous research, which has often focused more on the role of individual learner characteristics in successful e-learning (Dörnyei, 2001; Dörnyei & Ushioda, 2011), but it corresponds with studies such as those by Huang and Wang (2022), who highlighted the importance of contextual factors alongside learner-related variables.

This has also been clearly demonstrated through our exploration of technological self-efficacy and intrinsic motivation. It is clear that these two constructs play a crucial role in shaping an individual's engagement and persistence, as many learners with higher self-efficacy demonstrated a greater willingness to experiment with new strategies and overcome the difficulties they faced, and those with stronger intrinsic motivation demonstrated that they were more driven by their own personal goals (Bandura, 1997; Deci & Ryan, 2000). However, the data also indicated that these two factors alone were not sufficient to ensure success. As such, they are not clear predictors of success in online language learning, and further research is required to explore the specific elements which lead to more successful learning outcomes. In particular, there is a need to focus on the link between metacognitive awareness and the ability to use that awareness to develop more effective approaches to e-learning.

Thirdly, the findings highlighted the importance of contextual factors in shaping the learning experiences of advanced learners. The design and structure of the online curriculum had a significant impact on students' motivation

and engagement. This confirms previous work highlighting the importance of a well-structured learning experience (Shaanan, 2022). The study also indicated how frequent feedback and interaction with other students were seen as an essential element of successful e-learning, with those courses that provided greater opportunities for collaborative work and feedback were also seen to be the most helpful within the assessment phases of learning – a finding commensurate with extant research (Ebbini, 2023).

Furthermore, the teacher also plays a central role in this environment. As is often highlighted by studies focused on the teacher identity (Bahari, 2022; Richardson & Alsup, 2015), the teacher has a vital role in constructing a positive learning environment. The overall results, therefore, confirm the complex interplay of individual and contextual factors in shaping the learners' overall experiences. The need for a positive learning environment is also an issue that has been highlighted by other researchers in e-learning contexts (Chaiyasat et al., 2024; Jeong, 2023).

As the qualitative analysis shows, the interplay of these constructs is subtle and nuanced. This finding aligns with perspectives that frame language learning as a dynamic system where there is no “one size fits all” solution (Mahboob, 2018). In such a system, learner variables and the online environment are deeply interconnected and cannot be understood as isolated elements, requiring tailored support to meet individual needs.

The findings of this research also reveal some differences in how e-learning is experienced within the EFL context. While a need to improve English proficiency for academic and professional advancement is consistent across the literature (Latif, 2018), our participants also emphasized the need for more personalized support and guidance from the instructors, and how their previous experiences of learning English have shaped their attitudes and approaches. It was also clear that access to a reliable internet connection played an important part, which is something that also needs to be considered when researching e-learning in developing nations (El-Seoud et al., 2014; Mahmud & Gope, 2009).

In conclusion, this study provides a detailed picture of the complex and interrelated factors that influence the online learning experiences of advanced English language learners. The findings suggest that although individual factors, such as self-efficacy and motivation, play a significant role in driving a successful e-learning experience, these variables are intertwined with contextual elements and learning strategies, and a purely strategic approach is not always the answer. Recognizing the complex interplay of all these different elements allows us to move towards the development of more effective e-pedagogical practices that can better support all learners, regardless of their initial approach to their studies.

Limitations

This study, while providing valuable insights, is subject to several limitations. Firstly, the sample size of 31 participants, while allowing for a detailed qualitative investigation, restricts the generalizability of the findings beyond the

specific context of a North African university. Although a mixed-methods approach was adopted, the study was primarily qualitative in nature, which limits the statistical generalizability of the results. Future research with larger and more diverse participant pools is therefore needed to validate the findings and explore their broader applicability, specifically to explore the complex relationship between learner variables and contextual factors.

Secondly, the study relied on self-reported data from interviews and surveys, which may be subject to recall bias, social desirability bias, and other limitations inherent in these methods. Future research should triangulate these findings by using a range of data collection techniques, specifically by including larger scale quantitative data.

Thirdly, while some participants were observed during online learning activities, these data were insufficient to draw any strong or generalized conclusions about their learning behaviors. In future research, more intensive and extensive observations of learners in their own learning environments would be beneficial.

Finally, as the study focused on one specific online English language course at a North African university (Beni-Suef University), future research is required to explore the same research questions across different types of courses and within different educational contexts to further establish the transferability of these findings.

Conclusion

In conclusion, this research has provided a detailed insight into the complex and multifaceted interplay of factors that shape the e-learning experiences of advanced English language learners, demonstrating how both learner variables and the wider learning environment play a crucial and interconnected role in shaping their potential for success.

The study's findings revealed that effective e-learning is not solely dependent on positive attitudes, strong motivation, or a strategic approach to learning, but that all of these factors need to be supported by a well-designed and fully integrated learning environment. While the learners displayed a good understanding of a range of strategies, and while many were motivated to succeed, it was also clear that many struggled with the self-directed aspects of online learning. Furthermore, the research identified the crucial role of contextual factors and how the design of the course had a direct impact on learners' engagement and motivation.

These findings highlight the importance of creating courses that offer clear learning objectives, assessment approaches that are designed to encourage progress, opportunities for real-time support from the instructors, and chances to collaborate with peers. While the study focused specifically on a group of learners within a specific context, the findings can be extended to broader contexts of online education and call for a rethinking of the current approaches. It is essential for educators to acknowledge that there is not a single or simple way to approach e-learning and that it should be seen as a complex adaptive system

where all elements are working together, as demonstrated by the word cloud analysis. This study has contributed to this area by offering a more nuanced framework for understanding these complex interactions and has provided practical implications for course design and development.

This research also serves as a call to action for all stakeholders to consider what they can do to foster a more positive, human-centered, and holistic approach to e-learning. In order to maximize the potential for success for all learners, and to help them to navigate the unique challenges of online study, a greater understanding of the subtle interplay among motivation, self-efficacy, and strategy use, alongside an acknowledgment of the environmental elements that are required to support effective learning, will ensure that future courses are better placed to support all learners and offer them a clearer path towards achieving their language learning goals.

Ultimately, this research demonstrates that the learning environment itself must be considered a key element in supporting learners to achieve their goals, as this is just as important as their internal motivations, beliefs, and strategic actions. The data highlighted how all these things are interconnected and how all elements should therefore be considered as a whole. A well-designed e-learning experience is not simply one where the learners are given resources and left to work independently. Instead, it requires a carefully considered balance of learner-centered design, alongside clear and consistent support and opportunities for interaction and reflection. A focus on the importance of all these different elements is essential for creating effective learning environments that allow all learners to reach their potential, and these should all be prioritized in any future iterations of the course.

This study also calls for a recognition of the significant role that teachers and course designers play in developing positive learning experiences and in creating opportunities for all learners, irrespective of their previous experiences and perceptions of online learning. As such, future research should not only explore the learner variables that are commonly presented in research, but also a more thorough exploration of how course design, methods of assessment, forms of interaction, and access to the course materials can be developed to best support the learners and to help them to navigate the complex environment of online learning.

The online platform, as a fully integrated learning system, allows for the creation of more meaningful and effective educational experiences. However, this research acknowledges the limitations, having explored a complex situation within a single context with a specific group of learners. Therefore, further research is needed with larger and more diverse participant groups, across different course types and educational contexts, to validate these findings and to establish a more transferable pattern of results. Such research should also include a mixed-methods approach, incorporating larger-scale quantitative studies to complement the qualitative data, and longitudinal studies to track the development of learners' attributes over time. A deeper understanding of the complex interplay among these variables will enable researchers

and practitioners to move towards developing more integrated and effective e-learning practices and to better support all learners in achieving positive outcomes.

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Appendix A

Interview protocol: E-learning strategies of advanced EFL college students

Introduction (5 minutes)

- Introduce yourself and the purpose of the interview: namely, to understand how advanced EFL students use e-learning strategies and the factors influencing their success.
- Explain the confidentiality of the responses and obtain informed consent.
- Clarify that there are no right or wrong answers and that the interview is exploratory.

Section 1: E-learning Strategies (15–20 minutes)

This section addresses RQ1: What e-learning strategies do these advanced students report using to support their language development?

Questions:

1. Can you describe your typical e-learning experience in your English classes? What online activities do you regularly engage in? (e.g., online quizzes, forums, video lectures, interactive exercises, etc.)?
2. When you encounter difficulties with online learning materials, what strategies do you employ to overcome these challenges? (e.g., seeking help from instructors or peers, using online dictionaries/resources, re-reading materials, etc.)?
3. Do you prefer certain types of e-learning activities over others? Why or why not? Can you give examples?
4. How do you organize and manage your online learning activities? Do you use any specific tools or techniques (e.g., planners, to-do lists, specific apps)?
5. Do you actively seek out additional online resources beyond those provided by your instructors? If so, what kind of resources and why?

Section 2: Attitudes, motivations, and beliefs (15–20 minutes)

This section addresses RQ2: How do learners' attitudes, motivations, and beliefs (including technological self-efficacy) influence their choice of strategies and overall engagement with e-learning?

Questions:

1. What are your feelings towards e-learning in general? What are its advantages and disadvantages from your perspective?
2. What motivates you to engage actively in online learning activities? What factors might demotivate you?
3. How confident do you feel using the technology required for your online courses? Do you believe technology is an effective tool for your own English learning? Why or why not?
4. How do your personal learning preferences (e.g., learning styles, preferred pace) influence your choice and use of e-learning strategies?
5. Can you describe a situation where your beliefs or attitudes influenced your engagement with an e-learning activity?

Section 3: Contextual factors and perceptions of success (15–20 minutes)

This section addresses RQ3: How do contextual factors – such as curriculum design, assessment, and opportunities for interaction – shape students' e-learning experiences and their perceptions of success?

Questions:

1. How does the design of your online courses (e.g., clarity of instructions, user-friendliness of the platform, accessibility of materials) influence your learning experience?
2. How do web-based assessments (e.g., quizzes, assignments) affect your motivation and learning strategies?
3. What is your experience with virtual classroom instruction (e.g., online discussions, live sessions)? How does this impact your learning and engagement?
4. How do your classmates and peers influence your use of e-learning strategies and your attitudes towards online learning? Do you collaborate with peers online? How?
5. Do you think your e-learning strategies and attitudes have contributed to your improvement in English? In what ways?
6. If you could change anything about your approach to e-learning or the design of the course, what would it be and why?

Concluding remarks (5 minutes)

- Thank the participants for their time and contribution.
- Summarize key points and allow the participant to add any final thoughts.