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## Online Language Learning Strategies: A Case Study of Saudi EFL Learners<sup>(\*)</sup>

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## Online Language Learning Strategies: A Case Study of Saudi EFL Learners

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### Abstract

The study aims to investigate the online language learning strategies that Saudi EFL learners use. It also aims to explore the strategies that are more favored for online learning. This study was carried out via an online questionnaire, and the sample consisted of 150 Saudi EFL male and female learners. The results showed that Saudi EFL learners used various strategies, the most highly used were cognitive and metacognitive strategies during and post- COVID-19 pedagogy. The results also showed that Saudi female learners applied Language Learning Strategies (LLS) while studying English online higher than male learners, Sig. = .038, especially with cognitive and metacognitive strategies preference. The study also found strong positive correlation in students' preference to the use of LLSs. Based on these findings, some recommendations were provided for further research. Besides, some pedagogical implications have been outlined for EFL teachers, policymakers, and curriculum developers.

**Keywords:** EFL learners, language learning strategies (LLS), online learning, Saudi EFL context.



## استراتيجيات تعلم اللغة الإنجليزية عن بُعد: دراسة حالة لمتعلمي اللغة الإنجليزية كلغة أجنبية في المملكة العربية السعودية

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أستاذ مشارك في اللغويات التطبيقية

قسم اللغة الإنجليزية بكلية الآداب جامعة ببشة

### الملخص

يهدف البحث إلى تسليط الضوء على استراتيجيات تعلم اللغة الإنجليزية عن بُعد التي يستخدمها متعلمي اللغة الإنجليزية السعوديين، كما تهدف إلى تسليط الضوء على الاستراتيجيات التي يتبعونها كاستراتيجيات فعالة للتعلم عبر الإنترنت. تم إجراء هذه الدراسة عبر استبانة عن بُعد، وشملت عينة من 15 متعلماً سعودياً لغير الناطقين بالإنجليزية من الذكور والإناث، وقد توصل البحث إلى أن المتعلمين السعوديين يستخدمون استراتيجيات متنوعة، وكانت أكثرها استخداماً هي الاستراتيجيات المعرفية والميتا معرفية أثناء وبعد تعلم اللغة خلال جائحة كوفيد-19. كما أظهرت النتائج أن المتعلمات السعوديات يفضلن استخدام استراتيجيات تعلم اللغة بشكل أكبر من المتعلمين الذكور أثناء دراسة اللغة الإنجليزية عبر الإنترنت، وكان هذا الاختلاف معنوياً بقيمة 0.38، وخاصة فيما يتعلق بالاستراتيجيات المعرفية والميتا معرفية. كما وجدت الدراسة ارتباطاً إيجابياً قوياً في تفضيل الطلاب لاستخدام استراتيجيات تعلم اللغة. وتضمنت الدراسة مجموعة من التوصيات أهمها: أوصت الدراسة المعلمين بدعم طلابهم في استخدام استراتيجيات تعلم اللغة والاعتماد على تلك الاستراتيجيات في تحسين نتائج التعلم عبر الإنترنت، وإجراء مزيد من البحوث في استراتيجيات تعلم اللغة عن بُعد.

**الكلمات المفتاحية:** متعلمي اللغة الإنجليزية، استراتيجيات تعلم اللغة، التعلم عبر الإنترنت، السياق السعودي لتعلم اللغة الإنجليزية.



## Introduction

Language Learning Strategies (LLSs) refer to the techniques employed by language learners to effectively study a new language (Almoslamani, 2020; Alqarni, 2023; Burns & Richards, 2018). These strategies are primarily utilized by individuals learning a second or foreign languages. Importantly, LLSs are adaptable and not fixed, allowing learners to tailor them to suit various learning situations and methods (Alqarni, 2023; Listyani, 2023). While LLSs have their roots in the twentieth century, they have continuously evolved and remain at the forefront of research in second language acquisition (Al-Kadi & Hamdi, 2022; Bin-Hady et al., 2020; Listyani, 2023; Pawlak, 2021). This evolution is especially evident in the age of technology-driven education, commencing with the early days of Computer-Assisted Language Learning (CALL), progressing to Internet-based learning, and presently encompassing artificial intelligence-driven language pedagogy (Bin-Hady et al., 2023; Farrokhnia et al., 2023; Kohnke et al., 2023).

The global spread of the COVID-19 pandemic guided in creating new approaches of learning, demanding the development of corresponding strategies for English language acquisition. The integration of technology into English teaching and learning in Saudi Arabia had already been a subject of investigation before the onset of the COVID-19 pandemic (Ali, 2017; Al-Khaza'leh, 2019; Alshahrani, 2016). The shift from traditional classroom-based education to entirely online learning necessitates an exploration of the language learning strategies employed in online educational settings. The primary focus lies in understanding how English as a Foreign Language (EFL) learners engage in online English instruction and which strategies they employ when utilizing various technological platforms like Blackboard, Zoom, Google Meet, WhatsApp, and more. Prior to the COVID-19 pandemic, research predominantly centered on examining LLS used by English language learners in traditional classroom settings, rather than delving into the strategies specific to online learning. Previous studies were primarily concerned with assessing LLS in a general context, encompassing various strategy types, factors influencing students' utilization of LLS, as well as the challenges and incentives associated with their adoption (Ali et al., 2023; Alqarni, 2023; Almoslamani, 2020). In Saudi Arabia, English is compulsory for students in both schools and universities, a requirement shared by many countries globally. With the widespread presence of the coronavirus, English instruction was transitioned to an online format, resulting in the development



of novel learning approaches. These included activities such as reading from electronic screens and engaging in online interactions with peers and educators. The shift to full-scale online education in Saudi Arabia commenced in March 2020, as reported by Ali (2022). This mode of learning persisted throughout the second semester of 2020, applying uniformly across all academic disciplines.

When this health crisis has gone, a new wave of advancement known as ChatGPT has become a prominent area of research. These rapid and substantial transformations served as the driving force behind the current study's investigation into the LLS commonly employed by Saudi EFL learners, both during and after the COVID-19 pandemic, in the context of the ongoing ChatGPT phenomenon. ChatGPT, as highlighted by Kohnke et al. (2023), Farrokhnia et al. (2023), and Lo (2023), has emerged as one of the latest and frequently utilized tools utilized by contemporary learners in their educational pursuits and by teachers in their instructional practices. Given these dynamic shifts in language learning and teaching environments, strategies, and styles, there is a pressing need to re-evaluate LLSs within the Saudi context. This attempt contributes to our comprehension of how learners engage in online learning, facilitating the integration of their online learning strategies into our teaching approaches, whether in traditional face-to-face settings or virtual classrooms.

### Research Questions

The current study intends to address the following two research questions:

- 1- What are the most widely used LLS that Saudi EFL learners use when learning English via technology during and after the COVID-19 pandemic?
- 2- Are there any significant differences in the Saudi EFL learners' preference of LLSs based on their gender?
- 3- What is the type of correlation between Saudi EFL students' preference of LLSs?

### Review of Literature

#### Language Learning Strategies

Theoretically speaking, LLSs are part of learning with various degrees in uses based on disciplines, learning contexts and modes (Listyani, 2023; O'Malley & Chamot, 1990). In the history of LLS, Oxford (1990) provided a theoretical framework for most LLS studies over the past four decades. In a recent review of the LLS profile, Listyani (2023) revised learning strategies

classification. With a snapshot description, the author classified major LLS that the present study drew on its theoretical framework, Table 1.

**Table 1. Learning Strategies Adapted from Listyani (2023)**

Strategy	Brief description
Memory strategy	Helping learners to store and retrieve information.
Cognitive strategy	Helping in the selection of relevant information. It also helps the rejection of irrelevant details. It is further related to recognizing, comprehending, organizing materials, summarizing, repeating, translating, using formulas and patterns, problem-solving, and interacting in the target language.
Compensation strategy	Employed when learners need to continue the communication, even though there is a gap in their linguistic knowledge. This strategy helps them to make up for the missing knowledge.
Meta-cognitive strategy	Dealing with the mental process that is involved in the learning process. In addition, it controls and regulates the learning, plans and decides how to learn effectively, monitors, and then evaluates it.
Affective strategy	Related to the emotional, motivational, attitudinal, and personal characteristic aspects of the learners.
Social Strategy	Involved in interacting with the speakers of the target language to improve the language, cooperating with peers, and developing a cultural understanding. Moreover, those who do pair-work and group-work in a classroom make use of the social strategy. It classifies these three as indirect strategies.
Management & planning	Allows learners to connect with the learner's purpose and his/her own learning.
Communicative strategy	Involves the use of verbal and non-verbal instruments for the useful transfer of knowledge.
Interpersonal	Helps in monitoring the learner's development and evaluating his/her performance.

In the new learning modes and platforms, the utilization of LLS by English language students, both in formal and informal settings through mobile phones and other devices and applications, is indisputable (Almoslamani, 2020; Lai et al., 2022; Mohammed & Ali, 2021). This discussion delves into prior research conducted within various EFL contexts over the past eight



years. To commence, Solak and Cakir (2015) investigated the language learning strategies employed by language learners during online language learning. This study took place in Turkey and involved 274 male and female learners engaged in online English language courses. The findings revealed a strong preference among participants for metacognitive and memory strategies, with cognitive and affective strategies being less frequently employed. Interestingly, the study also observed gender-based differences, with Turkish female learners favoring cognitive strategies and males showing a preference for metacognitive ones. Zhou and Wei (2018) conducted a comprehensive review of literature focused on technology and language learning strategies. The researchers examined 66 published articles related to technology-enhanced learning and LLS, with a particular emphasis on the efficient use of technology in learning the English language. Their study recommended that English educators teach students strategies for effectively leveraging technology in their language learning journey, fostering self-regulated learning.

Recently, Bin-Hady and Al-Tamimi (2021) conducted a study about the strategies employed by 110 Yemeni EFL learners, who were selected in an informal learning context, with the aim of effectively learning English. Their study revealed that students had developed language learning strategies through the use of technology. These strategies, when applied, resulted in improvements in all four English language skills: listening, speaking, reading, and writing. Notably, the research also indicated that vocabulary development showed greater progress compared to improvements in grammar and pronunciation. Furthermore, Khatoon et al. (2022) conducted an experimental study into the LLSs employed by Pakistani EFL students. They explored the strategies adopted by students in traditional classroom settings as well as those who pursued English language studies using computers. Their findings indicated that students who utilized technology for English language learning had significantly more opportunities to readily apply language learning strategies compared to those who adhered to traditional methods of language learning.

Narrowing the focus of LLS within the Saudi context, several studies have been conducted. To begin with, Al-Khaza'leh (2019) investigated the preferred LLS of male undergraduates studying EFL at Shaqra University in Saudi Arabia. The findings indicated that these students employed a majority of the strategies at an average level, with a particular emphasis on the social strategy, followed closely by the metacognitive strategy. Both of these categories received high scores on the Oxford scale. On the other hand, the remaining strategies, including compensation, cognitive, and affective



strategies, were rated within the average range. Interestingly, the memory strategy was less frequently utilized, scoring in the lower range. In the same vein, Almoslamani (2020) conducted a study within the Saudi context that delved into LLS, with a specific focus on differences in LLS usage related to gender and academic achievement. This cross-sectional descriptive-analytic study explored study habits and micro-strategies favored by students across a sample of Saudi universities. The study highlighted academic achievement as a predictor of successful language learning and identified significant differences in LLS usage between genders, with a leaning towards females. Similarly, Alqarni (2023) delved into the realm of LLSs and their impact on the achievement of Saudi EFL learners. The findings, echoing those of Almoslamani (2020), emphasized the prevalence of metacognitive, compensation, cognitive, affective, social, and memory strategies among the participants and their influence on academic performance. Notably, the study revealed a positive correlation between LLS and achievement, suggesting that LLS could serve as a predictor of improved performance in EFL programs.

### **LLS and Digital Technology**

For decades, language learning and teaching had been guided by specific methods and approaches that framed the paths for both learners and teachers. The emergence of technology caused drastic change, and educators wanted to move together with this new movement. Many L2 researchers investigated LLS from the CALL, MALL, and online learning perspectives (Bin-Hady et al., 2020; Khatoun et al., 2022; Lai et al., 2022; Shamsan et al., 2021; Zhou et al., 2018). The challenge lies in the fact that LLS can vary significantly from one context to another and from one learner to another, raising questions about the generalizability of the findings. Again, technological tools and Apps used in language education were not primarily designed for this purpose. Instead, teachers and learners have creatively re-appropriate them to suit their educational needs. Al-Kadi (2017, p.87) pointed out that “because ICTs are not always used for activities they were originally intended for, educators around the world innovatively re-appropriate many ICTs for learning and teaching purposes”.

In fact, technology-based language learning does not entail creating tactics entirely from the ground up. Bin-Hady et al. (2020) found that Yemeni and Saudi EFL learners used six types of LLSs on electronic platforms: memory, cognitive, compensation, metacognitive, affective, and social strategies, and the most frequently used LLSs were metacognitive strategies



and cognitive and compensation strategies. The study also reported a significant difference between male and female learners in using LLSs on electronic platforms, with female learners using more LLSs than male learners. That is to say, the LLS drawn from early strategy inventories that Oxford (1990) and O'Malley and Chamot (1990) propounded three decades ago sound relevant to the digital era now in which learners learn through technology. To put it in the context of the coronavirus pandemic, LLSs that L2 learners adopted are not far from the previous LLSs. Learning remains learning; what has changed is the learning ecology-technology-enabled and online platform.

Nevertheless, Khreisat (2022) reviewed the English language learning strategies adopted during COVID-19 based on 23 studies investigating the online teaching strategies adopted by English language instructors in Asia during COVID-19 pandemic. The study identified three main strategies that were most effective in teaching the English language during COVID-19 pandemic: collaborative learning, flipped classrooms and scaffolding. These emergent strategies are pedagogical strategies that relate to learning in general, not only L2, but the entire learning system, not at the individual's level. Now with the ChatGPT, a common dependable learning strategy, Taecharungroj (2023) analyzed initial reactions to this innovative AI Chatbot, depending on 233.914 English tweets. The study outlined five functional domains influenced by this AI model: essay writing, creative writing, and answering questions. According to this study, "ChatGPT has the potential to impact technologies and humans positively and negatively" (p. 2). These findings matter in EFL programs.

This review of the literature and previous studies is valuable for comparison with the present study, conducted during significant shifts in language learning modes and styles. The study aims to investigate the frequency of LLS employed by Saudi EFL learners and assess the influence of students' grades and levels on their use of LLS. The study intends to uncover whether learning online during the COVID-19 health crisis has led to the adoption of new learning strategies.

## Methods

### Research Design

This study used a descriptive quantitative research approach to investigate the LLS utilized by Saudi EFL students who are studying at the University of Bisha. The primary focus of this research is on how these students employ



LLS while participating in online learning, particularly in the context of the COVID-19 pandemic. Due to the pandemic, there has been a shift towards non-traditional forms of learning, allowing students to either study from home or engage in a combination of online and in-person learning. These changes have created new opportunities to motivate introverted students and educators who may have initially been hesitant about incorporating technology-based teaching methods. The study was conducted during the second semester of the academic year 2022-2023 and employing statistical analysis to uncover trends in the participants' responses.

### Participants

The total number of participants of this study was 150 undergraduate Saudi EFL students. They were selected randomly from different levels and had different GPAs. The participants underwent the COVID-19 crisis and hence were online-learning oriented because Saudi universities adopted fully online teaching during the coronavirus, and all learners studied blended online learning post-COVID-19. EFL teachers at the University of Bisha teach and use online activities in addition to traditional teaching. Their demographic background is shown in Table 2.

**Table 2. The Demographic Information of the Participants**

Variables	Alternatives	N	Percent
Specialization	humanities other than English	27	18
	Science	21	14
	B.A in English	86	57.3
	engineering and medicine	16	10.7
Gender	Female	67	44.7
	Male	83	55.3
Study Year	1 <sup>st</sup>	58	38.7
	2 <sup>nd</sup>	17	11.3
	3 <sup>rd</sup>	39	26
	4 <sup>th</sup>	36	24
GPA	fair (2.00 - 2.74)	16	10.7
	good (2.75 - 3.74)	39	26
	very good (3.75 - 4.49)	62	41.3
	excellent (4.50 - 5)	33	22



Table 2 shows the demographic information of the study participants. The total sample who participated in the questionnaire is 150 participants, among which 83 (55.3%) were male students and 67 (44.7%) were female students. Among the specialization group, 86 (57.3%) are in B. A in English, 27 (18%) are in Humanities other than English, 21 (14%) are in science, and 16 (10.7%) are in Engineering and Medicine. The participants are distributed among four study years, 58 (38.7%) are in 1st year, 17 (11.3%) are in 2nd year, 39 (26%) are in 3rd year, and 36 (24%) are in 4th year. The GPA system at the University of Bisha is divided into four groups, i.e., fair (2.00 -2.74), good (2.75-3.74), very good (3.75-4.49), and excellent (4.50-5). Among the participants, the levels of 16 (10.7%), 39 (26%), 62 (41.3) and 33 (22%) are fair, good, very good, and excellent, respectively.

### Data Collection

The questionnaire was a modified version of language learning questionnaire from Oxford (1990), and Bin-Hady, et al. (2020). The first section of the questionnaire elicited participants' backgrounds such as level, gender and grades. The second section is the modified questionnaire on LLS. The questionnaire was translated into Arabic by the author of this paper and revised by two experts from the English Department of the same university. The questionnaire was distributed to EFL learners online via their teachers. It was distributed via WhatsApp and Blackboard. The responses of the students were downloaded in an Excel file. The responses of LLS were coded from 5 strongly agree to 1 strongly disagree. The analysis shows the frequency, percentage, mean and standard deviation to determine the seminaries and differences between the responses.

### Data analysis

To fulfil the purpose of the study, the frequencies, mean scores, standard deviation, and Person correlation were obtained and interpreted. The T-test was also used to determine the differences and similarities between different groups. Comparing the grades of high-achieving students with the grades of low-achieving learners, a difference showing distinctive good-grade students use LLS more than those with low grades. These analyses were performed by using SPSS 24.

## Results

The results will be displayed according to the two research questions:

**RQ1: What are the most widely used LLS that Saudi EFL learners use when learning English via technology at the time of Chat GPT?**

**Table 3. Students' scores in the LLSs**

LLSs	N	Mean	Std. Deviation
Memory Strategies	150	3.3547	.91495
Cognitive Strategies	150	3.8260	.72059
Compensation Strategies	150	3.3467	.89592
Metacognitive Strategies	150	3.7500	.92686
Affective Strategies	150	3.3900	1.01496
Social Strategies	150	3.1800	1.12220
Valid N (listwise)	150		

Table 3 shows that participants favour cognitive strategies more than any other category, as indicated by a mean score of 3.826. Metacognitive strategies occupy the second position in terms of usage, with a mean score of 3.75. This suggests that learners are actively engaged in activities such as seeking ways to enhance their English proficiency, reflecting a higher-order awareness of their own learning processes. Affective strategies, memory strategies, and compensation strategies all exhibit similar levels of utilization, with respective mean scores of 3.39, 3.3547, and 3.3467 respectively. These findings imply that participants are relatively balanced in their application of these strategies. Affective strategies involve managing emotions and motivation in the learning process, memory strategies pertain to methods for retaining vocabulary and information, and compensation strategies are employed to overcome linguistic gaps and obstacles. In contrast, social strategies appear to be the least favored among the participants, with a mean score of 3.18. These strategies, which involve seeking out social interactions for language learning purposes, appear to be less frequently utilized compared to other categories. Detailed results for each item are shown in Appendix A.

**RQ2: Are there any significant differences in the Saudi EFL learners' preference of LLSs based on their gender?**

Relevant data collected from the participants through the questionnaire are tabulated and discussed below. As can be seen in Table 4, the differences are related to gender at University of Bisha.

**Table 4. Comparison between the gender in the use of LLSs**

LLSs	Gender	N	Mean	Std. Deviation	T-test	Sig.
Memory Strategies	Female	67	3.50	.861	1.816	.071
	Male	83	3.23	.943		
Cognitive Strategies	Female	67	3.97	.630	2.302	.023
	Male	83	3.70	.768		
Compensation Strategies	Female	67	3.46	.871	1.477	.142
	Male	83	3.25	.908		
Metacognitive Strategies	Female	67	3.96	.937	2.619	.010
	Male	83	3.57	.885		
Affective Strategies	Female	67	3.56	1.00	1.911	.058
	Male	83	3.24	1.00		
Social Strategies	Female	67	3.25	1.17	.758	.449
	Male	83	3.11	1.08		
Average	Female	67	3.62	.746	2.097	.038
	Male	83	3.35	.798		

The analysis of the data presented in Table 4 reveals findings regarding the influence of gender on the use of various language learning strategies. The average result indicates that female learners scored,  $M=3.62$ ,  $Std=.746$ , while male learners scored,  $M= 3.35$ ,  $Std =.798$ , indicating that female learners use LLSs higher than male learners. The difference is significant due to the probability value which amounted .038. It is more important to show the difference between male and female learners in each LLSs. Table 4 displays significant differences between male and female participants in terms of cognitive strategies and metacognitive strategies. The p-values associated with these differences are 0.023 and 0.010, respectively. This indicates that, when it comes to cognitive and metacognitive approaches to language learning, there are statistically significant differences between males and females. In other words, male and female participants differ in their preferences and tendencies when it comes to these particular strategies.

**RQ3: What is the type of correlation between Saudi EFL students' preference of LLSs?**

**Table 5. The Correlations Among the LLS**

		Memory Strategies	Cognitive Strategies	Compensation Strategies	Metacognitive Strategies	Affective Strategies	Social Strategies
Memory Strategies	Pearson Correlation	1	.638**	.636**	.630	.664**	.620**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
Cognitive Strategies	Pearson Correlation	.638**	1	.647**	.621**	.603	.642**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
Compensation Strategies	Pearson Correlation	.636**	.647**	1	.575**	.687**	.611
	Sig. (2-tailed)	.000	.000		.000	.000	.000
Metacognitive Strategies	Pearson Correlation	.630**	.621**	.575**	1**	.663**	.648**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
Affective Strategies	Pearson Correlation	.664**	.603**	.687**	.663**	1**	.773**
	Sig. (2-tailed)	.000	.000	.000	.000		.000
Social Strategies	Pearson Correlation	.620**	.642**	.611**	.648**	.773**	1**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Table 5 shows the correlation between the learning strategies examined in this study. The Pearson correlation test found a significant positive correlation between the learning strategies as the correlation coefficient is .000, i.e., less than .01. This means that when one learning strategy increases, the other learning strategy increases.



The results in Table 5 show that memory strategies have a strong positive correlation with cognitive strategies ( $r = 0.638, p < 0.01$ ), indicating that individuals who frequently use memory strategies also tend to employ cognitive strategies in their language learning. Memory strategies also exhibit a substantial positive correlation with compensation strategies ( $r = 0.636, p < 0.01$ ), suggesting that those who rely on memory-related techniques are likely to use compensation strategies as well. Memory strategies show a significant positive correlation with metacognitive strategies ( $r = 0.630, p < 0.01$ ), indicating that individuals who employ memory strategies also tend to engage in metacognitive processes to manage their language learning. Memory strategies are strongly positively correlated with affective strategies ( $r = 0.664, p < 0.01$ ), highlighting that individuals who use memory-related techniques also tend to employ strategies related to managing their emotions and motivation in language learning. Memory strategies also display a robust positive correlation with social strategies ( $r = 0.620, p < 0.01$ ), indicating that individuals who use memory strategies are more likely to engage in social interactions as part of their language learning process. Cognitive strategies are significantly positively correlated with all other strategy categories: Compensation strategies ( $r = 0.647, p < 0.01$ ), Metacognitive strategies ( $r = 0.621, p < 0.01$ ), Affective strategies ( $r = 0.603, p < 0.01$ ), and social strategies ( $r = 0.642, p < 0.01$ ). This suggests that individuals who employ cognitive strategies tend to also use a wide range of other strategies in their language learning efforts. Compensation strategies exhibit a strong positive correlation with metacognitive strategies ( $r = 0.575, p < 0.01$ ), indicating that individuals who utilize compensation strategies are likely to engage in metacognitive processes to support their language learning. Affective strategies demonstrate a substantial positive correlation with social strategies ( $r = 0.773, p < 0.01$ ), suggesting that individuals who employ affective strategies are highly inclined to participate in social interactions to enhance their language skills.

### Discussion

Results indicated that cognitive strategies and metacognitive strategies occupy the high position in terms of usage among Saudi EFL students. These findings partially agreed with (Al-Khaza'leh, 2019; Bin-Hady et al., 2020). Bin-Hady et al. (2020) found that memory and cognitive LLSs were the highest strategies adopted by Yemeni and Saudi EFL learners on electronic platforms. However, these findings contradicted with Al-Khaza'leh (2019)



who found that these students at Shaqra University employed a majority of the social strategy and metacognitive strategy.

Furthermore, the study showed that female learners have more preference to LLSs over male learners. To show the nuance difference, the study reported the gender differences in cognitive and metacognitive strategies for the sake of females. This finding is consistent with Bin-Hady et al. (2020) who found that female learners used more LLSs than male learners at a significant level on electronic platforms. This finding also agrees partially with Solak and Cakir (2015) who found that Turkish female learners strongly favoured using cogitative strategies over male learners. However, Solak and Cakir (2015) differed from this study finding in that Turkish male learners favoured metacognitive strategies over female learners.

The findings revealed a strong preference among participants for metacognitive and memory strategies, with cognitive and affective strategies being less frequently employed. Interestingly, the study also observed gender-based differences, with Turkish female learners favouring cognitive strategies and males showing a preference for metacognitive ones.

The study found strong positive correlation between all the LLRs the significant level. These significant positive correlations suggest that language learners often adopt a combination of various strategies in their learning process. This multidimensional approach to language learning reflects the complex nature of language acquisition, where memory, cognitive, compensation, metacognitive, affective, and social strategies can all play interconnected roles in achieving proficiency. This finding is in line with Almoslamani (2020), who emphasized the prevalence correlation between LLS which could serve as a predictor of improved performance in EFL programs.

Considering the findings outlined above, the study aligns with previous studies on LLS' significance across learning situations (Ali, 2022; Al-Khaza'leh, 2019; Khatoon et al., 2022; Listyani, 2023). Nevertheless, there are expectedly newly emerging LLSs corresponding to the online learning mode which increased during and after the wave of coronavirus. It brought about a set of learning strategies during the past three years, some of which were investigated in some previous studies within the realm of technology-based and online language learning strategies (Bin-Hady et al., 2020; Khatoon et al., 2022; Lai et al., 2022; Shamsan et al., 2021; Zhou et al., 2018). These studies, a few though, investigated learning strategies concerning specific



areas and not an LLS agenda in general. Some studies investigated online vocabulary learning strategies (Shamsan et al., 2021) and speaking skills strategies (Mohammed, 2021). Other studies can build on these findings and advance LLS research in the Arab context and other similar language learning situations.

The transfer of learning online via computers, iPad, and mobiles that took place during the COVID-19 instead of face-to-face in traditional classrooms seems not to remarkably change the landscape of previous LLs inventories. The online language learning strategies during the COVID-19 Pandemic in the Arab world seem to have prepared learners for online learning more than before but have not changed the taxonomy of strategies. This area remains open for further inquiries because remarkable changes in learning strategies take time and thus require a longitudinal research framework.

### Conclusion

The current study explored LLS when the world had passed the COVID-19 pandemic and received a new technological move called ChatGPT. It found that Saudi EFL learners use different LLS while studying English online. These LLS are like LLS that have been used over the past decade before the widely recognized formal online learning. Nevertheless, it showed that female students use LLS more than male students. This study reinforces previous studies, which showed that Saudi Arabia witnessed digital transformation before and after COVID-19. Teachers should effectively teach EFL using approaches that correspond to EFL learners' strategies in or outside the classroom. They should not consider themselves as teachers but also as facilitators to help students choose good strategies to study English. A comparison between online and traditional classroom strategies should be made. There is a pressing need to give more attention to applying strategies in technology-enhanced L2 learning. This is because more and more learners are availing themselves of such opportunities by, for example, engaging in synchronous and asynchronous computer-mediated communication, regularly using educational software, drawing upon Internet-based resources, or being constantly immersed in social media. While research has been increasing, more studies are indispensable as this area holds much promise.

### Pedagogical implications

The findings from this study offer several pedagogical implications for educators, especially those involved in teaching English as a Foreign



Language (EFL) in the context of technology-enhanced language learning. These implications can help inform instructional practices and further research efforts: Educators should strive to strike a balance in teaching various types of language learning strategies, including cognitive, metacognitive, affective, memory, compensation, and social strategies. A well-rounded approach ensures that students are equipped with a comprehensive set of skills to navigate different language learning scenarios. Acknowledging the gender-based differences in strategy usage, teachers can tailor their instruction to address the preferences and tendencies of both male and female students. This may involve creating diverse learning opportunities that appeal to a broad spectrum of learners. Recognizing the influence of specialization on metacognitive strategies, educators can design specialized content and activities that resonate with students' fields of study. This can help students engage more deeply in metacognitive processes that are relevant to their academic or professional goals. Teachers should consider the stage of the students' academic journey when designing instruction. The observed differences in metacognitive strategy usage among year groups suggest that instructional approaches may need to evolve as students progress through their studies.

### Suggestions for future studies

Cooperative studies involving educators, researchers and technology experts are crucial for enhancing our comprehension of language learning strategies in the era of digital technology. Recognizing that substantial shifts in learning strategies may require time to evolve, conducting longitudinal studies can yield valuable insights into the impact of online learning environments on language learning strategies over extended durations. Future studies may investigate the influence of cultural factors on the adoption of language learning strategies in online settings, particularly in regions like the Arab world, where digital transformation has had a profound impact.

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### Appendix A

		Statements	Mean	Std
Memory Strategies		I write down the new words using electronic notes to repeat them.	3.3000	1.12178
		I examine how English words are used on the internet to learn them easily.	3.7600	1.05347
		I search the Internet for pictures to remember new words easily.	3.2600	1.32315
		I search the Internet for words that rhyme with new words to remember them.	3.2400	1.29366
		I search the Internet for places associated with new words.	3.2133	1.31887
Cognitive Strategies		I watch English Movies on the Internet.	4.3267	1.05230
		I use online dictionaries to check the meaning of new words.	4.0333	1.13171
		I listen to audio files in English.	3.6867	1.28563
		I practice grammar using websites.	3.3267	1.19561
		I read short stories, novels, newspapers, magazines, etc. on the Internet.	3.3933	1.32552
		I search the Internet for information about topics, homework, etc.	3.9733	1.12296



		Statements	Mean	Std
		I search the Internet to learn the correct use of vocabulary and sentence structures.	3.8800	1.08014
		I make use of translation facilities on the Internet.	4.4733	.88003
		I use note applications to write important information in English.	3.5000	1.28883
		I check the meaning of new words using dictionaries based on their parts.	3.6667	1.18529
Compensation Strategies		I search the Internet for unfamiliar words.	3.4133	1.24882
		I search the Internet for gestures I can use when I cannot think of a word. Save translation.	3.4133	1.29110
		When I forget a word, I look for similar words on the Internet.	3.8333	1.25541
		When I cannot think of a word in English, I call/text a friend.	2.7267	1.35556
Metacognitive Strategies		I search for how other people learn English on the Internet.	3.7867	1.25097
		I record my voice and listen to it again.	2.9000	1.42249
		I search the Internet for ways to improve my English.	4.0600	1.14827
		I pay attention when someone speaks English on the Internet.	4.2533	1.03097
Affective Strategies		Using technology makes me feel more relaxed when I feel afraid of using English.	4.1800	1.10563
		I search the Internet for ways to encourage myself when being afraid of making mistakes.	3.8000	1.48882
		I use recorders and cameras to check if I am tense when using English.	2.6867	1.45367
		I chat with friends via social networks about feelings when learning English.	3.2600	1.55231



		Statements	Mean	Std
		I write my feelings using memos or diaries on my mobile phone/ tablet.	3.0800	1.44085
		I reward myself when I do well in English by playing games.	3.3333	1.29013
Social Strategies		I look for people on the internet to correct me when I talk.	2.9533	1.46245
		I practice English with other students through social networks.	3.2333	1.42564
		I ask for help from English speakers on the Internet.	3.1333	1.33947
		I read about the culture of English speakers on the Internet.	3.4000	1.39028