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Article

Traditional Strategies and AI-Integrated Strategies in Learning English among EFL Omani Students

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A B S T R A C T

This study examines the impact of gender and academic levels on using both traditional and AI-integrated learning strategies among EFL Omani students. This quantitative study utilized a questionnaire with a five-point Likert scale based on Oxford's Strategy Inventory for Language Learning (SILL) and other AI-related items adapted from current studies, including 152 students from a public Omani university. The research instrument was expert-reviewed, followed by a pilot study, and the main data were analyzed using SPSS, namely t-tests and ANOVA. Out of 35 question items related to traditional learning strategies, Omani female learners outperformed male students in 26 items, significantly in writing new words (F= 4.00, M= 3.63), online English classes (F= 3.36, M= 2.99), practice grammar (F= 3.56, M= 3.01), and learn pronunciation (F= 4.44, M= 3.78). Similarly, Omani female learners outperformed male learners in all nine AI-based strategies, namely AI tools to enhance speaking (F= 3.44, M= 3.15), learn pronunciation (F= 3.54, M= 3.19), and improve writing (F= 3.43, M= 3.25). Students' academic levels also affected some strategies like listening, speaking, and pronunciation; higher-level students preferred interactive approaches related to AI compared with lower-level students. However, AI tools for learning grammar and writing were less commonly used. These findings suggest that integrating traditional and AI-assisted strategies could support learning foreign languages. Consequently, educators should encourage active engagement in AI-based learning while addressing students' dependence on traditional strategies.

I. INTRODUCTION

Learning English could be achieved through language learning strategies (Jomaa, Attamimi, & AlGhafri, 2025b; Oxford, 1990; Rahimi & Katal, 2012). In this regard, various factors can affect these strategies, such as gender, proficiency levels, and areas of studying (Šafranj, 2013; Tamimi & Razeq, 2020). Higher-achieving students utilize more strategies, namely metacognitive ones, in comparison with lower-achieving students (Jomaa et al., 2025b; Santihastuti & Wahjuningsih, 2019). However, though some studies have suggested that gender significantly influences these strategies (Zeynali, 2012; Montero-SaizAja, 2021), others, such as Behforouz and Al Ghaithi (2022), have found no relationship. Similarly, studies that have examined the influence of age and levels of study have yielded contrasting results (Rahimi & Katal, 2012; Jomaa, Attamimi, & Al Mahri, 2024). For instance, some studies have revealed that the level of proficiency affects the use of strategies; in other words, highly proficient learners prefer metacognitive and cognitive strategies (Ping & Luan, 2017; Park, 1997), whereas other studies argue that external factors, including teaching methods and motivation, have a decisive role in language learning (Ghafournia, 2014; Jomaa, Attamimi, & Al Mahri, 2025a; Tahriri & Divsar, 2011). These inconsistencies in the results imply a need for more examinations among EFL Arab students, particularly in Omani public universities, to obtain further insights into their LLSs (Alrashidi,

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2022; Tamimi & Razeq, 2020). In Oman, English is learned as a third language after acquiring various Omani local languages, followed by Arabic, and then English (Alkathiri, Jomaa, Mudhsh, Al Saqr, & Ali, 2025). Investigating these strategies could enable teachers, educators, and university management to adopt more effective teaching methods and policies as well as enhance students' learning experiences (Mahayanti, Putro, Widodo, & Alonzo, 2022; Susanto, 2022).

In this complicated process, multiple issues have been shown to influence using LLSs and their possible effectiveness, including age, gender, proficiency levels, and the possible influence of artificial intelligence (AI) (Al-Raimi et al., 2024; Al-Saiari et al., 2024; Jomaa et al., 2024, 2025a, 2025b). For instance, younger learners tend to be more proficient due to greater brain plasticity (Dey et al., 2024), whereas older learners may face more challenges but often exhibit higher motivation (Chen, 2014; Dey et al., 2024). In other words, different age groups prefer distinct strategies, with compensation strategies being more common among older students (Sepasdar & Soori, 2014; Chen, 2014). Social and affective strategies are also frequently used by university students (Sepasdar & Soori, 2014; Chen, 2014). Additionally, the relationship between LLSs and course grades is stronger in younger students (Tragant & Victori, 2012). Cognitive strategy use increases with age, whereas social and contextual strategy use decreases (Riazi et al., 2005). Other influencing factors include the nature of tasks, course methodology, and parental support (Suesca Torres & Torres Pérez, 2017). These findings underscore the need for age-specific language teaching methods (Dey et al., 2024; Tanjung, 2018).

Further, research on gender differences in LLSs use has yielded mixed results (Alhaysony, 2017; Aliakbari & Hayatzadeh, 2008; Zeynali, 2012; Montero-SaizAja, 2021). The most commonly used strategies among both genders are cognitive, metacognitive, and compensation strategies (Alhaysony, 2017; Ariyani et al., 2018). Although some studies have found gender differences in strategy use, others have not found such differences (Kashefian-Naeeini & Maarof, 2016; Tahriri & Divsar, 2011). Furthermore, the proficiency level affects strategy use, with more successful learners employing strategies more frequently (Green & Oxford, 1995). Research has also shown a positive correlation between LLSs use and productive vocabulary acquisition (Montero-SaizAja, 2021). Despite these findings, strategy use among learners typically ranges from low to medium (Alhaysony, 2017). Overall, learners across different studies have been found to be medium strategy users, with metacognitive strategies being the most frequently employed (Tahriri & Divsar, 2011). These inconsistencies highlight the need for further research into how gender influences LLSs use in different learning contexts.

The level of study also significantly impacts LLSs use. To demonstrate, higher proficiency learners tend to employ more cognitive, metacognitive, and social strategies (Khosravi, 2012; Ghafournia, 2014; Sulthan et al., 2018), with metacognitive strategies being particularly favored by advanced learners (Sulthan et al., 2018; Rahimi et al., 2008). Additionally, the year of study plays a role, as first-year students use more metacognitive and indirect strategies (Kashefian-Naeeini & Maarof, 2016), whereas seniors employ a broader range of strategies (Alrashidi, 2022; Sedighi & Zarafshan, 2006). Motivation also influences strategy use, with integrative motivated students utilizing more strategies (Sedighi & Zarafshan, 2006; Rahimi et al., 2008). However, in their study, Jomaa, Attamimi, and AlGhafri (2025b) revealed that levels of study have no effect on VLSs among Omani EFL students.

The integration of AI in language learning has introduced new dimensions to LLSs use (Lavidas et al., 2024). That is, learning languages is no longer associated only with the classroom as it was in the past. Nowadays, learners can use varied applications and AI tools to learn any language at any time outside the classroom. More specifically, recent studies have indicated that AI tools are commonly used for vocabulary learning strategies (Al-Raimi et al., 2024; Jomaa et al., 2024, 2025a). The most frequently used AI-based strategy is translating the meaning of new words, followed by acquiring new vocabulary, translating entire sentences, and mastering pronunciation (Jomaa, Attamimi, & Al Mahri, 2024). However, strategies related to grammar learning, writing, and reading skills are less frequently used. This suggests that while AI is beneficial in some areas, its role in overall language acquisition strategies requires further exploration. Additionally, Jomaa et al. (2024) found that age, gender, and levels of study

do not significantly affect EFL Omani students' use of AI tools for English vocabulary learning. These findings highlight the growing influence of AI in language education and suggest a need for further research to maximize its potential in improving LLSs use.

These insights emphasize the significance of modified education approaches to improve foreign language learning. Therefore, this study aims to address two research questions:

1. What are the perspectives of EFL Omani students on using both traditional and AI-integrated methods in learning the English language?
2. To what extent do gender and levels of study affect the use of traditional methods and AI-integrated methods in learning English among EFL Omani students?

II. METHODS

This study adopted a quantitative research design to gain an efficient understanding of the language learning strategies employed by EFL Omani students in learning English in the Omani context. This approach facilitates the systematic collection and analysis of numerical data. The questionnaire consists of 44 items adopted from the Strategy Inventory for Language Learning (SILL) established by Oxford (1990), which is a widely recognized instrument in language learning research. More specifically, items from 1 to 35 were adopted from the SILL, since they are related to traditional methods of learning English. Meanwhile, items from 36 to 44 were recently developed based on the results of several studies (Jomaa, Attamimi, & Al Mahri, 2024; Al-Raimi, Mudhsh, Al-Yafaei, Al-Maashani, 2024) to measure AI-integrated language learning strategies, thus revealing emerging trends related to the possible effect of artificial intelligence on foreign language learning. The research instrument was expert-reviewed, followed by a pilot study. To effectively gauge students' responses, the questionnaire employed a five-point Likert scale: 1 = Never, 2 = Seldom, 3 = Sometimes, 4 = Often, and 5 = Always. This scale provided a structured framework to measure the frequency and extent of strategy use among the respondents.

Respondents

The survey was randomly disseminated online through Google Forms to EFL Omani students enrolled in the General Foundation Program (GFP) at the Preparatory Studies Center of a public university in Oman. Out of 500 students, a total of 153 students completed the questionnaire, and after a validation process, 152 responses were deemed suitable for the analysis.

The respondents exhibited diversity in terms of gender (72 male students, 80 female students) and proficiency levels (Level One: 30, Level Two: 29, Level Three: 36, Level Four: 57).

Table 1. Number of respondents based on gender and levels of study

Category	Number of students
Gender	
Male	72
Female	80
Level of study	
Level one	30
Level two	29
Level three	36
Level four	57
Total	152

The respondents were enrolled in one of four levels (Levels 1 to 4), each corresponding to an academic semester lasting four months. Upon university admission, students undertook an English Placement Test, which determined whether they needed to enroll in the Foundation Program and at which level they should begin. The majority of the respondents fell within the 17-21 age range, with only one student classified within the 22-26 age category; therefore, this student was excluded from the sampling, since age is a significant variable, and respondents with different ages may use varied strategies.

Data Analysis

The collected data were analyzed using SPSS version 26, ensuring accuracy and precision in statistical assessment. The internal consistency of the questionnaire was evaluated using Cronbach's Alpha, yielding a high-reliability score of 0.949, thereby signifying excellent reliability. Key statistical measures, such as means, standard deviations, frequencies, and the highest and lowest mean values, were reported to summarize students' responses.

Table 2. Reliability statistics of the main study

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No of Items
.949	.949	44

Inferential statistical analyses were conducted, including two types of tests. First, an Independent Sample t-test was conducted to examine potential differences in English learning strategies based on gender. Second, a One-way ANOVA was performed to assess the potential impact of students' academic level (four levels were examined) on their choice of English learning strategies.

III. RESULTS

In Table 3, the effect of gender on using traditional methods of learning English is illustrated. Overall, female learners consistently outperformed male students in most English learning strategies, particularly in grammar practice, writing, and structured study habits. The largest gender variations were in employing Google Translate for pronunciation, grammar exercises, and maintaining study schedules; all of which were favored by female students. In contrast, male learners showed only slight advantages in a few areas (e.g., watching movies, group discussions, chatting with people), but the differences were minimal.

This analysis examines the differences and similarities between male and female students in their use of traditional methods in learning English. Concerning writing and vocabulary strategies, female students are significantly more likely to write new English words in a notebook (Mean: 4.29 vs. 3.96, $p = 0.044$). Both genders frequently translate new words into their native language, with little difference (Mean: 4.33 for females, 4.25 for males). However, females are slightly more inclined to use new English words in sentences (Mean: 3.75 vs. 3.40). Regarding grammar and practice exercises, females engage significantly more in grammar exercises (Mean: 3.56 vs. 3.01, $p = 0.002$). They also follow online English lessons for grammar more frequently (Mean: 3.36 vs. 2.99). Further, the use of mental visualization for remembering grammar rules is slightly more common among females (Mean: 3.40 vs. 3.14). As for listening and pronunciation practices, female students listen to word pronunciations using Google Translate at a significantly higher rate than male students (Mean: 4.44 vs. 3.78). Listening to English texts to learn grammar is also slightly more frequent among females (Mean: 3.48 vs. 3.15). Both genders exhibit a similar tendency to listen to English songs (Mean: 3.23 for females, 3.03 for males) and watch movies or TV shows in English (Mean: 3.74 for females, 3.81 for males). Regarding

Table 3. The effect of gender on traditional methods of English language learning

Question items	Gender	N	Mean	Std. Deviation	Std. Error Mean
1- Use new English words in a sentence.	Male	72	3.40	.914	.108
	Female	80	3.75	.948	.106
2- Write the new words on paper or in a notebook.	Male	72	3.96	1.067	.126
	Female	80	4.29	.903	.101
3- Repeat the new words to myself.	Male	72	3.54	.978	.115
	Female	80	3.66	.967	.108
4- Translate the new words into my native language.	Male	72	4.25	.946	.111
	Female	80	4.33	.978	.109
5- Follow online English lessons to learn grammar.	Male	72	2.99	1.216	.143
	Female	80	3.36	1.022	.114
6- Visualize mental images to remember grammar rules.	Male	72	3.14	1.202	.142
	Female	80	3.40	1.109	.124
7- Observe my mistakes and use the information to improve.	Male	72	3.82	1.053	.124
	Female	80	3.98	1.043	.117
8- Practice grammar exercises.	Male	72	3.01	1.028	.121
	Female	80	3.56	1.089	.122
9- Read English texts to learn grammar.	Male	72	3.18	1.142	.135
	Female	80	3.39	1.119	.125
10- Listen to English texts to learn grammar.	Male	72	3.15	1.134	.134
	Female	80	3.48	1.211	.135
11- Listen to word pronunciations on Google Translate.	Male	72	3.78	.982	.116
	Female	80	4.44	.898	.100

12- Try to speak with native English speakers.	Male	72	3.36	1.271	.150
	Female	80	3.50	1.091	.122
13- Practice pronunciation with English speakers or other learners.	Male	72	3.35	1.140	.134
	Female	80	3.29	1.127	.126
14- Read newspapers, stories, or books in English.	Male	72	2.58	1.110	.131
	Female	80	2.78	1.113	.124
15- Read for enjoyment in English.	Male	72	2.82	1.226	.144
	Female	80	3.05	1.301	.146
16- Skim the English text quickly first, then reread it carefully.	Male	72	3.43	1.243	.146
	Female	80	3.61	1.288	.144
17- Focus on main headings and subheadings in English texts.	Male	72	3.54	1.138	.134
	Female	80	3.53	1.169	.131
18- Listen to English songs.	Male	72	3.03	1.529	.180
	Female	80	3.23	1.501	.168
19- Watch movies or TV shows in English.	Male	72	3.81	1.182	.139
	Female	80	3.74	1.199	.134
20- Pay attention to people speaking English.	Male	72	3.90	.981	.116
	Female	80	4.03	1.006	.112
21- Chat with people online in English.	Male	72	2.92	1.230	.145
	Female	80	2.78	1.158	.129
22- Discuss English learning materials and information with others.	Male	72	3.28	1.141	.134
	Female	80	3.11	1.125	.126
23- Participate in group discussions in English.	Male	72	3.10	1.153	.136
	Female	80	3.00	1.114	.125
24- Write essays and short stories in English in my free time.	Male	72	2.43	1.254	.148
	Female	80	2.05	1.113	.124
25- Write notes, text messages, and reports in English.	Male	72	2.74	1.175	.138
	Female	80	2.93	1.123	.126
26- Write simple, uncomplicated words in meaningful sentences.	Male	72	3.63	1.080	.127
	Female	80	4.00	1.091	.122
27- Try to finish English homework before the deadline.	Male	72	4.04	1.131	.133
	Female	80	4.26	.990	.111
28- Set a specific study schedule for exams.	Male	72	3.68	1.287	.152
	Female	80	4.03	1.091	.122
29- Try various methods for studying English.	Male	72	3.82	.954	.112
	Female	80	3.89	1.031	.115
30- Maintain a balance between my life and learning English.	Male	72	3.63	1.027	.121
	Female	80	3.65	1.092	.122
31- Motivate myself with positive self-talk.	Male	72	4.03	1.138	.134
	Female	80	4.13	1.036	.116
32- Seek help from experienced individuals to correct my English mistakes.	Male	72	4.01	1.028	.121
	Female	80	4.04	1.061	.119
33- Record my progress in learning English in a notebook.	Male	72	3.24	1.369	.161
	Female	80	3.23	1.312	.147
34- Compare my English learning progress with my prior knowledge.	Male	72	3.56	1.099	.130
	Female	80	3.55	1.157	.129
35- Evaluate myself through tests.	Male	72	3.65	1.115	.131
	Female	80	3.75	1.185	.133

speaking and interaction strategies, both genders show comparable engagement in speaking with native English speakers (Mean: 3.50 for females, 3.36 for males). They also practice pronunciation with peers at nearly the same level (Mean: 3.29 for females, 3.35 for males). Further, participating in group discussions in English is equally common (Mean: 3.00 for females, 3.10 for males). As for reading and writing practices, females are slightly more engaged in reading for enjoyment in English (Mean: 3.05 vs. 2.82 for males). Further, both genders read newspapers, stories, or books in English at a similar rate (Mean: 2.78 for females, 2.58 for males). However, writing essays and short stories in free time is more common among males, but this difference is not statistically significant (Mean: 2.43 vs. 2.05, $p = 0.053$).

Other strategies related to study habits and self-

regulation showed both variations and similarities. To demonstrate, female students tend to set a study schedule for exams more frequently than males (Mean: 4.03 vs. 3.68), though this difference is not statistically significant ($p = 0.076$). Both genders show similar levels of motivation through positive self-talk (Mean: 4.13 for females, 4.03 for males). Besides, comparing English learning progress with prior knowledge is almost identical across genders (Mean: 3.55 for females, 3.56 for males). Keeping track of learning progress in a notebook is also equally common (Mean: 3.23 for both).

These results show that female students are more likely to engage in structured learning methods, such as writing new words in a notebook, practicing grammar exercises, and using pronunciation tools (p-values < 0.05). In contrast, male students show slightly higher engagement in freewriting activities, but the difference is not significant. This insight can help educators tailor teaching methods to accommodate different learning preferences. Female students have a slightly higher mean score (3.5639) than male students (3.4222) in using traditional methods. However, the difference is small, and standard deviations are similar, indicating some overlap in behavior. The F-value is 1.917, and the p-value (Sig.) is 0.168, which is greater than 0.05. This indicates no statistically significant difference between male and female students in their use of traditional learning methods.

In Table 4, the effect of gender on AI-integrated language learning strategies is explained.

The data reveal that both male and female students use AI applications for learning English, with mean scores generally ranging between 3.13 and 3.88 on a 5-point scale. This suggests that AI is moderately utilized in language learning but has not yet become the dominant approach. While students engage with AI across different language skills, their usage varies based on specific learning needs. A notable trend is the slight gender difference in AI usage, with female students consistently reporting higher mean scores than male students across all categories. The most significant differences appear in AI use for strengthening speaking skills (Male: 3.15, Female: 3.44) and enhancing pronunciation accuracy (Male: 3.19, Female: 3.54). This suggests that female learners may be more inclined to use AI for oral communication and pronunciation improvement, possibly indicating greater confidence or willingness to engage with technology for interactive language learning.

When examining the most and least used AI applications, the data show that AI for translating new words is the most widely adopted strategy (Male: 3.85, Female: 3.88). This suggests that learners primarily use AI as a translation tool rather than for productive language skills like writing or speaking. Conversely, AI for learning grammar had the lowest mean scores (Male: 3.13, Female: 3.24), implying that students may still prefer traditional grammar-learning methods over AI-based tools, possibly due to the structured nature of grammar

Table 4. The effect of gender on AI-integrated language learning strategies

Questionnaire items	Gender	N	Mean	Std. Deviation	Std. Error Mean
36- Use language AI applications to learn English.	Male	72	3.26	1.332	.157
	Female	80	3.43	1.357	.152
37- Use AI applications to acquire new vocabulary.	Male	72	3.40	1.296	.153
	Female	80	3.55	1.292	.144
38- Use language AI applications to improve writing skills.	Male	72	3.25	1.264	.149
	Female	80	3.43	1.290	.144
39- Use language AI applications to strengthen speaking skills.	Male	72	3.15	1.218	.144
	Female	80	3.44	1.221	.136
40- Use language AI applications to enhance reading skills.	Male	72	3.21	1.321	.156
	Female	80	3.31	1.279	.143
41- Use language AI applications to improve listening skills.	Male	72	3.36	1.259	.148
	Female	80	3.38	1.226	.137
42- Use language AI applications to learn English grammar.	Male	72	3.13	1.310	.154
	Female	80	3.24	1.324	.148
43- Use language AI applications to enhance pronunciation accuracy.	Male	72	3.19	1.263	.149
	Female	80	3.54	1.242	.139
44- Use language AI applications to translate the meanings of new words.	Male	72	3.85	1.218	.144
	Female	80	3.88	1.335	.149

instruction. Looking at AI usage across different language skills, the findings indicate that AI applications are well-used for vocabulary learning (Male: 3.40, Female: 3.55), showing that students find AI helpful in expanding their word bank. AI-assisted writing improvement is also moderately used (Male: 3.25, Female: 3.43), suggesting that while students turn to AI for writing support, it is not their primary resource. In contrast, AI use for reading (Male: 3.21, Female: 3.31) and listening (Male: 3.36, Female: 3.38) suggests a moderate reliance on AI for comprehension-based skills. The analysis of results shows that the significance (Sig.) values for all the variables are above 0.05, indicating no statistically significant differences between genders in the use of AI applications for learning English. The eta squared values, which measure the strength of association, are all quite low (ranging from 0.000 to 0.019). This suggests that gender explains little to no variation in AI usage patterns. Since all p-values (Sig.) exceed 0.05, there is no statistically significant gender-based difference in AI-assisted English learning.

Table 5 reveals the effect of levels of study on learning English following the traditional methods.

This analysis examines the traditional methods of learning English among EFL Omani students across four academic levels (Level 1, Level 2, Level 3, and Level 4) using an ANOVA test. The key findings are grouped into several categories based on their strategy. First, regarding writing and memorization strategies, using new words in a sentence based on the ANOVA result show $F(3,148) = 1.509$, $p = .215$, indicating no statistically significant difference across levels. Writing new words in a notebook: $F(3,148) = 2.718$, $p = .047$ suggests a significant difference among levels, meaning that students at different levels vary in their tendency to write new words for memorization. Repeating new words to oneself resulted in $F(3,148) = 3.014$, $p = .032$, indicating a significant difference, whereby higher-level students might use this method more effectively than lower-level ones. While writing down words is significantly different across levels, repetition also shows a difference, suggesting that higher-level

Table 5. The effect of the level of study on traditional methods of learning English

			Sum of Squares	df	Mean Square	F	Sig.
1- Use new English words in a sentence.	Between Groups	(Combined)	4.004	3	1.335	1.509	.215
	Within Groups		130.884	148	.884		
	Total		134.888	151			
2- Write the new words on paper or in a notebook.	Between Groups	(Combined)	7.800	3	2.600	2.718	.047
	Within Groups		141.569	148	.957		
	Total		149.368	151			
3- Repeat the new words to myself.	Between Groups	(Combined)	8.193	3	2.731	3.014	.032
	Within Groups		134.123	148	.906		
	Total		142.316	151			
4- Translate the new words into my native language.	Between Groups	(Combined)	.433	3	.144	.154	.927
	Within Groups		138.830	148	.938		
	Total		139.263	151			
5- Follow online English lessons to learn grammar.	Between Groups	(Combined)	4.008	3	1.336	1.047	.374
	Within Groups		188.834	148	1.276		
	Total		192.842	151			
6- Visualize mental images to remember grammar rules.	Between Groups	(Combined)	4.405	3	1.468	1.098	.352
	Within Groups		197.990	148	1.338		
	Total		202.395	151			
7- Observe my mistakes and use the information to improve.	Between Groups	(Combined)	6.178	3	2.059	1.913	.130
	Within Groups		159.341	148	1.077		
	Total		165.520	151			
8- Practice grammar exercises.	Between Groups	(Combined)	4.602	3	1.534	1.294	.279
	Within Groups		175.477	148	1.186		
	Total		180.079	151			
9- Read English texts to learn grammar.	Between Groups	(Combined)	4.606	3	1.535	1.205	.310
	Within Groups		188.657	148	1.275		
	Total		193.263	151			

10- Listen to English texts to learn grammar.	Between Groups	(Combined)	17.147	3	5.716	4.359	.006
	Within Groups		194.056	148	1.311		
	Total		211.204	151			
11- Listen to word pronunciations on Google Translate.	Between Groups	(Combined)	1.438	3	.479	.482	.695
	Within Groups		147.187	148	.995		
	Total		148.625	151			
12- Try to speak with native English speakers.	Between Groups	(Combined)	16.132	3	5.377	4.119	.008
	Within Groups		193.210	148	1.305		
	Total		209.342	151			
13- Practice pronunciation with English speakers or other learners.	Between Groups	(Combined)	12.158	3	4.053	3.319	.022
	Within Groups		180.684	148	1.221		
	Total		192.842	151			
14- Read newspapers, stories, or books in English.	Between Groups	(Combined)	3.248	3	1.083	.873	.457
	Within Groups		183.594	148	1.241		
	Total		186.842	151			
15- Read for enjoyment in English.	Between Groups	(Combined)	6.600	3	2.200	1.381	.251
	Within Groups		235.867	148	1.594		
	Total		242.467	151			
16- Skim the English text quickly first, then reread it carefully.	Between Groups	(Combined)	9.629	3	3.210	2.045	.110
	Within Groups		232.266	148	1.569		
	Total		241.895	151			
17- Focus on main headings and subheadings in English texts.	Between Groups	(Combined)	4.229	3	1.410	1.067	.365
	Within Groups		195.606	148	1.322		
	Total		199.836	151			
18- Listen to English songs.	Between Groups	(Combined)	24.938	3	8.313	3.840	.011
	Within Groups		320.430	148	2.165		
	Total		345.368	151			
19- Watch movies or TV shows in English.	Between Groups	(Combined)	12.505	3	4.168	3.078	.029
	Within Groups		200.436	148	1.354		
	Total		212.941	151			
20- Pay attention to people speaking English.	Between Groups	(Combined)	4.496	3	1.499	1.537	.207
	Within Groups		144.340	148	.975		
	Total		148.836	151			
21- Chat with people online in English.	Between Groups	(Combined)	4.463	3	1.488	1.050	.373
	Within Groups		209.748	148	1.417		
	Total		214.211	151			
22- Discuss English learning materials and information with others.	Between Groups	(Combined)	1.920	3	.640	.494	.687
	Within Groups		191.547	148	1.294		
	Total		193.467	151			
23- Participate in group discussions in English.	Between Groups	(Combined)	11.201	3	3.734	3.045	.031
	Within Groups		181.476	148	1.226		
	Total		192.678	151			
24- Write essays and short stories in English in my free time.	Between Groups	(Combined)	6.597	3	2.199	1.562	.201
	Within Groups		208.344	148	1.408		
	Total		214.941	151			
25- Write notes, text messages, and reports in English.	Between Groups	(Combined)	3.781	3	1.260	.956	.415
	Within Groups		195.107	148	1.318		
	Total		198.888	151			
26- Write simple, uncomplicated words in meaningful sentences.	Between Groups	(Combined)	8.494	3	2.831	2.412	.069
	Within Groups		173.710	148	1.174		
	Total		182.204	151			
27- Try to finish English homework before the deadline.	Between Groups	(Combined)	7.306	3	2.435	2.212	.089
	Within Groups		162.905	148	1.101		
	Total		170.211	151			
28- Set a specific study schedule for exams.	Between Groups	(Combined)	7.326	3	2.442	1.731	.163
	Within Groups		208.773	148	1.411		
	Total		216.099	151			

29- Try various methods for studying English.	Between Groups	(Combined)	4.369	3	1.456	1.492	.219
	Within Groups		144.447	148	.976		
	Total		148.816	151			
30- Maintain a balance between my life and learning English.	Between Groups	(Combined)	4.931	3	1.644	1.482	.222
	Within Groups		164.168	148	1.109		
	Total		169.099	151			
31- Motivate myself with positive self-talk.	Between Groups	(Combined)	7.095	3	2.365	2.059	.108
	Within Groups		169.958	148	1.148		
	Total		177.053	151			
32- Seek help from experienced individuals to correct my English mistakes.	Between Groups	(Combined)	3.305	3	1.102	1.015	.388
	Within Groups		160.590	148	1.085		
	Total		163.895	151			
33- Record my progress in learning English in a notebook.	Between Groups	(Combined)	3.647	3	1.216	.678	.567
	Within Groups		265.294	148	1.793		
	Total		268.941	151			
34- Compare my English learning progress with my prior knowledge.	Between Groups	(Combined)	3.575	3	1.192	.938	.424
	Within Groups		188.004	148	1.270		
	Total		191.579	151			
35- Evaluate myself through tests.	Between Groups	(Combined)	7.988	3	2.663	2.056	.109
	Within Groups		191.689	148	1.295		
	Total		199.678	151			

students rely more on these strategies compared to beginners. Lower-level students may not be as disciplined in noting new words, while advanced students might integrate writing and repetition more effectively.

Second, translating new words into the native language: F (3,148) = 0.154, p = .927, indicates no significant difference across levels. This suggests that translation remains a common method among all levels, implying that EFL Omani students continue relying on their native language to support their English learning regardless of proficiency. Third, grammar learning strategies following online English grammar lessons showed F(3,148) = 1.047, p = .374, which is not significant. Visualizing mental images for grammar rules: F(3,148) = 1.098, p = .352 is also not significant. Similarly, observing mistakes for improvement: F(3,148) = 1.913, p = .130 and practicing grammar exercises: F(3,148) = 1.294, p = .279 are not significant. In general, no significant differences were found across levels, suggesting that students at all levels use similar grammar learning methods. This may indicate a lack of differentiation in how grammar is taught or studied, implying that grammar learning remains uniform across academic progression.

Fourth, concerning reading and listening strategies, listening to English texts to learn grammar: F(3,148) = 4.359, p = .006 is significant. Though reading English texts for grammar: F(3,148) = 1.205, p = .310 is not significant, listening to English songs: F(3,148) = 3.840, p = .011, and watching movies or TV shows in English: F(3,148) = 3.078, p = .029 are significant. It can be reported that listening-based strategies are significantly different across levels, suggesting that higher-level students engage with these activities more frequently than beginners. In contrast, reading strategies did not show significant differences, which may suggest that reading habits are more stable across different levels of study. Fifth, speaking and pronunciation strategies showed significant differences. More specifically, speaking with native speakers: F(3,148) = 4.119, p = .008, practicing pronunciation with others: F(3,148) = 3.319, p = .022, and participating in group discussions: F(3,148) = 3.045, p = .031 are significant. This can reveal that speaking and pronunciation-related strategies show significant differences across levels, suggesting that higher-level students engage in active communication more frequently than lower-level students. This may indicate that confidence and proficiency increase with level progression, leading students to seek more interaction with native and fluent speakers.

The dataset examines whether the level of study significantly affects traditional methods of learning English. The analysis is based on ANOVA, with statistical significance (p-values) and effect sizes (Eta Squared) examined. Statistically Significant Differences ($p < 0.05$) were found in the following traditional methods of learning English among

EFL Omani students; writing new words on paper (p = 0.047), repeating new words to oneself (p = 0.032), listening to English texts to learn grammar (p = 0.006), speaking with native English speakers (p = 0.008), practicing pronunciation with others (p = 0.022), listening to English songs (p = 0.011), watching movies or TV shows in participating in group discussions (p = 0.031). These results indicate that the level of study significantly affects the use of these traditional methods. In contrast, most of the other traditional methods, including translating words, reading English texts, following online lessons, and using grammar exercises, showed no significant differences across levels of study. However, the largest Effect Size (Eta Squared) were found in the following traditional methods of learning English by EFL Omani students: listening to English texts to learn grammar (0.081), speaking with native speakers (0.077), listening to English songs (0.072), practicing pronunciation (0.063), watching movies/TV shows (0.059), and group discussions (0.058). These indicate moderate effects, meaning the level of study plays a meaningful role in these learning behaviors.

In Table 6, the dataset provides mean scores across four study levels for various AI-integrated English learning activities among EFL Omani students.

The mean scores of general AI use in learning English range from 3.11 (Level Three) to 3.49 (Level Four), suggesting that higher-level students use AI applications slightly more, but the differences are small. Concerning vocabulary learning, Level Two (3.69) and Level Four (3.56) students report higher AI use, whereas Level Three students show the lowest (3.17). As for writing skills improvement, Level Two students (3.62) use AI more, whereas Level Three students report the least (2.89). Regarding speaking skills strengthening, Levels One, Two, and Four have similar usage (around 3.30–3.53), whereas Level Three is the lowest (2.89). However, in reading and listening skills enhancement, minor variations exist, with means ranging from 3.06 to 3.45. Regarding grammar learning and pronunciation accuracy, Levels Two and Four students show slightly higher means than other levels. The strategy related to the translation of new words showed that the highest usage is observed in Level One (4.17), decreasing slightly in higher levels. It could be concluded that the means suggest that AI-integrated methods are used across all study levels, but there is no clear

Table 6. The effect of the level of study on AI-integrated language learning strategies

Descriptives		NO	Mean	St. Dev.	St. Error	Lower Bound	Upper Bound
36- Use language AI applications to learn English.	Level 1	30	3.43	1.406	.257	2.91	3.96
	Level 2	29	3.28	1.437	.267	2.73	3.82
	Level 3	36	3.11	1.304	.217	2.67	3.55
	Level 4	57	3.49	1.297	.172	3.15	3.84
	Total	152	3.35	1.343	.109	3.13	3.56
37- Use AI applications to acquire new vocabulary.	Level 1	30	3.50	1.358	.248	2.99	4.01
	Level 2	29	3.69	1.168	.217	3.25	4.13
	Level 3	36	3.17	1.444	.241	2.68	3.66
	Level 4	57	3.56	1.210	.160	3.24	3.88
	Total	152	3.48	1.292	.105	3.27	3.69
38- Use language AI applications to improve writing skills.	Level 1	30	3.30	1.368	.250	2.79	3.81
	Level 2	29	3.62	1.293	.240	3.13	4.11
	Level 3	36	2.89	1.282	.214	2.46	3.32
	Level 4	57	3.51	1.167	.155	3.20	3.82
	Total	152	3.34	1.277	.104	3.14	3.55
39- Use language AI applications to strengthen speaking skills.	Level 1	30	3.30	1.236	.226	2.84	3.76
	Level 2	29	3.38	1.293	.240	2.89	3.87
	Level 3	36	2.89	1.214	.202	2.48	3.30
	Level 4	57	3.53	1.151	.152	3.22	3.83
	Total	152	3.30	1.224	.099	3.11	3.50

40- Use language AI applications to enhance reading skills.	Level 1	30	3.17	1.234	.225	2.71	3.63
	Level 2	29	3.45	1.298	.241	2.95	3.94
	Level 3	36	3.06	1.308	.218	2.61	3.50
	Level 4	57	3.35	1.329	.176	3.00	3.70
	Total	152	3.26	1.296	.105	3.06	3.47
41- Use language AI applications to improve listening skills.	Level 1	30	3.17	1.117	.204	2.75	3.58
	Level 2	29	3.66	1.317	.245	3.15	4.16
	Level 3	36	3.22	1.312	.219	2.78	3.67
	Level 4	57	3.42	1.209	.160	3.10	3.74
	Total	152	3.37	1.238	.100	3.17	3.57
42- Use language AI applications to learn English grammar.	Level 1	30	3.23	1.382	.252	2.72	3.75
	Level 2	29	3.28	1.386	.257	2.75	3.80
	Level 3	36	2.83	1.231	.205	2.42	3.25
	Level 4	57	3.33	1.286	.170	2.99	3.67
	Total	152	3.18	1.314	.107	2.97	3.39
43- Use language AI applications to enhance pronunciation accuracy.	Level 1	30	3.20	1.186	.217	2.76	3.64
	Level 2	29	3.72	1.386	.257	3.20	4.25
	Level 3	36	3.14	1.222	.204	2.73	3.55
	Level 4	57	3.44	1.239	.164	3.11	3.77
	Total	152	3.38	1.260	.102	3.17	3.58
44- Use language AI applications to translate the meanings of new words.	Level 1	30	4.17	1.085	.198	3.76	4.57
	Level 2	29	3.59	1.524	.283	3.01	4.17
	Level 3	36	3.78	1.376	.229	3.31	4.24
	Level 4	57	3.89	1.160	.154	3.59	4.20
	Total	152	3.86	1.277	.104	3.66	4.07

linear trend showing increased usage with study progression. AI-assisted vocabulary learning and writing improvement show the most differences between levels, suggesting that specific skills may influence AI adoption more than general proficiency levels. However, EFL Omani students in Level Three consistently report the lowest AI usage, which could indicate external factors (e.g., curriculum difficulty, engagement levels). In contrast, the highest AI use is seen in word translation, especially among Level One students, suggesting beginners rely more on AI for direct translation rather than deeper language learning.

The ANOVA tests show that none of the differences in AI usage across study levels are statistically significant (p-values > 0.05) among EFL Omani students. This indicates that the level of study does not have a significant effect on AI-integrated learning methods for English. Although some variations exist in AI usage patterns across study levels, these differences are not statistically significant. This suggests that AI-integrated learning is used relatively consistently regardless of the students' level of study.

IV. DISCUSSION

This study employed quantitative research to examine English learning strategies among EFL Omani students, comparing traditional and AI-assisted methods. The findings revealed that traditional methods, particularly vocabulary memorization, translation, and structured learning, were dominant. These three strategies form the basis of learning foreign languages. On the other hand, AI tools were moderately used, mainly for translation, vocabulary learning, and pronunciation, but less so for grammar and writing. In both groups of foreign language learning strategies, vocabulary learning and translation are fundamental. Gender differences showed that female students were more engaged in structured learning strategies. However, the study finds no statistically significant gender differences in the use of AI-integrated applications for learning English.

Further, the findings reveal that lower-level students rely heavily on structured techniques like writing new words, repetition, and translation, whereas higher-level students gradually shift toward interactive and communicative strategies,

such as speaking with native speakers, listening to English media, and engaging in discussions. This shows the linear track of learning foreign languages among non-native speakers of English, starting with learning new words and ending with speaking and listening. That is, Arab learners including EFL Omani students learn reading and writing skills first, followed by speaking and listening skills in contrast with the natural order of acquiring languages. However, strategies of learning grammar seem to be consistent across all students' levels, thereby demonstrating a standardized instructional approach. A key observation is that vocabulary learning and translation of new words are the most common AI-assisted learning strategies, with higher mean scores compared to AI usage for writing, reading, and grammar. This aligns with Souriyavongsa et al. (2013), who found that students relied on vocabulary books and electronic dictionaries. These findings imply that as students advance in their language learning process, they are willing to implement more active learning methods, which may boost both fluency and confidence in using English.

Moreover, students' level of study does not significantly influence students' use of AI-integrated methods for learning English. This result aligns with Tamimi and Razeq's (2020) study, which emphasizes that though students adopt several strategies for learning English, their awareness and effective utilization of these strategies require further improvement and enhancement. However, this result contradicts previous findings (Kashefian-Naeeini & Maarof, 2016) that showed senior students utilize more strategies than freshmen.

The findings also point out that students in level three reported the lowest usage of AI-integrated language learning strategies. This result contrasts with Sedighi and Zarafshan (2006), who revealed that senior students adopt more strategies than freshmen. A possible reason can be associated with the greater academic pressure faced by students at this level, thus reducing their engagement with AI-integrated language learning tools. The inconsistency in these studies implies that external factors like curriculum demands or students' comfort with AI technology could impact AI adoption more than the level of study itself. Pedagogically, these findings advocate AI-integrated methods as a complement rather than a replacement of the traditional learning strategies. These results are in line with Rubaai et al. (2019), who highlighted the significance of adjusting teaching strategies based on students' preferred learning styles. The variations in adopting AI tools across students' skills and levels highlight the need for educators to provide targeted guidance on effective AI usage in the teaching and learning process.

V. CONCLUSIONS

The findings illustrated that both traditional and AI-integrated methods of foreign language learning are utilized with distinct patterns of preference among EFL Omani students. Traditional methods, namely translating words into Arabic, writing new words in notebooks, and practicing pronunciation, are dominant. On the other hand, AI-integrated language learning strategies are gaining traction, especially in vocabulary learning, pronunciation improvement, and listening comprehension. Consequently, these findings imply that AI is predominantly used as a supplementary tool rather than a replacement for traditional language learning strategies. Overall, though the findings imply that AI is a valuable resource in English language learning, its impact is not significantly influenced by students' academic levels. However, this study has several limitations that should be considered while interpreting the results. First, the dependence on self-reported data might lead to response bias, since students may either overestimate or underestimate their use of AI and traditional learning strategies. Second, the sample consists of only students from one public university in Oman, thus limiting the generalizability of the findings to a broader population. Additionally, the study did not consider employing qualitative insights into students' experiences and perspectives of AI integration in language learning, which could provide a deeper understanding of the challenges and benefits associated with AI-based learning. Future studies could also explore the possible effect of specific instructional interventions on enhancing AI adoption rates across varied levels. This implies encouraging lower-level students to utilize writing and repetition methods early to increase their vocabulary retention. Moreover, longitudinal studies tracing students' development over time with AI-assisted foreign language learning could provide valuable insights into the long-term benefits and limitations of integrating AI

into English language instruction.

ETHICS STATEMENT

The relevant informed consent was obtained from the university, the Preparatory Studies Center, and students.

CREDIT AUTHOR STATEMENT

Nayef Jomaa: Designed the whole study, prepared the questionnaire, analysed the data, wrote the findings. **Badri Mudhsh**: helped in designing the questionnaire, collecting the data, and writing the literature review. **Khalid AlGhafri**: helped in collecting the data, overall proofreading, and writing the discussion.

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DECLARATION OF COMPETING INTERESTS

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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