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Investigating Second Language Learning Strategies using Think Aloud Protocols: Evidence from Jordanian EFL Learners

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Abstract
Language Learning Strategies (LLSs) assist learners to develop cognitive or behavioral competences to make the language learning process more self-directed and effective. In the current educational contexts, think-aloud methods are used to provide insights into the cognitive processes of individuals as they engage in enhancement of skills and tasks or problem-solving activities. This study aimed at identifying the type and frequency of LLSs used by intermediate and advanced Jordanian EFL learners and investigating whether there were any qualitative differences in the behaviour of participants while using think-aloud protocols in completing their tasks. A qualitative research design was followed, by sampling 70 senior university students of Al al-Bayt University, Jordan. The Oxford Quick Placement Test was used to further classify them into intermediate (36 students) and advanced (34 students) groups. For major tasks of the study, 20 students were randomly selected from each of these two groups. These groups were assigned think-aloud tasks in reading, writing and listening to investigate the LLSs they used. The results revealed a diverse range of LLSs employed by the participants across various tasks, except for social strategies, as the tasks did not involve any social interaction or communication. It was also revealed that participants were active strategic learners and were aware of their cognitive processes. The study can help EFL learners in general, and Jordanian ones in particular, gain a deeper insight into the actual use of LLSs when dealing with language tasks, which can make a positive impact on their performance.

Keywords: Language Learning Strategies, Proficiency Levels, Think-Aloud Protocols.

Introduction

Language learning strategies (LLSs) are traditionally viewed as specific cognitive or behavioral actions that language learners utilize to make the language learning process more self-directed, more effective and

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more enjoyable (Ellis, 1997; Griffiths, 2003; Hong, 2006; Oxford, 1990; Oxford & Lan, 2003; Shmais, 2003). All these studies unanimously agreed that strategies played a significant role in improving the learners' competence towards the target language. Current research has focused on investigating the correlation between LLSs and other variables, including language proficiency, cultural background, age, gender, etc. (Al-Natour, 2012; Alemi & Tajeddin, 2010; Radwan, 2011).

Oxford (1990) classifies LLSs into two groups: direct and indirect strategies. Direct strategies, contributing directly to learning, are further divided into the following three categories: *memory strategies* (used for encoding information into memory and retrieving it); *cognitive strategies* (help learners comprehend and produce a new language through activities such as analyzing, summarizing, practicing and reasoning), and *compensatory strategies* (enable learners to overcome language limitations by guessing, inventing new words, and using synonyms or linguistic clues). On the other hand, indirect strategies support language learning without the need for direct language use. They are classified into three categories. The first subcategory is *metacognitive strategies*. These strategies allow learners to control their own cognition by monitoring their use of a language, coordinating the learning process, planning, and seeking opportunities for language use. The second subcategory is *affective strategies*. These strategies help learners by increasing their motivation, lowering their anxiety levels, and managing their emotions. Finally, the third subcategory is *social strategies*. These strategies assist learners in interacting, communicating, and cooperating with others to enhance their learning experience.

Although there is a substantial body of research on LLSs in various regions around the world, the investigation of LLSs in the Arab World is very limited (Ahmed Ismail & Al Khatib, 2013; Al-Qahtani, 2020; Al-Shabou, Asassfeh, & Alshboul, 2010; Alzahrani & Alq, 2023; Khalil, 2005; McMullen, 2009; Shmais, 2003). Moreover, the majority of studies that examined LLSs in the context of Arab EFL learners have adopted a quantitative approach, using questionnaires as the main tool for data collection. Since questionnaires may not comprehensively capture the entire picture of strategy use, a gap was observed in the literature regarding the qualitative exploration of LLSs among the Arab learners. Most published research has been concerned with enhancement of reading and writing skills through traditional methods, with little effort made to investigate the use of LLSs in skills like reading, writing, and listening, using think-aloud protocols, particularly in the Jordanian context. Think-Aloud Protocols (TAPs) are one of the most effective tools that offer insights into learners' cognitive processes during learning (Alhaisoni, 2012; Bowles, 2010; Fernández-Michels & Fornons, 2021; Gu, 2014; Jincheng & Rahmat, 2022; Leow & Morgan-Short, 2004; Oster, 2001; Pratt & Hodges, 2023; Salehomoum, 2023; Schunk, 2012; Suh, 2023; Traga Philippakos, 2021; Zhang & Zhang, 2019).

The present study aimed to contribute to previous studies by adopting a qualitative approach, using think-aloud protocols, in an attempt to gain more insights into LLSs used by Arab EFL learners in general, and Jordanian learners in particular. The aim of this study was to identify the actual strategies Arab EFL learners used while working on specific language-related tasks, addressing the limitations of generalizing findings from other ethnic groups (Ahmed Ismail & Al Khatib, 2013). The current study concentrated on the prevalent LLSs Jordanian EFL learners use during language-related tasks to explore whether differences in the behaviour of participants can be linked to their language proficiency levels. Specifically, the present study sought answers to the following questions:

1. What are the type and frequency of LLSs used by intermediate and advanced Jordanian EFL learners while working on language-related tasks?
2. Is there any qualitative difference in the behaviour of participants while using think-aloud protocols in completing the tasks that can be attributed to their language proficiency level? If so, what are these differences?

English language learning in Jordan has expanded significantly in recent years. Mastering English is becoming increasingly important for most occupations in different sectors such as tourism, business and commerce, and social media. According to the National Curriculum in Jordan, students start learning English at the age of five and continue until they start university, where the medium of instruction for many majors (e.g. medicine, engineering, accounting, tourism, mathematics, etc.) is English. However, according to Alhabahba, Pandian, & Mahfoodh (2016), data available from international organizations such as Education First English Proficiency Index-2014, that assess the average level of English skills, indicated that English language proficiency resulting from the educational system present in Jordan is declining in comparison to global standards (Alhabahba et al., 2016). This was also reported from 2013 to 2015 as Jordan demonstrated lower scores than the global average and was positioned as a region with very low proficiency.

It is hoped that the results of the current study would help EFL learners and teachers, in general, and Jordanian learners and teachers, in particular, gain a deeper insight into the actual use of LLSs when dealing with language tasks. The findings of this study would raise their awareness of the appropriate application of strategies in different situations, which, in the long term, might have a positive impact on students' performance.

Literature Review

A number of studies have investigated the LLSs used by Arab EFL learners. For instance, Shmais (2003) investigated the LLSs used by Arab EFL university students and found that metacognitive strategies were the most commonly used strategies, whereas compensation strategies were the least used ones. No impact of proficiency on the use of strategies was found. Moreover, in a study conducted by Khalil (2005), the impact of proficiency level on LLS utilization among high school and university students was examined, employing Oxford (1990) questionnaire. The findings indicated that metacognitive and social strategies held the highest rank in terms of usage, while memory and affective strategies were reported as the least utilized ones. In contrast to Shmais (2003) findings, which showed no correlation between proficiency levels and strategy utilization, Khalil (2005) noted that there was an increase in the range of strategies utilized as proficiency increased.

McMullen (2009) investigated the LLSs used among university Saudi Arabic students of English. The findings indicated that neither gender nor academic major showed a statistically significant impact on the application of LLSs. In addition, the findings highlighted a collective preference among the participants for three specific strategies, i.e. social, metacognitive, and compensatory. On the other hand, the participants did not show a preference for cognitive, memory, or affective strategies.

Think-aloud protocols are considered one of the most effective tools for gaining insights into learners' cognitive processes during learning (Gu, 2014; Oster, 2001; Schunk, 2012). There has been an increase in the last decade in the utilization of TAPs for investigating LLSs, mainly in L2 reading and writing. For example, Ghavamnia, Ketabi, & Tavakoli (2013) investigated strategy use in reading among four proficient and four less proficient Iranian EFL students. The results indicated that all eight participants employed a wide range of strategies, but less proficient readers used strategies haphazardly. However, the small number of students participating in the study limits the reliability and generalizability of the findings. Bakhshalinezhad, Nikou, & Bonyadi (2015) examined strategy use in English reading among 15 advanced and 15 intermediate EFL learners and found that advanced students generally employed strategies more frequently than their intermediate counterparts. Additionally, the findings indicated that certain strategies were exclusively utilized by advanced learners. These strategies included summarizing, evaluating, restating, recalling, and defining text type structure. Maftoon & Seyyedrezaei (2012) also used a TAP to identify the various types of cognitive and metacognitive strategies that a highly skilled writer used. The findings demonstrated that the participant reported a high usage of cognitive and metacognitive strategies and showed no evidence of reliance on the source language.

A few current studies have also drawn attention towards think-aloud strategies (Salehomoum, 2023; Zhang & Zhang, 2019). For instance, a great emphasis is paid to learner engagement with corrective feedback using think-aloud protocols and their reactionary effects on learners' performance (Fernández-Michels & Fornons, 2021; Suh, 2023). Gu (2014) found engaging in think-aloud protocols research as full of dilemmas since the analysis of learning strategies within think-aloud protocols is full of challenges. A group of scholars (Jincheng & Rahmat, 2022; Pratt & Hodges, 2023; Traga Philippakos, 2021) have investigated the use of metacognitive reading strategies using think-aloud protocols, and how to develop a literacy instruction tool or coping models for teachers' reflection and growth, in the domain of writing instructions and literacy pedagogy.

Method

Research Design

A qualitative research design was utilized in this study to address the gap in previous research, which predominantly used quantitative methods to examine LLSs. TAPs usually investigate a small number of students because it is considered a very time-consuming method (Ghavamnia et al., 2013). The TAPs used in the current study were paper based in order to include a good number of language learners, and thus to enhance the reliability and generalizability of the findings. This also helped address potential concerns that have been highlighted in previous research related to speaking aloud which could result in less concentration on the task itself.

Sampling

The participants of the present study comprised 70 senior university students of Al al-Bayt University, Jordan, in the ages ranging between 20 and 27 years, and who spoke Jordanian Arabic as their first language. All the participants took part in the study voluntarily and were provided with an information sheet which ensured them of confidentiality and anonymity, and that the results would be utilized solely for research purposes. All participants completed a consent form and were required to complete the Oxford Quick Placement Test (Test, 2001), to provide a measure of their language proficiency. The test comprised 60 multiple-choice questions, to test reading and the knowledge of vocabulary and grammar. The results of the test were mapped onto the levels of the Common European Framework of Reference for Languages, to ensure the validity and reliability.

Based on their results of the Oxford Quick Placement Test, 36 students were classified as level B1, (or lower intermediate) and 34 students as C1 (or advanced) in the Common European Framework. For completing the main task, twenty students from each proficiency group were selected randomly and asked to complete the main tasks. Table 1 provides details on the participants' scores in the Oxford Quick Placement Test along with profiles of the two groups.

Table 1: *Characteristics of the Participants.*

EFL group	Age			Oxford Quick Placement Test		
	Mean	SD	Range	Mean	SD	Range
Lower Intermediate (n=20)	21.9	1.43	20-27	56.1	2.15	51-59
Advanced (n=20)	22	1.21	20-25	81.8	1.23	80-85

All participants had received education in public schools, where all subjects, except English, were taught in Arabic. None of the participants had ever visited an English-speaking country or had a parent whose native language was English. None of the participants reported knowledge of languages other than Arabic as their L1 and English as L2. Additionally, all participants confirmed that they had never received any sort of explicit instructions on the use of LLSs from previous courses, workshops, and training sessions. As compensation for their involvement in the study, the participants were awarded 10 marks in their coursework.

Data Collection and Research Tasks

The data was collected through think-aloud tasks in reading, writing and listening assigned to the 40 students sampled for the study. To ensure that all think-aloud tasks were suitable for the participants, two university professors with over ten years of experience teaching basic skill courses were asked to review them. According to their assessment, the think-aloud tasks were deemed appropriate for the participants. Furthermore, these tasks were piloted by two advanced and two intermediate learners, who were instructed to complete the three tasks and provide ratings for each one using a 5-point scale, where "4" meant difficult to complete, and "0" meant easy to complete. The average rating for each think-aloud task was 3. Based on the pilot study, the time limit for completing each task was determined to be one hour.

In the reading task, participants were given a passage that was adopted from an already reliable and valid established TOEFL test. Following the passage, participants encountered a number of multiple-choice questions that aimed at assessing their comprehension of the text. Participants were asked to write down all the thoughts and considerations that crossed their minds during the reading process. This involved reporting their thoughts when encountering a concept or a sentence that they did not comprehend, or when losing track of the text. Moreover, participants were asked to detail the LLSs they employed in order to address these challenges. This task provides better understanding of the cognitive processes involved in reading comprehension based on language proficiency.

In the writing task, participants were assigned the task of composing an essay about the advantages and disadvantages of social media. This topic encouraged participants to discuss various aspects of social media including their impact on communication, relationships, individuals, and society. Moreover, participants were asked to report on the strategies they employed during the writing process. This provides insights into how participants approach the writing task (e.g. how they plan, organize, draft, revise and edit written texts) and provides deeper understanding of the strategies learners employ to effectively convey their thoughts and arguments in written forms.

During the listening task, participants were asked to listen to a conversation between two speakers about travel arrangements. Then, they were presented with a series of multiple-choice questions designed to assess their comprehension of the conversation. In addition, participants were required to describe the method they followed to understand the conversation. This included the parts that they fully comprehended and the ones that posed challenges. They were also asked to report the strategies they employed to figure out the meaning of the elements they struggled to comprehend. This could include strategies like guessing and inferencing. This think-aloud task provides a deeper understanding of the cognitive processes involved in listening comprehension based on language proficiency.

Each think-aloud task was conducted in a separate session. The time taken to complete each task varied based on the participants' proficiency level. On average, it took 30-55 minutes for the participants to complete each task. Before the actual data collection, a group training session was organized to familiarize the participants with what they were expected to do in each think-aloud task. In addition, a short practice session was arranged immediately before each data collection session to help participants recall the nature of each task.

Data Analysis

The strategies and sub-strategies used by the participants in completing all the think-aloud tasks were first identified and categorized into the main strategy categories, namely, *memory*, *cognitive*, *compensatory*, *metacognitive*, *affective* and *social strategies*. Afterwards, the overall number of sub-strategies within each category was counted to determine the frequency of each category used by each proficiency group. The

categorization process was based on Oxford (1990) taxonomy, given its comprehensive nature. The classification process was made by the four researchers. In order to assess and establish the classification's reliability, fifty percent of each researcher's independently analyzed data was selected for comparison during a collaborative meeting involving the four researchers. The interrater agreement reliability for the analysis was 94%, which showed a high degree of classification reliability. Disagreements were resolved and an agreement of 100 was finally reached.

For convenience, a response like "*I'm reading this paragraph again because I didn't understand it well*" was considered by all researchers as a "*Rereading*" strategy and was categorized under the cognitive category. On the other hand, a response such as "*I need to reread these details later because I'll forget them*" was classified by one of the researchers as "*Rereading*", belonging to the cognitive category. However, the other three researchers categorized it as a "*Planning*" strategy under the metacognitive category. This is because while it initially sounded like a simple act of rereading, upon closer examination, it became clear that the participant was not engaged in *rereading* but was *planning* a head that s/he would reread the details and provide a reason for that "*because I'll forget them*". Therefore, such a minor discrepancy in categorizing the sub-strategies was addressed through further discussion.

Results

Three TAP tasks were conducted to investigate the LLSs used by 40 participants (20 from each proficiency group). The think-aloud tasks included reading, writing and listening. The results of each task are presented in the following sections.

Reading Task

Table 2 shows the frequency of mentions of each category of LLSs in the participants' responses during the reading task. For the reader's convenience: participant X may report employing three strategies associated with the compensatory category, whereas participant Y may not mention the utilization of any strategy within this specific category.

Table 2: *Frequency and Percentages of the LLSs Used in the Reading Task.*

Strategy	Intermediate		Advanced		Overall	
	N	%	N	%	N	%
Memory	21	3	5	0.6.	26	1.6
Cognitive	671	86.2	621	77.9	1292	82
Metacognitive	26	3.3	92	11.5	118	7.5
Compensatory	51	6.6	65	8.2	116	7.4
Affective	9	1.1	14	1.8	23	1.5
Social	0	0	0	0	0	0
Overall	778	(49%)	797	(51%)	1,575	(100%)

As illustrated in Table 2, the participants from both proficiency groups employed a wide range of strategies from different categories in the reading task. The most frequently used category by the entire group was cognitive, followed by metacognitive, compensatory, and affective strategies, respectively.

In general, the participants utilized 1292 cognitive strategies. These include *highlighting/underlining* (intermediate=190, advanced=95), *rereading* (intermediate=145, advanced=98), *summarizing* (intermediate =100, advanced=125), *paraphrasing* (intermediate=40, advanced=44), *analyzing* (intermediate=20, advanced =35), *getting the main idea* (intermediate=10, advanced=39), *changing reading speed* (intermediate=17, advanced=12), *skimming* (intermediate=3, advanced=22), *scanning* (intermediate=7, advanced=18), *reading aloud* (intermediate=5, advanced=2). Three sub-strategies were reported to be used by the advanced group only, which were *skipping* (n=18), *note-taking* (n=15), and *numbering the main ideas* (n=7). On the other hand, one sub-strategy was commonly found in the intermediate group's responses, i.e. *translating to L1* (n=225).

Moreover, Table 2 shows that the participants reported the usage of 118 metacognitive strategies. These involve a shared sub-strategy between the two groups, namely, *high concentration* (intermediate=26, advanced=34), and three sub-strategies used only by the advanced group, namely, *evaluation* (n=22), *planning* (n=21), and *linking to prior knowledge* (n=15). The examination of responses in the reading task indicated that both groups employed nearly identical compensatory strategies to address challenges in comprehending the passage. These compensatory sub-strategies included *guessing* (intermediate=21, advanced=44), *avoiding words or sentences that they did not understand* (intermediate=26, advanced=16), and *using linguistic cues* (intermediate=4, advanced=5). Moreover, the data obtained included 26 propositions related to one memory strategy in the reading TAP, which was *creating mental linkages/visualization* (intermediate=21, advanced=5). Finally, the results show that one affective sub-strategy that refers to *self-talk* was used (intermediate=9, advanced=14). Social strategies were not reported to be used at all by the participants in the reading task.

Writing Task

Table 3 provides the frequency of mentions of each category of LLSs in the participants' responses during the writing task.

Table 3: *Frequency and Percentages of the LLSs Used in the Writing Task.*

Strategy	Intermediate		Advanced		Overall	
	N	%	N	%	N	%
Memory	0	0	0	0	0	0
Cognitive	535	78.7	327	73.6	862	76.7
Compensatory	51	7.5	65	14.6	116	10.4
Metacognitive	86	12.6	48	10.8	134	11.9
Affective	8	1.1	4	.09	12	1
Social	0	0	0	0	0	0
Overall	680	(60%)	444	(40%)	1,124	100

Similar to what has been found in the reading task, the participants employed various strategies during the writing task. As illustrated in Table 3, both groups predominantly utilized cognitive strategies. These strategies included *resourcing/using dictionary* (intermediate=156, advanced=85), *translation to L1* (intermediate=144, advanced=9), *clarification* (intermediate=39, advanced=66), *summarizing* (intermediate= 45, advanced=52), *rereading* (intermediate=65, advanced=28), *avoiding some structures or possible mistakes* (intermediate=47, advanced=27), *paraphrasing* (intermediate=18, advanced=32), *numbering the main ideas* (intermediate=10, advanced=13), *drafting* (intermediate=5, advanced=11), and *reading aloud* (intermediate =6, advanced=4).

Three main metacognitive sub-strategies were used by the participants across both proficiency groups, namely, *evaluation* (intermediate=64, advanced=53), *monitoring* (intermediate=83, advanced=29), and *planning* (intermediate=3, advanced=19). Further, the compensatory strategies employed by both proficiency groups in this task included the use of *avoiding* (intermediate=26, advanced=16), and *making up new words* to address unfamiliar words and phrases in English (intermediate=4, advanced=5). The affective category in the writing task included the participants' expression of their positive or negative emotions during the task (intermediate=8, advanced=4). Finally, neither group reported employing memory or social strategies in their responses to this task.

Listening Task

Table 4 illustrates the frequency of mentions of each category of LLSs in the participants' responses during the listening task.

Table 4: *Frequency and Percentages of The Llss Used in the Listening Task.*

Strategy	Intermediate		Advanced		Overall	
	N	%	N	%	N	%
Memory	202	26	151	21	353	24
Cognitive	219	28.18	237	33	456	30
Compensatory	67	8.62	60	8	127	8
Metacognitive	285	36.76	272	37	557	37
Affective	4	0.51	9	1	13	1
Social	0	0	0	0	0	0
Overall	777	(52%)	729	(48%)	1,506	(100%)

The results of the listening task revealed considerable utilization of strategies by both groups, with a notable high use of metacognitive, cognitive and memory strategies. The metacognitive strategies used in the listening task involved the following sub-strategies: *high concentration* (intermediate=103, advanced=87), *selective attention* (intermediate=61, advanced=88), *evaluation* (intermediate=55, advanced=51), and *monitoring* (intermediate=66, advanced=29). The metacognitive sub-strategy of *planning* was exclusively employed by the advanced group (n=17). The cognitive strategies reported in the listening task included *making predictions* (intermediate=26, advanced=67), *using stress and intonation aspects to enhance understanding* (intermediate=23, advanced=61), *inferencing* (intermediate=31, advanced=52), *adjusting interpretation when realizing that it was not correct* (intermediate=57, advanced=24), and *note-taking* (intermediate=29, advanced=33). Finally, one sub-strategy was reported to be used only by the intermediate group, namely, *translating to L1* (n=53).

In addition to the aforementioned strategies, the two groups reported using the following compensatory strategies: *guessing* (intermediate=21, advanced=44) and *skipping* (intermediate=46, advanced=16) and the following memory strategies: *visualization* (intermediate=102, advanced=80), *repeating important words* (intermediate=86, advanced=62) and *thinking of similar texts that the participants might have listened to before they had started the task* (intermediate=14, advanced=9). Finally, the sub-strategy of *self-talk* from the affective category was found to be used 13 times (intermediate=4, advanced=9).

Discussion

The present study is an investigation of the LLSs employed by Jordanian EFL learners. The results of the current study showed that the participants employed all the strategy categories outlined by Oxford (1990) except for social strategies, as the tasks did not involve any interaction or communication with others. Overall, the participants demonstrated characteristics of active strategic learners. They showed awareness of their cognitive processes while working on the tasks, and they were able to employ a diverse range of strategies to enhance performance.

Regarding the first research question, that is concerned with identifying the most common LLSs that Jordanian EFL learners use while working on language-related tasks regardless of their proficiency level, the results indicated that the cognitive and metacognitive categories were the most commonly used strategies by both proficiency groups, followed by the compensatory, memory, and affective strategies, respectively. This goes in line with some previous studies (Ahmed Ismail & Al Khatib, 2013; Shmais, 2003).

The second research question was concerned with figuring out the differences in learners' behaviours and strategy use between the two examined proficiency groups in the three think-aloud tasks. Unlike previous research results that generally reported higher levels of overall strategy use by advanced learners (Al-Shabou et al., 2010; Alemi & Tajeddin, 2010; Griffiths, 2018; Kitakawa, 2008; Radwan, 2011; Shmais, 2003; Wu, 2008), the results of the present study showed that the intermediate group reported higher overall number of strategies (a total of 2,235 strategies) in the three think-aloud tasks than the advanced group (a total of 1970 strategies). This suggests that it is not the quantity of strategies employed that always matters, but rather their appropriate utilization to the task.

Chamot & Kupper (1989) and Uhl Chamot & El-Dinary (1999) propose that successful language learners select strategies that are compatible with the needs of the language task. This proposal was supported by the results of the current study. For example, the results of the reading task revealed that while both proficiency groups exhibited a variety of cognitive and metacognitive strategies, the frequency of sub-strategy use varied between the two groups. Additionally, the advanced group demonstrated a more diverse range of strategies. For example, they reported using the cognitive sub-strategies of *numbering the main ideas*, *skipping*, *note taking, and the metacognitive sub-strategies of evaluating* and *planning* that were not reported by the intermediate group. The use of these strategies only by the advanced group suggests that the advanced participants were trying to identify the key points and ideas while working on the task and skipping out unnecessary details, a goal that was already planned ahead and then evaluated, as indicated by some responses. This reflects their awareness of strategy use and their deeper engagement with the reading passage. By contrast, the results showed that strategies like *translating sentences word for word into Arabic* in order to understand them were only used by the intermediate group. This reveals that the intermediate group stressed over every single word, which does not necessarily guarantee full comprehension. This finding is supported by their higher frequent use of strategies like *underlining*, *rereading*, and *slowing down reading speed*, whereas strategies like *analyzing*, *getting the main ideas*, *skimming* and *scanning* were employed more frequently by the advanced group.

Moreover, the use of compensatory strategies like *guessing, using linguistic cues* and *avoiding unfamiliar words or sentences* by both groups indicates the participants' willingness to deal with comprehension challenges. In addition, the utilization of the strategy of *creating mental linkages/visualization* from the memory category shows some participants' attempts to enhance their comprehension by memorizing details that they deemed important later on. However, this basic strategy, which may not be effective in this context, was more commonly used by the intermediate participants. Thus, it could be inferred that proficiency level seems to influence the choice of sub-strategies in the reading task.

With respect to the writing task, the results revealed similar types of strategy used by both proficiency groups with variations in frequency. For example, the intermediate group reported more frequent use of strategies like *resourcing/ using a dictionary*, *translation*, *rereading* and *avoiding some structures or possible mistakes*. The higher use of these strategies by the intermediate group could indicate a gap in their vocabulary and grammar. Moreover, intermediate participants relied more heavily on *translation to their L1* and *clarification*, whereas advanced participants demonstrated a greater emphasis on *summarizing* and *drafting*. Further, in line with the findings of the reading task, the advanced group reported a markedly higher use of the metacognitive sub-strategy of *planning*. Such differences could suggest a progression in strategic competence as learners advance in proficiency. Finally, both groups reported comparable limited frequencies in using *positive/negative self-talk* from the affective category.

As far as the listening task is concerned, the results revealed a variety of strategies used by both groups, mainly metacognitive, cognitive and memory strategies. Both groups made notable use of metacognitive strategies like *high concentration*, *selective attention*, *evaluation* and *monitoring*. Similar to the findings of the reading and writing tasks, only the advanced group reported significant use of *planning*. Moreover, the cognitive strategies employed by both groups in the listening task included *prediction*, *making use of stress and intonation*, *adjusting interpretation* and *note taking*. In line with the findings of the other tasks, *translation to L1* was only

used by the intermediate group. Moreover, compensatory strategies such as *guessing* and *skipping* and memory strategies like *visualization*, *repeating important words*, and *recalling similar texts* were utilized by both groups. Finally, the limited use of *self-talk* strategy from the affective category was found in both groups' responses, which is in line with the findings of the reading and writing tasks.

Overall, it could be inferred from the results of the current study that despite the absence of explicit instructions on LLSs, the participants demonstrated the ability to utilize a variety of strategies that varied across different tasks. Moreover, advanced learners appeared to have developed a greater awareness of effective strategy use through experience. This is illustrated by their utilization of sophisticated strategies like *planning*, which requires a higher level of strategic awareness. On the other hand, intermediate learners tended to rely on basic strategies like *translation*, which could possibly reflect their current stage of language development.

It is worth mentioning that in contrast to previous research that considered memory strategies as the most favored ones among Asian EFL learners (Liu, 2004; Radwan, 2011; Sheorey, 1999), the results of the current study revealed limited use of memory strategies by the participants. For example, in the listening task, some participants stated that they tended to memorize certain words that they expected to convey crucial details such as dates and numbers that were mentioned in the conversation. The limited use of these strategies could refer to the nature of the tasks that necessitate the application of problem-solving strategies instead of merely inputting information into memory and retrieving it. However, this result is consistent with the quantitative findings of Al-Shabou et al. (2010) study in the Jordanian context which attributed this result to the recent trend in the Jordanian educational system that involves a shift towards incorporating technology into instruction and moving away from traditional methods of teaching. Thus, learners may move away from strategies focused solely on memorization, as these approaches do not assist them in establishing connections between their acquired knowledge and authentic communication needs and functions.

The findings of the current study also showed limited use of affective strategies by the entire group; however, scant attention has been paid to examine the significance of affective strategies in EFL language learning as these strategies empower learners to manage their attitudes and emotions (O'Malley et al., 1985). This finding reveals a general tendency among all participants to focus on cognitive and metacognitive aspects of the tasks rather than emotional elements. However, unlike previous research that has barely reported any affective strategy use in think-aloud protocols (Ghavamnia et al., 2013), it seems that some Jordanian EFL learners were aware of the affective aspect and thus reported how they felt about approaching some tasks, e.g. '*I was nervous at the start of the writing task*', '*I always feel stress when I work on a listening task in English*', '*at the beginning of the writing task, I couldn't think of any points to write about, so I just closed my eyes for some time, took a deep breath, then I tried to brainstorm ideas'*. Furthermore, these strategies enable learners to openly acknowledge and communicate their experiences of both success and failure. Therefore, the findings of the current study indicate a necessity to enhance EFL learners' awareness regarding the significance of affective strategies.

The think-aloud protocols used in this study revealed some interesting findings with regard to qualitative differences in the behaviours of the two proficiency groups while conducting the three tasks. A noticeable distinction observed was the average time needed to complete each task. While it took the advanced participants 30-40 minutes to complete the tasks, the intermediate learners needed 45-55 minutes. Thus, the advanced learners were faster in completing the tasks than the intermediate learners. The results of the current study revealed the tendency of the intermediate group to use translation in all tasks, and for them nearly every word matters. For example, in the writing task, many intermediate participants indicated that they initially organized their thoughts in Arabic, and then they translated them into English. Moreover, in the reading task, many responses included translating almost every single word to comprehend the text. Advanced learners, on the other hand, tended to concentrate on the main ideas and reported a good use of strategies like *skimming*, *scanning*, and *figuring out keywords and ideas*. This result is consistent with previous work which showed that less proficient learners adopt a word-level approach rather than a meaning-making one (Ghavamnia et al., 2013; Kletzien, 1991; Uhl Chamot & El-Dinary, 1999).

Regarding monitoring and evaluation, the advanced group adopted a time-saving approach. They reported maintaining focus on the primary thoughts that they aimed to convey initially and then checking grammar and spelling mistakes. In contrast, the intermediate group pointed out that they did not defer the assessment procedure until they finished writing. Alternatively, they simultaneously focused on punctuation, spelling and grammar as they engaged in the writing process. A plausible explanation for such difference could be that the advanced group, due to their higher level of proficiency, might have automatized the process of making corrections. The differences in strategy use between the two proficiency groups might have led to the longer time required for completing the tasks by the intermediate group.

In sum, the findings of the present study suggest that proficiency level had a positive impact on learners' utilization of strategies. This observation aligns with prior qualitative studies that have explored the relationship between LLSs and language proficiency (Alemi & Tajeddin, 2010; Griffiths, 2003; Khalil, 2005; Radwan, 2011; Shmais, 2003; Wu, 2008). It could also be concluded that think-aloud protocols are a useful research instrument for extracting information on LLS use, as has been also recognized by a few current studies (Fernández-Michels & Fornons, 2021; Jincheng & Rahmat, 2022; Pratt & Hodges, 2023; Salehomoum,

2023; Suh, 2023; Traga Philippakos, 2021; Zhang & Zhang, 2019).

Conclusion

The primary aim of this study was to contribute new insights to existing research by offering a qualitative description of LLSs utilized by a group of Arab EFL learners, namely, Jordanian EFL learners. The study attempted to investigate whether language proficiency impacts the adoption of LLSs. Three think-aloud protocols related to reading, writing and listening skills were used to collect the data. The findings indicated that the participants employed a diverse range of LLSs to accomplish the assigned tasks. However, the utilization of these strategies revealed a deficiency in understanding the appropriate application of LLSs across different contexts, particularly evident among intermediate learners.

In the light of the findings, the study recommends enhancing both students' and instructors' awareness of the significant role played by LLSs in the learning process. This can be achieved through explicitly teaching these strategies to empower students in effectively managing their learning. However, it should be noted that although many studies have proven the effectiveness of TAPs as a method for investigating LLSs, some possible challenges were highlighted by previous research. For instance, Ghavamnia et al. (2013) stated that this method may impose a significant burden on the participants, and participants may lack the appropriate vocabulary to report their thoughts accurately or may misinterpret what they are doing.

Another challenge can be related to the difficulty in reporting mental processes, which can result in an inadequate interpretation of limited strategy use. Nevertheless, as it is challenging to access the human brain to explore what is going on, we make use of available methods such as TAPs, despite their limitations. Moreover, other factors like individual differences in learning styles, motivation type, gender, and attitude could contribute to the observed variation in strategy use. Therefore, future studies are encouraged to examine the role of these factors on LLS use. Finally, it is also recommended for future research to utilize a mixed methods approach to gain a better understanding of the language learning process.

References

Ahmed Ismail, S. A., & Al Khatib, A. Z. (2013). Investigating the Language Learning Strategies of Students in the Foundation Program of United Arab Emirates University. *International Education Studies, 6*(9), 135-149. doi: http://dx.doi.org/10.5539/ies.v6n9p135

Al-Natour, A. (2012). The most frequently language learning strategies used by Jordanian university students at Yarmouk University that affect EFL learning. *European Journal of Social Sciences, 29*(4), 528-536. Retrieved from https://www.europeanjournalofsocialsciences.com/issues/EJSS_29_4.html

Al-Qahtani, A. A. (2020). Investigating Metacognitive Think-Aloud Strategy in Improving Saudi EFL Learners' Reading Comprehension and Attitudes. *English Language Teaching, 13*(9), 50-62. doi: https://doi.org/10.5539/elt.v13n9p50

Al-Shabou, Y. M., Asassfeh, S. M., & Alshboul, S. S. (2010). Jordanian students learning English: Strategy deployment. *The Buckingham Journal of Language and Linguistics, 3*, 101-120. doi: https://doi.org/10.5750/bjll.v3i0.25

Alemi, M., & Tajeddin, Z. (2010). Less proficient vs. more proficient L2 learners' preferences for compensation strategies: L1-based, L2-based, and non-linguistic. *LiBRI. Linguistic and Literary Broad Research and Innovation, 1*(2), 48-55. Retrieved from https://edusoft.ro/brain/index.php/libri/article/view/144/0

Alhabahba, M., Pandian, A., & Mahfoodh, O. H. A. (2016). English language education in Jordan: Some recent trends and challenges. *Cogent Education, 3*(1), 1156809. doi: http://dx.doi.org/10.1080/2331186X.2016.1156809

Alhaisoni, E. (2012). A Think-Aloud Protocols Investigation of Saudi English Major Students' Writing Revision Strategies in L1 (Arabic) and L2 (English). *English Language Teaching, 5*(9), 144-154. doi: http://dx.doi.org/10.5539/elt.v5n9p144

Alzahrani, K., & Alq, N. (2023). Vocabulary learning strategies used by Saudi female EFL learners. *International Journal of Linguistics and Translation Studies, 4*(1), 111-123. doi: https://doi.org/10.36892/ijlts.v4i1.296

Bakhshalinezhad, L., Nikou, F. R., & Bonyadi, A. (2015). Using the think-aloud technique for determining different reading strategies used by Iranian EFL learners. *Advances in Language and Literary Studies, 6*(3), 15-22. Retrieved from https://journals.aiac.org.au/index.php/alls/article/view/1467

Bowles, M. A. (2010). *The think-aloud controversy in second language research*. Routledge. doi: https://doi.org/10.4324/9780203856338

Chamot, A. U., & Kupper, L. (1989). Learning strategies in foreign language instruction. *Foreign Language Annals, 22*(1), 13-22. doi: https://doi.org/10.1111/j.1944-9720.1989.tb03138.x

Ellis, R. (1997). Second Language Acquisition. In. Oxford: Oxford University Press.

Fernández-Michels, P., & Fornons, L. C. (2021). Learner engagement with corrective feedback using think-aloud protocols. *JALT CALL Journal, 17*(3), 203-232. doi: https://doi.org/10.29140/jaltcall.v17n3.461

Ghavamnia, M., Ketabi, S., & Tavakoli, M. (2013). L2 reading strategies used by Iranian EFL learners: A think-aloud study. *Reading Psychology, 34*(4), 355-378. doi: https://doi.org/10.1080/02702711.2011.640097

Griffiths, C. (2003). Patterns of language learning strategy use. *System, 31*(3), 367-383. doi: https://doi.org/10.1016/S0346-251X(03)00048-4

Griffiths, C. (2018). *The strategy factor in successful language learning* (Vol. 67). Multilingual Matters. Retrieved from https://www.multilingual-matters.com/page/detail/The-Strategy-Factor-in-Successful-Language-Learning/?k=9781783099733

Gu, Y. (2014). To code or not to code: Dilemmas in analysing think-aloud protocols in learning strategies research. *System, 43*, 74-81. doi: https://doi.org/10.1016/j.system.2013.12.011

Hong, K. (2006). *Beliefs about language learning and language learning strategy use in an EFL context: a comparison study of monolingual Korean and bilingual Korean-Chinese university students* (Doctoral Dissertation, University of North Texas). Retrieved from https://www.proquest.com/openview/c94f1786af0a335494acba071154bac5

Jincheng, Z., & Rahmat, N. H. (2022). Investigating the use of metacognitive reading strategies using Think Aloud Protocol. *International Journal of Academic Research in Business and Social Sciences, 12*(10), 772-784. doi: https://doi.org/10.6007/IJARBSS/v12-i10/14990

Khalil, A. (2005). Assessment of language learning strategies used by Palestinian EFL learners. *Foreign Language Annals, 38*(1), 108-117. doi: https://doi.org/10.1111/j.1944-9720.2005.tb02458.x

Kitakawa, A. (2008). *An experimental study of language learning strategies: Particular focus on the patterns of strategy use by Japanese university learners of English* (Doctoral dissertation, Iwate University). doi: https://doi.org/10.15113/00013084

Kletzien, S. B. (1991). Strategy Use by Good and Poor Comprehenders Reading Expository Text of Differing Levels. *Reading Research Quarterly, 26*(1), 67-86. doi: https://doi.org/10.2307/747732

Leow, R. P., & Morgan-Short, K. (2004). To think aloud or not to think aloud: The issue of reactivity in SLA research methodology. *Studies in Second Language Acquisition, 26*(1), 35-57. doi: https://doi.org/10.1017/S0272263104026129

Liu, D. (2004). EFL proficiency, gender and language learning strategy use among a group of Chinese technological institute English majors. *ARECLS E-Journal, 1*(1), 1-15. Retrieved from https://www.sid.ir/paper/615295/en

Maftoon, P., & Seyyedrezaei, S. H. (2012). Good Language Learner: A Case Study of Writing Strategies. *Theory & Practice in Language Studies (TPLS), 2*(8), 1597-1602. doi: https://doi.org/10.4304/tpls.2.8.1597-1602

McMullen, M. G. (2009). Using language learning strategies to improve the writing skills of Saudi EFL students: Will it really work? *System, 37*(3), 418-433. doi: https://doi.org/10.1016/j.system.2009.05.001

O'Malley, J. M., Chamot, A. U., Stewner-Manzanares, G., Kupper, L., & Russo, R. P. (1985). Learning strategies used by beginning and intermediate ESL students. *Language Learning, 35*(1), 21-46. doi: https://doi.org/10.1111/j.1467-1770.1985.tb01013.x

Oster, L. (2001). Using the think-aloud for reading instruction. *The Reading Teacher, 55*(1), 64-69. Retrieved from https://www.jstor.org/stable/20205012

Oxford, R. L. (1990). *Language learning strategies: What every teacher should know*. Newbury House Publishers. doi: https://doi.org/10.5070/L411004984

Oxford, R. L., & Lan, R. (2003). Language learning strategy profiles of elementary school students in Taiwan. *International Review of Applied Linguistics in Language Teaching, 41*(4), 339-379. doi: https://doi.org/10.1515/iral.2003.016

Pratt, S. M., & Hodges, T. S. (2023). The think-aloud observation protocol: Developing a literacy instruction tool for teacher reflection and growth. *Reading Psychology, 44*(1), 1-31. doi: https://doi.org/10.1080/02702711.2022.2126572

Radwan, A. A. (2011). Effects of L2 proficiency and gender on choice of language learning strategies by university students majoring in English. *Asian Efl Journal, 13*(1), 115-163. Retrieved from https://www.asian-efl-journal.com/PDF/March-2011-aar.pdf

Salehomoum, M. (2023). Think-Aloud: Effect on Adolescent Deaf Students' Use of Reading Comprehension Strategies. *The Journal of Deaf Studies and Deaf Education, 28*(1), 99-114. doi: https://doi.org/10.1093/deafed/enac037

Schunk, D. H. (2012). *Learning theories an educational perspective*. Pearson Education, Inc. Retrieved from https://www.pearson.com/en-us/subject-catalog/p/learning-theories-an-educational-perspective/P200000001801/9780137413294

Sheorey, R. (1999). An examination of language learning strategy use in the setting of an indigenized variety of English. *System, 27*(2), 173-190. doi: https://doi.org/10.1016/S0346-251X(99)00015-9

Shmais, W. A. (2003). Language learning strategy use in Palestine. *TESL-EJ, 7*(2). Retrieved from https://www.tesl-ej.org/ej26/a3.html

Suh, B.-R. (2023). Are think-alouds reactive? Evidence from an L2 written corrective feedback study. *Language Teaching Research, 27*(5), 1099-1119. doi: https://doi.org/10.1177/1362168820967166

Test, Q. P. (2001). *Paper and pen test*. Oxford University Press.

Traga Philippakos, Z. A. (2021). Think Aloud Modeling: Expert and Coping Models in Writing Instruction and

Literacy Pedagogy. *Language and Literacy Spectrum, 31*(1), 1. Retrieved from https://digitalcommons.buffalostate.edu/lls/vol31/iss1/1

Uhl Chamot, A., & El-Dinary, P. B. (1999). Children's learning strategies in language immersion classrooms. *The Modern Language Journal, 83*(3), 319-338. doi: https://doi.org/10.1111/0026-7902.00025

Wu, Y.-L. (2008). Language learning strategies used by students at different proficiency levels. *Asian EFL Journal, 10*(4), 75-95. Retrieved from https://asian-efl-journal.com/December_2008_EBook.pdf

Zhang, L. J., & Zhang, D. (2019). Think-aloud Protocols. In *The Routledge Handbook of Research Methods in Applied Linguistics* (pp. 302-311). Routledge. doi: http://dx.doi.org/10.4324/9780367824471-26