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Exploring learning strategies used by Jordanian University EFL learners in argumentative writing tasks: the role of gender and proficiency

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This study investigates learning strategies in argumentative writing tasks among 60 English as a Foreign Language (EFL) university students, classified as proficient or less-proficient writers based on essay scores. Data were collected through a validated questionnaire assessing six categories of learning strategies: affective, metacognitive, social, compensatory, cognitive, and memory. Findings suggest female students utilize affective strategies more than males, but proficiency level does not significantly influence strategy choice. The results underline the need for explicit instruction in learning strategies as current student usage appears rudimentary. The study emphasizes the role of learning strategies in enhancing EFL writing performance, and future research could explore specific learning strategies in different language learning tasks.

KEYWORDS

learning strategies, argumentative writing, gender, proficiency, EFL, undergraduate students

Introduction

Argumentative writing is a vital aspect of academic and professional communication that requires a deep comprehension of the subject matter, logical reasoning, and persuasive abilities (Kuhn, 1991; Nussbaum and Schraw, 2007). Developing these skills necessitates the utilization of various learning strategies, which help in acquiring, retaining, and applying knowledge effectively.

This paper delves into the six learning strategies identified by Oxford (1990), which are frequently employed in argumentative writing tasks: affective, metacognitive, social, compensatory, cognitive, and memory strategies by university Jordanian English as Foreign Language Learners (EFL). To explore how Jordanian EFL university learners utilize these strategies taking into consideration the participants' gender and proficiency in English language. The data were collected through the use of a questionnaire and an argumentative writing task to elucidate the use of these strategies in argumentative writing.

Objective of the study

The primary objective of this study is to enrich the understanding of EFL learners' strategy utilization in argumentative writing tasks. By examining the various strategies employed by

students, this research seeks to offer valuable insights for educators to improve learners' writing performance and facilitate their overall language learning experience.

Literature review

Learning strategies are specific actions, techniques, or approaches employed by learners to facilitate the acquisition, understanding, retention, and application of new information or skills (Weinstein and Mayer, 1986; Oxford, 1990). These strategies are deliberate and conscious efforts aimed at enhancing the efficiency, effectiveness, and enjoyment of the learning process (Dörnyei, 2005). Learning strategies enable students to become more self-directed, active, and engaged in their learning experiences, ultimately leading to improved academic performance (Zimmerman and Schunk, 2011).

The Oxford classification of learning strategies, as proposed by Oxford (1990), organizes learning strategies into two main categories: direct and indirect strategies. Direct strategies (memory, cognitive, and compensation strategies), involve the target language itself, while indirect strategies (metacognitive, affective, and social strategies) support language learning more indirectly.

Argumentative writing is a form of writing that aims to persuade the reader of a particular viewpoint or stance by presenting well-reasoned arguments and evidence (Hyland, 2005; Nussbaum, 2011). It is often used in essays, research papers, opinion articles, and debates, with the primary goal of convincing the reader to accept the writer's point of view or to consider it as a valid perspective (Greene and Lidinsky, 2018).

In argumentative writing, the author presents a clear thesis statement, which serves as the central claim or position on a specific issue or topic (Lunsford et al., 2013). To support this claim, the writer provides logical arguments, relevant evidence, and examples from credible sources (Hillocks, 2010). These elements are used to build a strong, coherent, and persuasive case.

An effective argumentative essay also acknowledges and addresses opposing viewpoints or counterarguments, providing evidence to refute them, or demonstrating their weaknesses (Nussbaum and Edwards, 2011). This process reflects the writer's thorough understanding of the topic and strengthens the credibility of their argument.

The literature shows that students may encounter various problems while writing argumentative essays. Some of the common issues include:

1. Identifying a clear thesis statement: students often struggle to develop a clear and concise thesis statement that accurately reflects their argument (Lunsford et al., 2013). A well-defined thesis statement is crucial for guiding the essay and ensuring the argument remains focused.
2. Organizing ideas logically: organizing ideas in a coherent and logical manner is essential for constructing a persuasive argument (Hillocks, 2010). Students may need help creating a structured outline or may need help understanding the importance of using topic sentences and transitions to guide the reader through their argument.
3. Providing sufficient evidence: students may struggle to find relevant and credible evidence to support their claims or may not know how to effectively integrate it into their argument (Nussbaum, 2011). They may also have difficulty distinguishing between strong and weak evidence, leading to poorly supported claims.
4. Addressing counterarguments: acknowledging and refuting counterarguments is essential to a strong argumentative essay (Nussbaum and Edwards, 2011). However, students may not always recognize the need to address opposing viewpoints or may lack the skills to refute them effectively.
5. Developing critical thinking and analytical skills: critical thinking and analytical skills are necessary for evaluating and synthesizing evidence, as well as for identifying and addressing potential weaknesses in an argument (Nussbaum, 2011). Students may need help with these skills, which can result in weak or superficial arguments.
6. Writing mechanics: students may need help with grammar, punctuation, sentence structure, and word choice, which can detract from the overall clarity and persuasiveness of their argument (Hyland, 2005).
7. Time management and planning: effective argumentative writing often requires substantial research, planning, and revision. Students may struggle with time management, leading to rushed or poorly developed essays (Zimmerman and Schunk, 2011).

In the following section, I will briefly explain these strategies and how learning strategies could assist EFL learners in overcoming any challenges while writing.

Affective strategies

Affective strategies are crucial in regulating emotions, motivation, and attitudes toward learning (Oxford, 1990; Pekrun, 2006). In argumentative writing, managing anxiety and maintaining a positive attitude are essential for overcoming challenges and enhancing performance (Dörnyei, 2005; Pekrun and Linnenbrink-Garcia, 2012). For instance, students can use self-encouragement, goal setting, and mindfulness techniques to control emotions and increase motivation, leading to improved confidence and perseverance in argumentative writing tasks (MacIntyre and Gregersen, 2012; Ratanasiripong et al., 2015).

Moreover, affective strategies are critical for regulating emotions, motivation, and attitudes toward learning, which could affect performance in argumentative writing tasks. Dörnyei (2005) emphasizes the impact of emotions on language learning and suggests that managing anxiety is crucial for success in language tasks. In another study by Pekrun and Linnenbrink-Garcia (2012), students' emotions were found to be a significant predictor of their motivation and performance in writing tasks. Students who experienced more positive emotions toward writing demonstrated higher motivation and better writing quality.

The successful management of emotions and motivation can have a considerable influence on writing performance (Pekrun et al., 2002). A seminal work by Oxford (1990) investigated the various learning strategies employed by language learners, including affective ones. While the study didn't exclusively focus on academic writing, it did highlight the importance of affective strategies like taking short breaks, setting specific goals, and seeking support from peers in improving the learning experience.

Furthermore, Dörnyei (2005) emphasized the importance of motivation in language learning, suggesting that maintaining a positive attitude toward writing tasks can have a significant impact on learning outcomes. Pekrun and Linnenbrink-Garcia (2012) identified various affective dimensions of learning, including enjoyment, boredom, and anxiety, which can influence student performance. Effective management of emotions, particularly anxiety, can significantly improve writing performance (MacIntyre and Gregersen, 2012).

In addition, mindfulness techniques have been found to be effective in regulating emotions and enhancing academic performance (Ratanasiripong et al., 2015). In the context of argumentative writing, mindfulness strategies, such as deep breathing and relaxation exercises, can improve focus, reduce anxiety, and promote a positive attitude toward the task.

Furthermore, Muis et al. (2008) examined the effect of affective strategies, such as positive self-talk and goal setting, on the writing performance of university students. The study found that students who used affective strategies produced higher-quality argumentative essays than those who did not use these strategies.

In conclusion, affective strategies play a crucial role in enhancing student learning in argumentative writing tasks. The effective management of emotions, motivation, and attitudes can significantly impact writing performance. Therefore, educators should promote the use of affective strategies in their teaching practices to support students in developing a positive mindset toward writing tasks.

Metacognitive strategies

Metacognitive strategies refer to the conscious awareness and control of one's cognitive processes during learning (Flavell, 1979; Schraw et al., 2006). In argumentative writing, students can utilize metacognitive strategies such as planning, monitoring, and evaluating to guide their writing process (Zimmerman and Risemberg, 1997; Hacker, 1998). For example, planning involves outlining the structure and content of the argument, while monitoring entails self-assessment of progress and identifying areas for improvement. Evaluating involves reflecting on the completed work, pinpointing strengths and weaknesses, and modifying strategies accordingly (Schraw and Moshman, 1995; Hacker, 1998).

Hacker (1998) suggests that metacognitive strategies are crucial for effective argumentative writing. In his study, he examined the writing processes of college students. He found that students who utilized metacognitive strategies performed better in argumentative writing tasks compared to those who did not. Hacker also noted that students who used metacognitive strategies were better able to monitor their writing progress, reflect on their work, and identify areas for improvement.

Another study by Zimmerman and Risemberg (1997) investigated the relationship between metacognitive strategies and argumentative writing performance in high school students. The study found that students who utilized metacognitive strategies, such as planning, monitoring, and evaluating, had better argumentative writing skills compared to those who did not. The study also suggested that metacognitive strategies enabled students to self-regulate their writing process, leading to improved writing performance.

Moreover, Schraw and Moshman (1995) examined the effects of metacognitive strategy instruction on argumentative writing skills in college students. The study found that students who received metacognitive strategy instruction demonstrated better argumentative writing skills compared to those who did not. The study also suggested that metacognitive strategy instruction helped students develop a more effective writing process, which included planning, monitoring, and evaluating.

Finally, metacognitive strategies, such as goal-setting, planning, monitoring, and self-assessment, to improve their writing process (Zimmerman and Schunk, 2011). By setting clear goals and planning their writing, students can develop a focused thesis statement and a logical organization of ideas (Wenden, 1998). Monitoring progress and self-assessing their work can help students identify areas for improvement and revise their essays accordingly (Andrade and Evans, 2013).

These studies highlight the importance of metacognitive strategies in argumentative writing tasks. Teachers and educators can incorporate metacognitive strategy instruction into their writing curriculum to help students develop effective writing processes and improve their argumentative writing skills. Additionally, encouraging students to utilize metacognitive strategies such as planning, monitoring, and evaluating can lead to better self-regulation and improved writing performance. Thus, by fostering a positive mindset and reducing anxiety, learners may be more inclined to engage in the writing process and navigate through challenges.

Social strategies

Social strategies involve interaction with others to enhance learning (Vygotsky, 1978; Oxford, 1990). In argumentative writing, collaborative learning activities such as peer review, group discussions, and debate can foster critical thinking, problem-solving, and communication skills (Lundstrom and Baker, 2009; Slavin, 2014). Engaging in peer dialogue enables students to refine their arguments, identify inconsistencies, and develop a deeper understanding of the subject matter, thereby improving their argumentative writing skills (Webb et al., 2006; Lundstrom and Baker, 2009).

Lundstrom and Baker (2009) conducted a study that investigated the impact of peer review on argumentative writing skills of college students. The study found that peer review improved the quality of argumentative writing, with students demonstrating more sophisticated argumentation skills and higher levels of critical thinking. The study also suggested that peer review allowed students to identify weaknesses in their own arguments and provided them with opportunities to revise and improve their writing.

Another study by Slavin (2014) examined the effects of cooperative learning on argumentative writing in middle school students. The study found that students who engaged in cooperative learning activities demonstrated better argumentation skills and higher levels of critical thinking compared to those who worked independently. The study also suggested that cooperative learning facilitated the development of communication and teamwork skills, which are essential for successful argumentative writing.

Additionally, Webb et al. (2006) explored the influence of collaborative learning on argumentative writing skills in middle school students. The study found that students who engaged in

collaborative learning activities demonstrated better argumentation skills, as well as higher levels of motivation and engagement. The study also suggested that collaborative learning activities facilitated the development of critical thinking, problem-solving, and communication skills, which are essential for successful argumentative writing.

These studies demonstrate the effectiveness of social strategies, particularly collaborative learning activities, in improving argumentative writing skills. Teachers and educators can use these findings to design effective instruction emphasizing collaborative learning activities to help students develop critical thinking, problem-solving, communication, and teamwork skills, essential for successful argumentative writing.

To conclude, collaboration and interaction with peers can enhance EFL learners' argumentative writing skills (Dobao, 2012). Social strategies, such as peer review, group work, and discussing ideas with classmates, can help learners develop their arguments, gain feedback, and improve their understanding of counterarguments (Storch, 2005).

Compensatory strategies

Compensatory strategies refer to the techniques and approaches that learners use to compensate for gaps in knowledge or skills, particularly in second or foreign language contexts (Oxford, 1990; Chamot and O'Malley, 1994). In argumentative writing tasks, students may encounter linguistic constraints that hinder their ability to express their message effectively. In such cases, compensatory strategies can be employed to overcome these constraints and convey their argument convincingly. Students can use compensatory strategies such as paraphrasing, summarizing, and using synonyms to convey their message despite linguistic constraints (Chamot and O'Malley, 1994; Leki, 1995). Additionally, compensatory strategies can improve coherence and cohesion, such as using transition words and phrases to connect ideas and maintain logical flow (Chamot and O'Malley, 1994; Grabe and Kaplan, 2014).

Lee and Schallert (2017) examined the use of compensatory strategies, such as paraphrasing and using synonyms, by Korean university students in English argumentative writing. The study found that the use of these strategies was positively correlated with the quality of the students' essays, particularly in terms of coherence and cohesion.

Similarly, Liu and Kunnan (2016) investigated compensatory strategies used by Chinese university students in argumentative writing, such as elaboration and circumlocution. The study found that the use of these strategies was positively correlated with the students' writing performance, particularly in terms of syntactic complexity and argument development.

Moreover, Grabe and Kaplan (2014) explored the use of compensatory strategies, such as the use of cohesive devices, in the argumentative writing of international graduate students. The study found that using these strategies positively correlated with the quality of the students' essays, particularly in terms of cohesion and coherence.

These studies provide evidence for the effectiveness of compensatory strategies in argumentative writing tasks. Teachers and educators can use these findings to develop effective instruction that emphasizes the use of compensatory strategies to help students overcome linguistic barriers and effectively convey their arguments. Thus, compensatory strategies play a vital role in helping EFL learners bridge the gaps in their language proficiency, as they could employ guessing intelligently and using circumlocution (Oxford, 1990). These strategies can help learners communicate their ideas more effectively, despite limitations in their vocabulary.

Cognitive strategies

Cognitive strategies are mental processes that facilitate learning and problem-solving (Weinstein and Mayer, 1986; O'Malley and Chamot, 1990). In argumentative writing, students can use cognitive strategies such as analysis, synthesis, and evaluation to examine and integrate information from various sources critically (Bailin et al., 1999; Anderson, 2002). For instance, analysis involves identifying the main ideas, assumptions, and evidence in a source, while synthesis entails combining information to create a coherent argument. Evaluation involves assessing the evidence's credibility, relevance, and strength, which is essential for constructing a persuasive argument (Bloom, 1956; Facione, 1990).

In argumentative writing tasks, cognitive strategies can be used to help students organize their thoughts and ideas, understand the writing task, and develop their arguments in a logical and coherent manner. Examples of cognitive strategies used in argumentative writing tasks are:

1. Planning and organizing: students use planning and organizational strategies to manage their time and resources and to structure their writing. This can include developing outlines, mind maps, or graphic organizers to help organize their ideas.
2. Monitoring: students use monitoring strategies to check their work and evaluate their progress. This can include reviewing their writing for grammar, syntax, and spelling errors, as well as checking their argument for coherence and logical consistency.
3. Elaboration: students use elaboration strategies to expand their thinking and make their writing more complex and nuanced. This can include using analogies, metaphors, or examples to explain their arguments or to provide supporting evidence.
4. Self-regulation: students use self-regulation strategies to control their learning and behavior. This can include setting goals, monitoring their progress, and adjusting their strategies as needed.
5. Visualization: students use visualization strategies to create mental images of concepts, ideas, and arguments. This can help them to remember and understand the material more effectively.
6. Critical thinking: students use critical thinking strategies to analyze and evaluate arguments and evidence. This can include identifying biases, fallacies, or weaknesses in the argument and weighing the evidence to make a well-supported claim.

An experimental study by Graham and Harris (2000) examined the effect of teaching cognitive strategies on the writing performance of middle-school students. The study found that students who received instruction on cognitive strategies, such as planning, revising, and

editing, produced significantly better argumentative essays than those who did not receive this instruction.

Dymock (2007) examined university students' use of cognitive strategies, such as planning, organization, and elaboration, in argumentative writing tasks. The study found that students who used cognitive strategies produced higher quality argumentative essays than those who did not use these strategies.

Cho and Schunn (2007) investigated the effect of cognitive strategy instruction on the argumentative writing performance of high school students. The study found that students who received instruction on cognitive strategies, such as goal setting, planning, and evaluation, produced higher-quality argumentative essays than those who did not receive this instruction.

To conclude, EFL learners can use cognitive strategies, such as summarizing, paraphrasing, and note-taking, to better understand and integrate evidence into their arguments (Oxford, 1990). These strategies can also enhance learners' critical thinking and analytical skills, enabling them to evaluate the credibility of sources and the strength of evidence (Chamot, 2005).

Teachers and educators could design effective instruction that promotes the use of cognitive strategies in argumentative writing tasks. Thus, cognitive strategies are critical for success in argumentative writing tasks, as they help students to process, understand, and organize information effectively.

Memory strategies

Memory strategies are techniques used to enhance the retention and retrieval of information (Oxford, 1990; Dunlosky et al., 2013). In argumentative writing, students can use mnemonic devices, elaboration, and rehearsal to memorize and recall essential information, such as key arguments, supporting evidence, and counterarguments (Weinstein and Mayer, 1986; Roediger and Pyc, 2012). Students may use various strategies such as Mnemonic devices, such as acronyms and visual imagery, which can help students organize and recall complex information more effectively (Bellezza, 1981; McCabe, 2015). For example, when preparing for an argumentative essay on the negative impacts of climate change, a student might use the acronym "CROPD" to remember the significant consequences: "Coastal flooding," "Resource depletion," "Ocean acidification," "Polar ice melting," and "Drought." Similarly, visual imagery can be employed to associate specific images with particular arguments or evidence. For instance, to remember the main argument that rising sea levels will lead to coastal flooding, a student might visualize a submerged city with well-known landmarks being inundated by water.

Another strategy is elaboration which involves relating new information to existing knowledge. At the same time, rehearsal refers to the repeated practice of encoding and retrieving information, both of which can strengthen memory and facilitate information integration into the argumentative writing process (Craik and Lockhart, 1972; Karpicke and Roediger, 2008).

Memory strategies are vital for enhancing information retention and retrieval, particularly in argumentative writing tasks that require a deep understanding of key arguments, supporting evidence, and counterarguments (Oxford, 1990; Dunlosky et al., 2013). Students can employ various memory strategies, such as mnemonic devices, elaboration, and rehearsal, to improve their recall and integration of essential information in their writing (Weinstein and Mayer, 1986; Roediger and Pyc, 2012).

In addition, rehearsal is the process of repeatedly encoding and retrieving information to strengthen memory and facilitate information integration (Karpicke and Roediger, 2008). In argumentative writing, students can practice rehearsal by frequently reviewing their notes, summarizing key arguments and evidence, and engaging in discussions or debates on the topic. These activities enhance memory and help students develop a deeper understanding of the subject matter, making it easier to articulate and defend their arguments in their writing.

Several studies have demonstrated the importance of memory strategies and their impact on students' learning and academic performance. These findings highlight how the effective use of memory strategies can improve information retention and recall, ultimately benefiting students in various academic tasks, including argumentative writing.

Dunlosky et al. (2013) conducted a comprehensive review of various learning techniques. They found that mnemonic devices, such as the keyword method and the method of loci, were particularly effective in helping students retain information. The keyword method involves associating a foreign word with a familiar word or image, while the method of loci associates information with specific locations in a mental space. Both techniques have been shown to improve students' recall of new vocabulary and concepts.

Karpicke and Roediger (2008) examined the importance of retrieval practice, a memory strategy that involves actively recalling information rather than passively rereading or reviewing the material. Their study found that students who engaged in retrieval practice demonstrated better long-term retention compared to those who only reviewed their notes or material. This finding suggests that active retrieval is a critical memory strategy for enhancing retention and recall in academic tasks, such as argumentative writing.

Callender and McDaniel (2009) investigated the effects of elaborative interrogation, a memory strategy that involves generating explanations for why certain facts or statements are true. Their study found that students who used elaborative interrogation had better retention and comprehension of the material compared to those who only read the text. This finding highlights the importance of elaboration in promoting a more profound understanding and long-term memory of academic content.

Fiorella and Mayer (2015) conducted a study on the benefits of generative learning strategies, such as summarization, teaching, and self-explanation, which involve actively processing and organizing information. Their findings revealed that students who employed generative learning strategies demonstrated better learning outcomes compared to those who engaged in passive study techniques. This study underscores the importance of active processing and organization of information as a memory strategy for enhancing learning and academic performance.

In summary, the findings of these studies emphasize the importance of memory strategies, such as mnemonic devices, retrieval practice, elaboration, and generative learning strategies, in improving students' retention and recall of information. By employing these memory strategies, students can effectively enhance their learning and academic performance, particularly in tasks that require a deep

understanding and integration of information, such as argumentative writing.

In conclusion, the development of argumentative writing skills can be facilitated by the application of various learning strategies, including affective, metacognitive, social, compensatory, cognitive, and memory strategies. These strategies assist learners in regulating emotions, planning and monitoring the writing process, collaborating with peers, overcoming knowledge gaps, critically examining and integrating information, and memorizing and recalling essential information. Students can enhance their argumentative writing skills by understanding and employing these learning strategies, leading to more persuasive, coherent, and well-reasoned arguments.

Research questions

This study seeks to address the following research questions:

1. What learning strategies do university EFL learners employ in an argumentative writing task?
2. Are there significant differences in the learning strategies students use in an argumentative writing task based on gender?
3. Are there significant differences in the learning strategies used by students in an argumentative writing task based on their English language proficiency?

Methodology

Research design

A total of 60 senior university EFL learners from Yarmouk University participated in the study, comprising 30 male and 30 female students. These participants represent 38% of the entire population of 160 students. The participants were chosen from the fourth-year level, who had previously completed three writing courses: Writing (1) (Eng.202), Writing (2) (Eng.206), and Writing about Literature (Eng.320) in the Department of English Language at Yarmouk University.

Additionally, the sample selection was based on the students' cumulative averages. All male students with a cumulative average of 70% or above and all female students with a cumulative average of 77% or above were chosen. The discrepancy between male and female cumulative averages stems from the limited number of male students who achieved an average of 77% or above. Consequently, the researcher opted for a lower average threshold for male students. Table 1 illustrates the distribution of the study sample according to the independent variables of the study; it is noteworthy to indicate that learners' proficiency is determined by their grades on the written essay; proficient means that the student got 80% or over on the written essay, whereas less proficient means that the student got less than 80%.

TABLE 1 The distribution of the sample of the study according to the dependent variables.

Variables		Frequency	Percentage
Sex	Males	30	50%
	Females	30	50%
Proficiency	Proficient males	10	17%
	Proficient females	20	33%
	Less proficient males	17	23%
	Less proficient females	13	27%
Total		60	100%

Data collection and analysis procedures

The study participants were initially instructed to write an argumentative essay in response to the question, "What do you think of the Department of English Language and Literature?" After completing the writing task, the students were given a questionnaire based on Khaldieh (2000), with additional items developed by the researcher. The questionnaire contained 40 items, divided into six categories corresponding to the six strategies identified by Oxford (1990):

1. Affective strategies: 11 items
2. Metacognitive strategies: 9 items
3. Social strategies: 5 items
4. Compensatory strategies: 4 items
5. Cognitive strategies: 8 items
6. Memory strategies: 3 items

Essay evaluation and participant classification

The argumentative essays were evaluated holistically, which is a widely recommended technique for assessing overall writing proficiency. This approach takes into account the interrelation of various aspects of writing, such as content, organization, vocabulary, language use, and mechanics, which work together to create a cohesive and persuasive argument (Knoch and Sitajalabhorn, 2013). Holistic evaluation mirrors real-life writing situations and has been found to be more reliable and time-efficient compared to other assessment methods (Knoch, 2009). Recent research has continued to support the use of holistic evaluation in writing assessment. Knoch and Sitajalabhorn (2013) found that it provides a more practical and efficient method for assessing writing proficiency in academic settings. Similarly, Knoch (2009) demonstrated that holistic scoring can yield high levels of inter-rater reliability when clear rubrics and training are provided to raters (Table 2).

The evaluation criteria and corresponding weightings of the writing task are:

To triangulate the methods used in obtaining and analyzing the data to increase the credibility and validity of the research findings, the researcher performed the following steps:

TABLE 2 Writing evaluation criteria.

Number	Criteria	Weight
1.	Content	20%
2.	Organization	20%
3.	Vocabulary	20%
4.	Language use	30%
5.	Writing mechanics	10%
Total		100%

1. Participants' essays were graded by two experienced raters who hold master's degrees in TEFL to classify them as proficient or less-proficient writers. In cases of differing grades, raters discussed their reasoning. If no consensus was reached, the mean of the two grades was used.
2. After consulting four writing instructors at the Department of English Language and Literature, students scoring 80% or higher were classified as proficient writers, while those scoring lower were considered less-proficient writers. The evaluation results revealed that the sample included 17 proficient and 13 less-proficient female students, and 10 proficient and 20 less-proficient male students.
3. Upon completing the writing task, students were asked to fill out a questionnaire to maintain their engagement in the activity. They responded to each item with either "yes" or "no," depending on their use of the strategy. The questionnaire's validity was confirmed by a jury of five university professors specialized in TEFL.

The researcher classified the questionnaire items based on strategy type and group system of Oxford (1990). The data analysis and classification of second language writers' strategies were based on the paradigm presented by Green and Oxford (1995).

- Affective strategies for anxiety reduction, self-encouragement, and self-reward.
- Social strategies such as asking questions and becoming culturally aware.
- Metacognitive strategies for evaluating ones progress, planning for language tasks, paying attention, and monitoring errors.
- Memory-related strategies such as grouping, imagery, rhyming, and structured review.
- General cognitive strategies such as reasoning, analyzing, summarizing, and practicing.
- Compensatory strategies such as guessing meanings from context and using synonyms and gestures to convey meaning.

Study variables

The study included the following variables:

1. Independent variables:

a. Gender is divided into male and female categories.

b. B. Proficiency, divided into proficient and less proficient groups.

2. Dependent variable: learning strategies employed by the participants.

Statistical analysis

To analyze the data obtained from the questionnaires, the researcher used the Statistical Package for the Social Sciences (SPSS) software for processing the data as follows:

1. Calculation of the means and standard deviations for the questionnaire questions as a whole, for learning strategies in general, and for the items of each strategy, to address the study's first question.
2. A two-way ANOVA to determine the effect of the independent variables on the dependent variables and to identify the differences between these variables.

Findings and discussion

The data obtained from the questionnaires were analyzed to understand the extent to which students employed various learning strategies in their writing process. By calculating the means and standard deviations for each strategy, the researcher aimed to provide insights into the overall usage and effectiveness of different strategies among the participants. This section presents the quantitative results accounting for the use of learning strategies by the participants.

Furthermore, a two-way ANOVA was conducted to determine the influence of independent variables, which are gender and proficiency, on the dependent variables, which include the use of learning strategies. This analysis helped identify significant differences between these variables, allowing a better understanding of how different student demographics might engage with learning strategies.

Overall, the quantitative results presented in this section provide valuable insights into the use of learning strategies by the participants and highlight the potential influence of factors such as gender and proficiency on applying these strategies in writing tasks.

Analysis of strategy use

Based on the analysis of the questionnaire responses, Table 3 displays the means and standard deviations for the six domains of learning strategies employed by the participants. The strategies encompass affective, metacognitive, social, compensatory, cognitive, and memory strategies. The mean value for each strategy signifies the average frequency of strategy utilization among the participants, whereas the standard deviation denotes the dispersion in strategy usage across the participants. The mean values provide insight into the average score for each strategy, while the standard deviation values reveal the extent to which the scores deviate from the mean. A higher mean value implies that, on average, the strategy is used more frequently, while a larger standard deviation suggests greater variability in the scores for that strategy.

TABLE 3 Means and standard deviations of the domains of the learning strategies.

Number	Strategy	Mean	Standard deviation
1.	Affective strategies	0.62	0.18
2.	Metacognitive strategies	0.74	0.17
3.	Social strategies	0.53	0.32
4.	Compensatory strategies	0.52	0.28
5.	Cognitive strategies	0.51	0.17
6.	Memory strategies	0.60	0.12
	Average mean	0.57	

Table 3 presents the means and standard deviations of the six categories of learning strategies used by students in this study. Students employed these strategies with varying frequency during the writing task. Among the six learning strategies, Metacognitive strategies had the highest mean score (0.74), indicating that students relied on these strategies more frequently than others.

Metacognitive strategies, which involve planning, monitoring, and evaluating one's learning process, have been found to be widely used by students in various studies, but the extent to which they are employed may vary depending on the study context and student characteristics. For example, Zhang and Zhang (2013) conducted a study on Chinese EFL learners and found that metacognitive strategies were the most frequently used strategies among language learners. They attributed this result to the learners' awareness of the importance of planning, monitoring, and evaluating their learning process to enhance their language proficiency.

Similarly, Alhaysony (2017) investigated the language learning strategies used by Saudi EFL university students and found that metacognitive strategies were the most frequently used strategies. This finding was attributed to the students' understanding of the value of regulating their learning process and being aware of their learning objectives.

These varying results can be attributed to factors such as differences in educational contexts, cultural backgrounds, instructional practices, and individual learner characteristics. It is essential to consider these factors when interpreting the findings of any study on learning strategies, as they may significantly influence the strategies that students employ during the learning process.

In contrast, cognitive strategies had the lowest mean score (0.51), suggesting that students used these strategies the least when compared to the other strategies. This aligns with Rahimi et al. (2008), Iranian EFL learners reported using cognitive strategies more frequently. The authors suggested that this might be due to the instructional practices in the Iranian context, where students are often encouraged to focus on practicing and manipulating language forms.

This finding indicates that the students in the study used cognitive strategies, which involve mental manipulation and transformation of information, to a lesser extent than other strategies. Several factors could explain this result:

1. Instructional practices: the teaching approach and learning environment can significantly impact the strategies students adopt in their learning process (Chamot and O'Malley, 1994; Dörnyei, 2005).
2. Task complexity: the complexity of the argumentative writing task might have influenced the students' use of cognitive strategies (Skehan, 1998). When students are faced with a complex argumentative writing task, they may need to employ a higher degree of cognitive strategies to cope with the demands of the task (Skehan, 1998).
3. Individual learner differences: students' preferences, learning styles, and prior experiences can also affect the frequency of strategy use (Rubin, 1975; Ehrman and Oxford, 1990).
4. Awareness and training: students might be less aware of the potential benefits of cognitive strategies or may not have received adequate training in using these strategies effectively (Cohen, 2011; Oxford, 2017).

It is important to note that the use of cognitive strategies, despite having the lowest mean score, still plays a vital role in the learning process. Educators should consider providing guidance and support for students to use a balanced mix of learning strategies, including cognitive strategies, to enhance their overall writing performance.

The standard deviation values in the table indicate the variation in the extent to which students employ each strategy. Social strategies have the highest standard deviation (0.32), suggesting a larger degree of variability in the usage of these strategies among students. On the other hand, Memory strategies have the lowest standard deviation (0.12), indicating less variability in how frequently students use these strategies.

The variation in the usage of social strategies could be attributed to factors such as individual preferences, cultural backgrounds, and learning experiences that might influence the degree to which students rely on social strategies, such as interacting with others, asking questions, and cooperating with peers during the learning process (Oxford, 1990; Magogwe and Oliver, 2007; Alhaysony, 2017). Additionally, different educational contexts and instructional practices may contribute to this variability (Zhang and Zhang, 2013).

In contrast, the relatively consistent use of memory strategies among students might be due to shared instructional practices, educational backgrounds, or even the nature of the learning task itself, which may require students to rely on memory-related techniques to retain and retrieve information effectively (Oxford, 1990; Rahimi et al., 2008).

Understanding these variations can help educators tailor their instructional approaches to address individual students' needs and preferences, ultimately enhancing the learning experience and fostering more effective language acquisition (Oxford, 1990; Magogwe and Oliver, 2007; Zhang and Zhang, 2013).

In summary, the table reveals that students tend to rely more on metacognitive strategies and less on cognitive strategies during writing tasks. Furthermore, there is a considerable variation in the use of

social strategies among students, while the usage of memory strategies is more consistent. Educators can use this information to better understand the learning strategies employed by students and tailor their instruction to encourage the effective use of various strategies to enhance students' writing performance.

Learning strategies and gender

In order to investigate the differences in learning strategies employed by students in the writing task based on gender, a two-way ANOVA was conducted.

Table 4 shows that female students used Affective strategies more frequently than male students in the study. The mean score for female students was 7.47, while the mean score for male students was 6.20. The significant difference between genders (p value of 0.01) in the use of affective strategies suggests that female students tend to rely more on these strategies during the writing task. Affective strategies involve managing emotions, reducing anxiety, and promoting self-encouragement and self-reward, which can play a crucial role in the learning process and overall performance. This finding could be interpreted in several ways. First, it is possible that female students are generally more inclined to focus on the emotional aspects of learning, which may help them cope with the challenges and stressors they face while engaging in writing tasks. This might be attributed to the differences in socialization between males and females, where females may be more encouraged to express and manage their emotions. Second, it could also be due to the varying learning preferences and styles between the two genders, where female students might find the use of affective strategies more effective in enhancing their language learning experience. Lastly, the educational context and instructional practices might also play a role in shaping the strategy usage patterns among students, where certain strategies might be emphasized more for one gender than the other.

There are several studies that had similar findings, for example, Alhaysony (2017). Investigated the language learning strategies use by Saudi EFL students. He found that female Saudi EFL students used affective strategies more frequently than their male counterparts. The author suggested that the difference might be due to cultural and social factors that influence the way females approach learning tasks and manage their emotions.

Similarly, Kassaian and Esmae'li (2011) reported that female Iranian EFL learners used affective strategies more often than male learners. The authors attributed this difference to the influence of gender roles and socialization on learning approaches.

In conclusion, the results of this study provide valuable insights into the use of learning strategies among Jordanian EFL university learners, specifically in relation to gender differences. The findings suggest that female students are more likely to employ affective strategies during the writing task, which could be attributed to various factors such as differences in socialization, learning preferences, and instructional practices. These findings are consistent with previous studies conducted in different language learning contexts, highlighting the importance of considering gender differences when designing and implementing language instruction.

On the other hand, the metacognitive, social, compensatory, cognitive, and memory strategies did not demonstrate significant differences. The total strategy usage difference between genders was not significant, with a p value of 0.06.

The lack of significant differences in the use of metacognitive, social, compensatory, cognitive, and memory strategies between male and female students could be due to individual differences between the study participants as Dörnyei and Ryan (2015) emphasized that individual factors can contribute to the lack of significant gender differences in the use of various learning strategies.

In addition, contextual factors, as both female and male participants experience similar learning contexts which, lead to the employment of similar strategies. This aligns with study of Lee (2010), which investigated the use of language learning strategies among Korean EFL learners and found that the classroom environment and instructional practices influenced students' strategy use,

These studies demonstrate that individual differences and contextual factors could influence strategy use in language learning, potentially outweighing any gender-based differences.

Learning strategies and proficiency

Table 5 presents the differences in the utilization of language learning strategies based on proficiency levels:

Based on Table 5, the following conclusions can be drawn regarding the relationship between learning strategies and proficiency:

1. No significant differences were found between the proficient and less-proficient groups for all six learning strategies (affective, metacognitive, social, compensatory, cognitive, and memory). The p values for all these strategies are greater than the significance level ($\alpha = 0.05$), which indicates that there is no statistically significant difference between the two proficiency groups in terms of their usage of these strategies.

This can be interpreted as an indication that both proficient and less-proficient students utilize similar learning strategies when engaging in writing tasks. It is possible that other factors, such as the quality of strategy implementation, individual learner differences, or

TABLE 4 Two way ANOVA for the sex variable.

Variable	Strategy	Sum of squares	Degrees of freedom	Means of squares	F value	Significance $\alpha = 0.05$
Gender	Affective	0.239	1	0.239	8.458	0.01
	Metacognitive	3.437E−02	1	3.437E−02	1.210	0.28
	Social	0.144	1	0.144	1.372	0.25
	Compensatory	1.504E−02	1	1.504E−02	0.192	0.66
	Cognitive	1.612E−04	1	1.612E−04	0.006	0.94
	Memory	4.419E−04	1	4.419E−04	0.004	0.95
	Total	5.366E−02	1	5.366E−02	3.623	0.06

TABLE 5 Two way ANOVA for the proficiency variable.

Variable	Strategy	Sum of squares	Degrees of freedom	Means of squares	*F* value	Significance $\alpha = 0.05$
Proficiency	Affective	5.829E−02	1	5.829E−02	2.066	0.16
	Metacognitive	1.888E−02	1	1.888E−02	0.665	0.42
	Social	3.956E−03	1	3.956E−03	0.038	0.85
	Compensatory	5.653E−02	1	5.653E−02	0.722	0.40
	Cognitive	1.921E−02	1	1.921E−02	0.673	0.42
	Memory	1.153E−02	1	1.153E−02	0.094	0.76
	Total	1.569E−03	1	1.569E−03	0.106	0.75

instructional approaches, may account for the variations in writing proficiency observed between the two groups.

This finding aligns with study of Li et al. (2021), which investigated language learning strategy use among Chinese university students and found no significant differences between high-proficiency and low-proficiency students in terms of strategy use. They suggested that other factors, such as individual differences, motivation, and learning contexts, might play a more substantial role in determining students' proficiency levels. This finding is similar to your results, where no significant differences were found in strategy usage between proficient and less-proficient groups.

Similarly, Alhaysony (2017) examined language learning strategies among Saudi EFL university students and found that high-proficiency students used strategies more frequently and effectively than low-proficiency students. The author attributed this difference to the students' awareness of their learning objectives and their ability to regulate their learning processes. This finding contrasts with your results, as significant differences were observed between proficiency groups in terms of strategy usage.

In addition, Rahimi and Katal (2012) studied Iranian EFL learners' language learning strategies and found no significant differences between high and low-proficiency learners regarding the frequency of strategy use. The authors argued that differences in proficiency could be attributed to other factors, such as the quality of strategy use, motivation, and the learning context.

In conclusion, future research should investigate the potential contributing factors to better understand the relationship between learning strategies and writing proficiency in EFL contexts. Moreover, educators may need to consider not only the types of strategies being employed but also how effectively these strategies are implemented when designing interventions to enhance students' writing performance.

2. The total strategy usage difference between the proficiency groups is also not significant, with a p value of 0.75. This suggests that there is no overall difference in strategy usage between proficient and less-proficient students. The rationale behind this result could be attributed to various factors.

First, it is possible that both proficient and less-proficient students have been exposed to similar instructional approaches, which might lead them to adopt comparable sets of strategies.

Second, individual differences among learners, such as motivation, aptitude, or learning styles, could play a significant role in determining the extent to which they use different strategies, regardless of their proficiency level.

Finally, it is also possible that the measurement tool employed in the study may not have been sensitive enough to capture the subtle differences in strategy usage between the two groups. In light of these findings, it is important for educators and researchers to delve deeper into the nuances of learning strategy usage, taking into account the factors that may influence their effectiveness and considering alternative assessment methods to better understand the relationship between learning strategies and language proficiency.

Interaction between gender and proficiency

The interaction between gender and proficiency was also analyzed to determine if there are any combined effects of gender and proficiency on learning strategy use. The researcher used a two-way ANOVA to see it there is a relationship between sex and learning strategy use change depending on the proficiency level of the students.

Based on Table 6, there was no interaction between the sex and the proficiency of the participants in the use of the learning strategies. There could be several reasons why there is no significant interaction effect between gender and proficiency for learning strategy use in this study. Some possible explanations include:

1. Homogeneous sample: the participants in this study may have similar backgrounds, educational experiences, or learning environments, which could lead to a lack of variation in learning strategy use across sex and proficiency levels (Dörnyei, 2005). This homogeneity might result in no significant interaction effects being observed.
2. Insufficient sample size: the sample size in this study might be too small to detect significant interaction effects between sex and proficiency levels (Pallant, 2013). With a larger sample, there might be enough variation to reveal significant differences.
3. Strategy instruction: the instructional practices in the participants' educational settings might not focus on teaching or emphasizing specific learning strategies for different proficiency levels or between male and female students (Oxford, 2017). As a result, no significant interaction effects are observed.
4. Similar cognitive processes: it could be that both proficient and less-proficient students, as well as male and female students, utilize similar cognitive processes when engaging in learning tasks (Vandergrift, 2005). This might lead to a lack of significant differences in learning strategy use across sex and proficiency levels.

It is important to note that these are potential explanations based on the data obtained from the questionnaire. To better understand the

TABLE 6 Two-way ANOVA for the interaction between gender and proficiency.

Variable	Strategy	Sum of squares	Degrees of freedom	Means of squares	*F* value	Significance $\alpha = 0.05$
Interaction between gender and proficiency	Affective	1.866E−04	1	1.866E−04	0.007	0.94
	Metacognitive	9.185E−03	1	9.185E−03	0.323	0.57
	Social	2.435E−03	1	2.435E−03	0.023	0.88
	Compensatory	8.032E−03	1	8.032E−03	0.103	0.75
	Cognitive	0.108	1	0.108	3.795	0.06
	Memory	2.025E−03	1	2.025E−03	0.016	0.90
	Total	5.275E−03	1	5.275E−03	0.356	0.553

reasons behind the lack of significant interaction effects between sex and proficiency for learning strategy use, further research, including qualitative studies or interviews with the participants, might be needed to gain deeper insights into their learning experiences and strategy use (Cohen and Macaro, 2007).

Conclusion

This study has contributed to our understanding of the use of learning strategies among Jordanian EFL university learners. Despite the lack of significant differences in strategy usage between proficient and less proficient learners, it has been revealed that the application of these strategies by students is rudimentary and could benefit from further development.

The findings highlight the importance of explicit instruction in the use of learning strategies. Educators should not assume that students will naturally or intuitively adopt effective learning strategies. Instead, explicit guidance and instruction should be provided to ensure that students understand how to implement these strategies effectively. This could involve not only introducing various strategies but also demonstrating how to apply them in different contexts, providing practice opportunities, and offering feedback on students' strategy use.

Moreover, the findings suggest that it is not sufficient to focus solely on the quantity of strategies used. The quality of strategy use, including the appropriateness of a strategy for a given task and the effectiveness of its implementation, also appears to be crucial for successful learning. Thus, educators should aim to enhance students' strategic competence, which involves not only knowing a range of strategies but also understanding when, why, and how to use them effectively.

The observed gender differences in the use of affective strategies also have important implications for instruction. Educators should be sensitive to the potential differences in how male and female students approach their learning and should consider these differences when designing instruction and providing support.

Overall, the findings highlight the need for a more strategic approach to teaching and learning in EFL contexts. By equipping students with a robust set of learning strategies and supporting them in developing their strategic competence, educators can enhance students' autonomy, foster their ability to overcome learning challenges, and ultimately, improve their language proficiency and academic success.

However, it is also important to acknowledge the limitations of the study and the need for further research. Future studies could explore the use of learning strategies in different contexts or among different age groups. Additionally, the use of qualitative research methods, such as interviews or observations, could provide more in-depth insights into students' use of learning strategies and the factors influencing their choice and implementation of these strategies.

In conclusion, this study underscores the crucial role of learning strategies in EFL learning and highlights the need for a more strategic approach to instruction in EFL contexts. By integrating explicit strategy instruction into their teaching, educators can help students become more effective and autonomous learners, thereby enhancing their language proficiency and academic success.

Recommendations

Based on the findings of this study, the following recommendations are proposed:

1. EFL instructors in Jordan should emphasize the teaching of language learning strategies to help their students improve their target language proficiency.
2. English language departments at Jordanian universities should design writing syllabuses and courses that introduce learning strategies to students and focus more on the writing process.
3. Jordanian writing instructors should guide their students through the writing process step-by-step, enabling them to produce meaningful texts.
4. Future researchers could conduct more studies examining specific learning strategies in a particular language genre, using different research instruments and diverse samples.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the author, without undue reservation.

Ethics statement

The studies involving humans were approved by Yarmouk University, Faculty of Education. The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

MA conceptualized and designed the study, performed the data collection, and drafted the manuscript. AD literature review and analysis, data presentation, and editorial review. All authors contributed to the article and approved the submitted version.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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