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Correlation of ESP Learners' Cognitive, Metacognitive Strategies and Academic Achievement

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***Abstract*—There have been many studies dealing with the interconnections between the utilization of language learning strategies and the overall academic achievement of EFL learners. Our research aims to investigate whether there is some correlation between the implementation of cognitive strategies, metacognitive strategies, and academic achievement in an ESP context. The study sample incorporated 170 undergraduates studying in business administration programs at the university where we are teaching. We used the Strategy Inventory of Language Learning Strategies (SILL) put together by R. Oxford to examine the implementation of CSs and MCSs by the learners. We generated the results with the help of descriptive and inferential statistics. We compared the data received with the students' GPAs by using the Pearson correlation coefficient. The findings revealed that students make use of both CSs and MCSs fairly highly. MCSs are used more than CSs. There is a remarkably useful correlation between GPA and most of the CSs and MCSs examined. The findings and recommendations of this research will contribute to the ongoing literature and they will help in updating ESP syllabi and teaching techniques of vocational and practical programs that require ESP.**

***Index Terms*—cognitive strategies, meta-cognitive strategies, correlation, achievement, ESP**

I. Introduction

It has long been suggested that the application of strategies of language learning (LLSs) is beneficial for language learners in general for fostering academic achievements and promoting language skills. Oxford (1990) described LLSs as actions performed by language learners to make their learning convenient, fast-paced, effective, and adaptable. Recent studies in the area such as that of Tai and Zhao (2022) in Hong Kong; Zou and Supinda (2022) in China; and Taheri et al. (2019) in Iran have consistently found the relevance of LLSs among other variables to better academic achievement and more engaging learning experiences. However, the effect of specific LLSs on specific types of learners is rarely investigated.

Further, low achievement levels among ESP students in Saudi Arabia are frequently referred to as a problem that requires an urgent response, especially with the new policies that aim at fostering education to prepare global citizens. These policies require more ESP programs and a robust promotion of ESP syllabi. Already many professional programs are being offered by different institutions throughout the Kingdom. English language is a basic requirement to do these courses. Accordingly, this proposed research primarily aims at establishing whether academic achievement has any correlation or not with the implementation of Cognitive Strategies (CSs), and Metacognitive Strategies (MCSs).

The perceived lack of research in the area of finding out the correlation between different language strategies to ESP learners' achievement adds up to the value of this current research. This specific criterion has been left untouched in KSA also. As the field of ESP is expanded in Saudi Arabia following the implementation of Saudi Vision 2030 and the launch of many vocational and practical programs that require ESP, the study's findings are believed to be of special significance in updating ESP syllabi and teaching techniques. We adapted the Strategy Inventory of Language Learning Strategies (SILL) (Oxford, 1999) to examine how EFL learners use CSs and MCSs by addressing the research questions that follow:

1. To what extent do ESP learners use CSs and MCSs?
2. Is there a statistically significant correlation between ESP learners' academic achievements and their level of use of CSs and MCSs?

For the second research question, a null hypothesis was formulated as:

H0: There is no statistically significant difference between ESP learners' academic achievement and their level of use of CSs and MCSs.

Both descriptive and inferential statistics were used to answer the research questions and test the null hypothesis.

II. Literature Review

Language learning and teaching have come a long way forward from the days when languages were learned and taught to enrich the intellect and wisdom. Since then languages have been seen through different perspectives and these perceptions have had a considerable influence on the ways languages have been taught and learned. Studies in this field have established that no two language learners are the same; therefore, there is no teaching method available which can meet the requirements and behaviors specific to individual students in a group. Similarly, Abdul-Ghafour and Alrefaee (2019), contend that there is no absolute teaching method which can guarantee complete success in mastering a language. This heterogeneity of the students and the unavailability of a perfect teaching method have provided a strong impetus to the implementation of language learning strategies by language learners and for the researchers to find out the intricacies involved. Moreover, the focus on student-centered teaching also calls for more research into this area.

A. Language Learning Strategies (LLSs)

All learners have some personal predilections, thought processes and behaviors specific to them. They undertake the journey to learn a language in their own unique ways. They take actions, perform activities, do tasks, undergo some mental gymnastics, and follow some processes in order to be successful in learning the language. These attempts by the learners can be described as language learning strategies (O'Malley & Chamot, 1990), while defining language learning strategies, say that these are the things we think and utilize in order to understand, memorize and recollect the new language. Oxford (1990) defines these strategies as the efforts put in by the students while learning a language in order to achieve better results. The utilization of these strategies helps in learning, remembering, recreating and expressing in the new language. Cognitive strategies fall under the category of direct strategies and metacognitive strategies come under the indirect category as sub-categorized by Oxford (1990).

B. Cognitive Strategies

Students use cognitive strategies to choose, retain, memorize and recollect new information. Cognitive strategies range from repetition, reading aloud, highlighting, taking notes, summarizing, paraphrasing, asking and answering questions, to elaborating and organizing new information. Oxford (1990) puts cognitive strategies under the direct category as these are directly related to the subject or course content the student is studying. In other words, they are subject or content-specific.

C. Metacognitive Strategies

Language learners utilize metacognitive strategies in order to supervise and control the process of learning a foreign or second language. MCSs are put into the indirect category by R. Oxford. It can be said that they are not subject/course specific but they are all-encompassing strategies. Planning strategies (skimming a text), evaluation strategies (self-testing), and monitoring strategies (self-questioning) are parts of metacognitive strategies that can be applied to overall learning.

D. Academic Achievement

Academic achievement is the level of success or accomplishment someone has gained in his academic course or program. It can be used as a measurement of the person’s knowledge or skill in the subject or area. Steinmayr et al. (2015), while defining academic achievement say that it constitutes performance results which reflect the boundaries of a student’s accomplishment of particular targets that were the center of the tasks in an academic course. Narad and Abdullah (2016) defined academic achievement as the learning gained which can be examined by a teacher by awarding marks or by the realization of academic aims decided by learners and teachers that are achieved in a definite duration. They also stated that these objectives are assessed through examinations. Cumulative GPA is considered an authentic measure of students’ achievement (Amzil, 2022). It is also the concrete manifestation of the student’s achievement. Therefore, we have taken up the students' GPA to measure their academic achievement and correlated it with their choice of strategy use.

E. ESP (English for Specific Purposes)

ESP has been defined differently by various researchers, but overall, it can be understood as the teaching of English to students having definite aims and objectives: these objectives may be related to the profession they are working in, or the specific study program they are studying in. The emphasis on 'Specificity' has led to the formation of different branches of ESP, each catering to the needs of learners from different fields. English for Business Purposes has become a broad field in ESP. The students we have taken up to gather the data required for this study are studying in a college of business administration. Besides general English, these students also study authentic material in the form of textbooks which are modified for teaching and learning purposes. The textbooks contain different types of business correspondences and paragraphs taken from business reports and magazines. These students can be described as students of ESP rather than EFL. This crucial aspect of the teaching and learning of English in Saudi Arabia has been left untouched. All studies from Saudi Arabia in this area have considered English as a Foreign Language. Our research seeks to study the implementation of CSs and MCSs by ESP students and the extent of correlation with their academic achievement because no other researcher has done the same. Many researchers (Macaro, 2001; Abdul-Ghafour &

Alrefaee, 2019; Akpur, 2021) inside and outside the Kingdom have found useful and remarkable associations in the implementation of different kinds of strategies and overall academic performance. Mostly they have found that more use of LLSs leads to better academic achievement. On the contrary, some studies found a negative (Vettori et al., 2020) or no association (Tariq et al., 2016) between the use of learning strategies and academic achievement.

F. Previous Studies

All types of learning involve the conscious or unconscious use of strategies. Researchers have categorized them and have delved deeper into the learners' psyche by means of different types of research instruments. They have uncovered different facets of this proposed area by working on different variables. We can see in many researches how this concept influences the process of language teaching and learning. Overall academic achievement can be predicted by knowing the variety and types of strategies used by learners as many researchers have contended in their works. There are probably some fundamental links between the implementation of learning strategies and the GPA of the learners (Almoslamani, 2021; Radwan, 2022). It's interesting to note that highly successful learners are found to be utilizing language learning strategies rather more often when compared to less successful learners (Alrashidi, 2022). Interestingly, there are instances of studies suggesting that the implementation of strategies may not directly affect language learning output, but it is positively linked to their socio-cultural competence (Abumelha, 2023).

These and other such studies (Dahmash, 2023) have focused on the influence different types of language learning strategies can have on the learning of English as a Foreign Language (EFL). Most studies found a useful association between strategy implementation and academic achievement and called for further research into the area by including other variables and factors. This study aligns with the correlation between cognitive strategies, metacognitive strategies use and academic achievement in the English for Specific Purposes (ESP) context. Al Zahrani and Chaudhary (2022) contend that EFL students find it difficult to learn the vocabulary in an ESP course because it is more varied. Such concerns add value to this study. Keeping in view the renewed demand for developing human capital in Saudi Arabia, for the preparation of trained graduates in specific fields so as to compete with their international counterparts, there is a growing need to pinpoint and ascertain specific capabilities and demands. This research adds to the ongoing exploration in this area and fills the gap by including ESP.

III. Methods

A. Research Design

We selected the descriptive technique to reach the results as we aimed to describe the state of affairs of using CSs and MCSs by the participants and find a baseline understanding of the phenomenon that aims at formulating hypotheses for further research.

B. Participants

The study specifically targeted college students, both male and female, who were enrolled in business administration programs at Prince Sattam bin Abdulaziz University, Saudi Arabia. We conducted this research across three different campuses of the university. These students had prior exposure to general English language courses during their education in public schools. Additionally, they also study authentic material in the form of textbooks which are modified for teaching and learning purposes. The textbooks contain different types of business correspondences and paragraphs taken from business reports and magazines. These students can be described as students of ESP rather than EFL.

It is worth mentioning that two of the colleges involved in the study conduct their instruction in English. However, there is no specific data available regarding the exact English proficiency levels of the participants. Based on the general proficiency levels observed among students at their respective universities, it is typically expected that their proficiency levels range from A2 to B2 as per the CEFR levels. Overall, 170 students participated in the study who are distributed as shown in Table 1 below.

Table 1
Participant Characteristics

Gender	Count	Per cent
Female	88	71.8%
Male	82	48.2%
Total	170	100 %

We told everybody, who took part in filling the questionnaire, the purposes of our research in advance. Their consent to take part in the study was obtained, and they were made aware that their decision to take part in the study was completely at their own discretion. It was explicitly communicated to them that the study was not connected to the assessment of any course within their programs.

C. Data Collection

For collecting data we administered the Likert-Scale questionnaire derived from Oxford's (1990) SILL. SILL has been used widely to investigate how learners employed LLSs. The items related to CSs and MCSs were extracted and translated into Arabic. The translated version was refereed by three university professors who specialized in Arabic

language, applied linguistics and translation. The referees were asked to recheck the clarity, naturalness and compatibility of the Arabic translation with the original one. Minor modifications were applied to the version. Some items were merged to fit the participants' learning settings. Ultimately, 11 cognitive strategies and 9 metacognitive strategies were selected to form the questionnaire. The researchers instructed the respondents to choose their response for every question by selecting one of five options which are (1) Never or almost never true of me, (2) Usually not true of me, (3) Somewhat true of me, (4) Usually true of me, or (5) Always or almost always true of me. Then an electronic form was launched using the Google Forms tool. The respondents were requested to answer the questions during regular class times after being instructed on how to respond to them.

D. Data Analysis

To generate the study findings, both descriptive and inferential statistics methods were used as follows.

1. Descriptive statistics: The means and standard deviations of students' chosen answers to the questions were computed in order to generate results to answer RQ1 of the research showing levels of using CSs and MCSs. Further, the distribution of the data and the usage among males and females is displayed.

2. Inferential statistics:

We used the Pearson correlation coefficient (r) in order to evaluate what type of linear relationships exists or how the implementation of LLSs is related to the academic achievements of the research sample. This was achieved by calculating the correlation coefficient (r and ρ) to indicate the type of correlation and the p-value of the correlation coefficient to determine its significance level considering that the adopted alpha value is (< 0.05). The researchers employed SPSS software to perform the data analysis.

Regarding the rubrics for evaluating the use of strategies by the research sample and according to the choices provided in the Likert-scale survey, the following rubric for evaluating the means of using the learning strategies was adopted:

TABLE 2
EVALUATION RUBRIC FOR MEANS OF USING THE LEARNING STRATEGIES

Value	Interpretation
1 – 1.80	Never or almost never true of me
1.81 – 2.60	Usually not true of me
2.61 – 3.40	Somewhat true of me
3.41 – 4.20	Usually true of me
4.21 – 5.00	Always or almost always true of me

IV. RESULTS

This research explores the employment of CSs and MCSs among ESP students. It also aims to find a correlation between these strategies and academic achievements assuming that there is no correlation between the two variables. Two research questions were posed to investigate the research data which were:

RQ_1. What is the level of using CSs and MCSs among ESP learners at PSAU?

RQ_2. Is there a significant correlation between using cognitive and metacognitive strategies and academic achievement?

We give below in Table 3 the means and standard deviations of using the CSs.

TABLE 3
MEANS AND SDS OF USING COGNITIVE STRATEGIES BY THE RESEARCH SAMPLE

No.	Strategy	Mean	SD
COG1	I say or write new English words several times.	3.45	1.2
COG2	I try to talk like native English speakers.	3.37	1.3
COG3	I practice the sounds of English.	3.37	1.3
Cog4	I start conversations in English.	3.41	1.2
Cog5	I watch English-language TV shows spoken in English or go to movies spoken in English.	3.58	1.4
Cog6	I read for pleasure in English.	3.15	1.3
Cog7	I first skim an English passage (read over the passage quickly) then go back and read carefully.	3.46	1.4
Cog8	I look for words in my own language that are similar to new words in English.	4.10	1.0
Cog9	I find the meaning of an English word by dividing it into parts that I understand.	3.70	1.3
Cog10	I try not to translate word-for-word.	3.35	1.3
Cog11	I make summaries of information that I hear or read in English.	3.38	1.3

The findings indicated that the research sample engages with cognitive strategies fairly highly. According to the analysis rubrics presented in *Table 2*, the average responses ranged from 3.15 to 4.10, corresponding to the categories of "Somewhat true of me" to "Usually true of me." Among the cognitive strategies assessed, COG8, which involves comparing vocabulary in Arabic and English, was the most commonly used by the respondents. On the other hand, reading for pleasure was reported as the least frequently employed strategy.

It is noted that the data points are more spread out or varied from the mean. This fact is implied by the relatively high standard deviation values (all above 1.0) which suggests a higher degree of dispersion or variability in the responses of the participants. This fact can be justified by the differences between the research sample members as the sample

includes students from various colleges and proficiency levels. Table 4 below presents the levels at which metacognitive strategies are implemented by the research sample.

TABLE 4
MEANS AND SDS OF USING METACOGNITIVE STRATEGIES BY THE RESEARCH SAMPLE

No.	Strategy	Mean	SD
Met1	I try to find as many ways as I can to use my English.	3.58	1.1
Met2	I notice my English mistakes and use that information to help me do better.	3.65	.96
Met3	I pay attention when someone is speaking English.	4.10	.73
Met4	I try to find out how to be a better learner of English.	4.13	.77
Met5	I plan my schedule so I will have enough time to study English.	3.25	1.1
Met6	I look for people I can talk to in English.	3.65	.82
Met7	I look for opportunities to read as much as possible in English.	3.52	1.2
Met8	I have clear goals for improving my English skills.	3.75	.99
Met9	I think about my progress in learning English.	4.00	.72

The use of MCSs is revealed to be higher than the use of CSs by the research sample. Almost all the averages are above 3.41, which corresponds to the third option (usually true of me). This high use is especially observed in using Met3, Met4, and Met9 strategies which are related to paying attention to speaking, finding ways to improve learning, and thinking about the achieved improvement, respectively.

Further, the SD values are tighter which revealed more agreement between the respondents on the answers they provided. Also, the lowest SD values correspond to the strategies with higher means adding more agreement to the response.

Correlation between strategy use and academic achievement

In the last stage of analysis, the correlation between academic achievement and strategy use was computed using Pearson correlation. Table 5 shows the results of this analysis.

TABLE 5
CORRELATION BETWEEN COGNITIVE STRATEGIES USE AND ACADEMIC ACHIEVEMENT

	GPA	COG1	COG2	COG3	COG4	COG5	COG6	COG7	COG8	COG9	COG10	COG11
Pearson Correlation	1	.282**	.219**	.201**	.166*	.104	.005	.227**	-.024	.230**	.198**	.171*
Sig. (2 tailed)		.000	.004	.009	.030	.176	.952	.003	.759	.003	.010	.026
N	170	170	170	170	170	170	170	170	170	170	170	170

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

The results of the Pearson correlation analysis which was performed to check the association of GPA with the cognitive strategies use, (COG1 to COG11) are displayed in Table 5. The significance level (alpha) utilized in this study was established at 0.05 to ascertain statistical significance.

The findings reveal several statistically significant correlations between GPA and specific cognitive factors. GPA and COG1 ($r = 0.282$, $p < 0.01$), can be seen as correlating significantly, suggesting an association between elevated use of COG1 with higher GPAs. Similarly, statistically significant positive correlations were observed between GPA and COG2 ($r = 0.219$, $p < 0.01$), COG3 ($r = 0.201$, $p < 0.01$), COG4 ($r = .166$, $p < 0.05$), COG7 ($r = .227$, $p < 0.05$), COG9 ($r = 0.230$, $p < 0.01$), COG10 ($r = 0.198$, $p < 0.01$), and COG11 ($r = 0.171$, $p < 0.05$).

However, it is worth noting that no statistically significant correlations were found between GPA and COG5 ($r = 0.104$, $p > 0.05$), COG6 ($r = .005$, $p > 0.05$) or COG8 ($r = -0.024$, $p > 0.05$). These non-significant associations suggest that variations in COG5, COG6 and COG8 may not strongly contribute to variations in GPA in this particular sample.

It is observed, however, that the level of use of CSs by the students does not correlate with their academic achievement. For example, while COG8 received the highest mean of use of cognitive strategies, it is nevertheless proved that it is not correlated significantly with academic achievement, rather the negative value implies that students who employed this strategy more (which is concerned with learning English vocabulary by comparing words from English to words in Arabic) are less achieving learners.

The correlation between metacognitive strategies and academic achievement was analysed and the following results were generated.

TABLE 6
CORRELATION BETWEEN COGNITIVE STRATEGIES USE AND ACADEMIC ACHIEVEMENT

	GPA	Met1	Met2	Met3	Met4	Met5	Met6	Met7	Met8	Met9
Pearson Correlation	1	.291**	.650**	-.024	.284**	.058	232**	.005	.330**	.228*
Sig. (2-tailed)		.000	.000	.759	.000	.454	.000	.952	.000	.000
N	170	170	170	170	170	170	170	170	170	170

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

The findings show significant positive correlations between GPA and Met1 ($r = 0.291$, $p < 0.01$), and between GPA and Met2 ($r = 0.650$, $p < 0.01$). These strong positive associations suggest that higher levels of Met1 and Met2 are related to higher GPAs. Additionally, statistically significant positive correlations were observed between GPA and

Met4 ($r = 0.284$, $p < 0.01$), Met5 ($r = 0.058$, $p < 0.05$), Met6 ($r = 0.232$, $p < 0.01$), Met7 ($r = 0.005$, $p < 0.01$), Met8 ($r = 0.330$, $p < 0.01$), and Met9 ($r = 0.228$, $p < 0.05$). These findings suggest that these metacognitive strategies also play a role in predicting academic performance.

However, a significant linear relationship between Met3 and GPA was not observed, as the correlation results between GPA and Met3 was ($r = -0.024$, $p > 0.05$) in this sample. As far as the aspect of the level of use of CSs and MCSs is concerned, the correlation between MCSs and academic achievement is found more than the correlation between CSs and academic achievement. This suggests that metacognitive strategies are more related to better academic achievement.

The above results provide valuable insights into the levels of use of CSs and MCSs and their associations with academic achievement. The following discussion section will further explore these relationships and their implications.

V. Discussion

This research explored the learning techniques implemented by ESP learners. Oxford's (1990) SILL was employed to gather research data. The results show that the participants use CSs and MCSs from moderate to high levels and that high use of CSs and MCSs is highly associated with high GPAs.

Regarding cognitive strategies, it was found that the participants employed most of them highly frequently. Primarily, the most frequently utilised strategies are associated with vocabulary acquisition. These strategies include employing native language vocabulary to comprehend English vocabulary, utilizing morphological operations to aid in understanding new words, and reinforcing learning by writing or repeating words multiple times. Other highly used cognitive strategies employed include initiating conversations in English, watching English media, and skimming reading passages before reading carefully. On the other hand, strategies which are used to a lesser extent are related to summarising information, adopting advanced translation techniques, practising English pronunciations and extensive English reading.

These results imply that the research sample of ESP students utilises specific mental processes and techniques to enhance their language learning experience, including approaches such as organizing information, making connections between concepts, using mnemonic devices, practising retrieval of information, and employing analytical thinking to enhance their understanding and retention of the English language. These results coincide with the theories enunciated by prominent researchers in the relevant field. For example, EFL students employ different learning strategies to understand, acquire, or recall new information (O'Malley & Chamot, 1990) and improve their progress in L2 skills (Oxford, 1990). The findings of the study expand our understanding by showing that this characteristic is not limited to EFL students. Instead, ESP students also utilize similar techniques to enhance their learning. Additionally, the findings support the hypothesis of the study that ESP students employ cognitive strategies to aid their learning and enhance their language skills.

Regarding metacognitive strategies, the study discovered that the respondents utilize a variety of strategies beyond just cognitive ones. Except for one strategy, the majority of responses fell under the category of "usually true of me," indicating a strong awareness of their learning processes and active involvement in monitoring and managing their own learning. This suggests that they possess knowledge of their strengths and weaknesses, enabling them to effectively plan, evaluate, and adapt their learning strategies. In summary, this demonstrates a heightened level of self-awareness and control over their learning outcomes.

Similar to cognitive strategies, metacognitive strategies were widely employed by EFL learners to foster learning and development (Oxford, 1990). Furthermore, a few studies have also found that learners of some ESP disciplines also employed such strategies e.g. Daguay-James and Bulusan (2020); Alzahrani and Chaudhary (2022). The present study findings support these later findings suggesting that metacognitive strategy use is not limited to EFL Learners.

In most cases, the implementation of strategies is remarkably correlated with the GPAs of the students. For CSs, eight out of eleven strategies showed a significant correlation, with only COG5 (watching English media), COG6 (reading for pleasure), and COG8 (using mother tongue vocabulary to learn new English words) showing an insignificant correlation. These specific strategies may require further investigation to understand their impact on language learning, as they are commonly used by all students. Future researchers should expand the criteria of this research and try to validate the findings reached. Attempts should be made to determine their generalizability.

In terms of metacognitive strategies, the correlation between their use and academic achievement was found to be stronger when compared to the correlation between cognitive strategies and academic achievement. Significant correlation values (r) were observed for eight out of nine of the strategies investigated. A rather unexpected finding was that Met3, which pertains to conscious and attentive listening to English conversation, did not show a remarkable association with the overall grade average of the students. It is important to note that this lack of association is unexpected and may require further research to validate the results. Additional investigation is needed to fathom deeper and find out whether this particular strategy is related to the overall performance of the students or whether there are other factors involved.

Many previous studies yielded similar results on the correlation between using CSs, MCSs and academic achievement, for example: Rezalou and Altayi (2022); Abdul-Ghafour and Alrefaee (2019). However, few other studies (Tariq et al., 2016; Vettori et al., 2020; Abdul Halim et al., 2021) have found that learning strategies, or at least some of

them, are not directly aligned with high academic achievement. Considering this, the present results coincide with the previous literature in that while most of the CSs and MCSs are positively related to learners' GPAs, few strategies are worth consideration or reinvestigation.

The study revealed that there is no direct association between the extent of use of CSs and MCs and their relationship to academic achievement. Despite some strategies being reported as highly utilized by the participants, they were found to have an insignificant impact on academic achievement. This suggests that these strategies, although popular among students, may not be as beneficial for improving student achievement. As a result, there is a need for more coaching and guidance on strategies and their implementation in ESP settings. This will help students adopt the most effective strategies that have been proven to enhance EFL learning.

The results of the present study can have implications for ESP students, teachers, and curriculum designers. ESP students are asked to employ CSs and MCSs on a wider range to improve their learning and gain a better understanding of ESP lessons. Their efforts in this strand can be supported by strategy-oriented teaching methods focusing on strategy instruction. Positive results of strategy instruction have been found by Biwer et al. (2022) and Omare and Ochieng (2022) in their respective studies. Moreover, syllabi that are designed according to these strategies can make these teaching methods more structured and hence beneficial.

The findings of the current study may have limited generalizability due to a few potential limitations. Firstly, all the participants of the study come from a single cultural background and they are studying a specific discipline, namely business administration. These facts have a constraining effect on the conclusions reached. We cannot apply them to different cultures and other academic fields. The fact that the learners' first language is Arabic may limit the generalizability to languages that have closer similarities to English, where different strategies may be employed for learning grammar and vocabulary. Furthermore, there may be discipline-specific aspects that necessitate the adoption of specific strategies tailored to the courses taught, as the courses taught to the participants of this research center more on communication in a business setting. Other subfields within English for Specific Purposes (ESP) might require different strategies, leading to potentially different results.

To address these potential limitations, future research should consider using a more diverse and multicultural research sample that encompasses various disciplines within English for Specific Purposes (ESP). This would help to obtain more generalizable results that can be applied to different contexts. Additionally, further investigation is necessary to validate the findings regarding the relationship between types of strategy preferred by ESP students and their actual academic achievement, as measured by GPAs. This will help determine whether the popularity of specific strategies is attributed to their impact on achievement or other influencing factors. Conducting such research will help in understanding the effectiveness of different LLSs in enhancing academic performance.

VI. Conclusion

The present study aimed to explore the use of CSs and MCSs by Arab ESP undergraduates and its correlation with academic achievement. It has revealed several findings the most important of which are that students make use of both CSs and MCSs fairly highly. MCSs are used more than CSs. There is a significant positive correlation between GPA and most of the CSs and MCSs examined except a few having no significant correlation. Furthermore, the study revealed that there is no direct association between the extent of use of CSs and MCSs and their relation with academic achievement. Some strategies were reported as highly utilized by the students, but they were not found to be affecting the performance of the students in a remarkable manner. For example, a cognitive strategy which involves comparing vocabulary with L1 was the most favored. Nevertheless, it is not correlated significantly with academic achievement. Students who employed this strategy were found to be low achievers. This particular phenomenon needs further investigation to ascertain the utility of this and such other strategies in the given context and to plan intervention strategies so as to make the students choose the right kind of strategies in an ESP setting. Strategy training should be included in the curriculum to garner maximum outcomes from the exerted efforts by teachers as well as students.

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