Language learning strategies and learning engagement as predictors of language learning achievement: an investigation of Saudi EFL learners

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Abstract

Purpose – Grounded in second-language acquisition (SLA) field, with a particular focus on the positive psychology (PP) theoretical perspective, this study examined the potential interplay between learning engagement (LE) and language learning strategies (LLSs), and their impact on language learning achievement of Saudi English as a foreign language (EFL) learners.

Design/methodology/approach – This quantitative study adopted a cross-sectional design using an online questionnaire distributed to 168 Saudi EFL college-level students in Saudi Arabia. Various statistical analyses (descriptive analyses, correlations and simple linear regression) were used.

Findings – The findings revealed that the most frequently LLSs used were metacognitive, followed by compensation, cognitive, affective, social and memory strategies. High levels of behavioral, followed by cognitive, emotional and agentic, engagement were reported. There was a significant and positive correlation between LLS and LE. LLS use and LE were significant predictors of language learning achievement.

Originality/value – The findings contribute to the domain of second language (L2) educational research and SLA field by emphasizing the importance of researching positive psychological factors such as engagement in relation to individual learners' learning strategies and styles to enhance learners' language learning achievement. A number of pedagogical implications for policymakers, educational stakeholders and foreign language teachers were provided.

Keywords Saudi EFL learners, Learning engagement, Language learning strategies, Language learners' psychology

Paper type Research paper

1. Introduction

The main determinants of language learning achievement in any language learning setting are the learner, the teacher and the classroom. The learner and the teacher experience positive or negative affective states such as hopes, happiness, motivation, fears, stress and frustrations (MacIntyre *et al.*, 2019). A more recently developed area of the psychology is called positive psychology (PP), defined by Peterson, 2006, p. 4) as "the scientific study of what goes right in life." This field's scope incorporates many positive emotions, such as pride, happiness, optimism, well-being, meaning, empathy, grit and engagement (MacIntyre *et al.*, 2019). These psychological factors contribute to success in language learning and usage (MacIntyre *et al.*, 2019).

Engagement is an important psychological construct of PP that has been argued to influence language learning success. Svalberg (2009, 2018) was one of the pioneers who developed the term engagement and introduced this term to the SLA field. Engagement, in its specific context in language learning, involves the constructs of cognitive, affective, behavioral, social and agentic states (Svalberg, 2009). Learner engagement is one of the most important predictors of successful language learning and learners' psychological health (Mercer and Dörnyei, 2020). Alongside learners' ability to understand and use a foreign language, success in language learning depends on learners' ability to manage, plan, make associations, remember, monitor progress, reflect on learning successes, ask questions and distinguish the details of ideas (Celce-Murcia *et al.*, 2014). These *learning strategies* are considered to be aspects of strategic competence, which is vital to language learning and use.

Specifically, in the field of foreign language learning, much work has been done to investigate the different categories of language learning strategies (LLSs) used by foreign language learners (FLLs) in various cultural and linguistic contexts (e.g. Alhaysony, 2017; Damanik, 2022; Lestari and Wahyudin, 2020). Moreover, there is a growing body of research focused on the role of engagement in language learning achievement in various contexts and the relationships between this construct and other psychological constructs such as motivation and enjoyment (e.g. Guo, 2021; Oga-Baldwin and Nakata, 2017; Reeve and Lee, 2014). However, much work is still to be done on the interplay between LLS use and learning engagement (LE) to add depth and breadth to our current understanding across theoretical, empirical and practical levels.

Therefore, this study aimed to contribute to the current debates on LLS use in relation to learning engagement and language learning achievement by foregrounding experiences of Saudi college EFL learners, a less researched context. In addition, the absence of "strategy-based instruction is still scarce in the context of Saudi language learning strategy research" (Alnufaie, 2022, p. 197). The focus of this study is on college students since they are generally required to achieve high levels of English language proficiency to increase their opportunities to apply for future jobs. Thus, they need much attention to help them maintain their learning engagement and to train them to develop their language learning autonomy and progress. This particular group of learners may have few opportunities for authentic use and communication of English language, which may negatively impact their foreign language proficiency and achievement. The lack of foreign language proficiency could also lead the learners to lose their engagement, particularly in the traditional classroom settings. For example, the kind of interaction that takes place in most EFL classrooms in most Saudi Arabian universities may afford little opportunity for the use of various learning strategies such as the use of social or affective strategies (Alnufaie, 2022). In other words, the impact of LLS use and LE on Saudi EFL college learners' language learning achievement is still poorly understood. The present study, therefore, is an attempt to address this crucial gap.

2. Literature review
2.1 Language learning strategies
Until the mid-1970s, the main focus of applied linguistics research was language teaching methodology. From the mid-1970s, the focus shifted from a concern with the teaching methodology to a focus on the learner, particularly on how learners process, store and retrieve linguistic knowledge (Naiman *et al.*, 1978). One dimension of this shift involved attempts to address the ways language learners manage their language learning and strategies to enhance their language learning progress (White, 2008). The early definitions of LLS, such as Rubin's (1975, p. 43), considered learning strategies as "the techniques or devices a learner

may use to acquire knowledge." Another definition of LLS was provided by Oxford (1990, p. 8), who defined it as "specific actions taken by the learner to make learning easier, faster, more enjoyable, more self-directed, more effective, and more transferrable to a new situation." Oxford (1990) used this conceptualization of strategic competence to underpin her *Strategy Inventory for Language Learners* (SILL), which has been widely used in research and practice in learning strategy and language learning.

In the behavioristic paradigm of LLS, LLSs were commonly defined as the behavioral processes which are practiced by learners to facilitate a language task (Griffiths, 2018). From the information processing perspective, LLSs have been linked to cognitive development and the mental activities that learners "engage in as they develop the competence to use new language features automatically in communication" (Celce-Murcia *et al.*, 2014, p. 539). The agreed point in these conceptualizations and definitions is that the main purpose of LLS is to facilitate language learning and use (Thomas and Rose, 2019).

In these earlier theoretical definitions and conceptualizations of LLS, it appeared there is a neutral perspective "on the role of agency in choosing strategies" (Thomas and Rose, 2019, p. 251). In Oxford's (1990) definition, however, there was an inclusion of self-directedness within LLS. More recently, research on LLS included more concepts such as self-regulation, agency, autonomy, self-efficacy, hope and internal attributions (Thomas and Rose, 2019), which all are considered to be "the soul of learning strategies" (Oxford, 2017, p. 65).

In the present study, LLSs are conceptualized as systematic and conscious steps that learners can select and use to enhance their language learning and maintain their learning engagement, both in a short- and a long-term perspective. Therefore, this indicates that language learners should have a high level of self-consciousness of their language learning goals and progress to optimize their chances of language learning achievement.

2.1.1 LLS taxonomies. Various taxonomies of LLS have been developed, the most influential being O'Malley and Chamot's (1990) distinction between metacognitive, cognitive and socio-affective strategies, and Oxford's (1990) SILL. Oxford's SILL comprised direct strategies (memory, cognitive and compensation strategies) and indirect strategies (metacognitive, affective and social strategies). Since the present study adopted Oxford's (1990) strategy taxonomy, a detailed description of SILL is presented below.

According to Oxford's (1990) classification, LLSs have two broad subcategories: direct and indirect strategies. The direct strategies include memory strategies, cognitive strategies and compensation strategies. Learners use memory strategies to remember the various structures and elements of the foreign languages. Using memory strategies, learners usually use specific techniques such as creating mental images, grouping, applying images and sounds, semantic mapping, reviewing, employing action and using physical response. Cognitive strategies enable learners to analyze language structures and create a structure of input and output. Finally, compensation strategies are related to the ability to guess and overcome limitations in language performance.

Indirect strategies, on the other hand, include metacognitive strategies, affective strategies and social strategies. Metacognitive strategies mentally regulate actions and behaviors during language learning. Affective strategies are "behaviors that allow learners to identify and adjust their feelings, beliefs, attitudes, and impulses while learning and using" a second/foreign language (Celce-Murcia *et al.*, 2014, p. 533). Such strategies can help learners lower their learning anxiety, self-encourage and take their emotional temperature. Social strategies include asking questions, empathizing and cooperating with others to achieve learning goals (Oxford, 1990).

In the context of Saudi EFL learners, Alhaysony (2017) investigated the types of LLSs used, the relationship between LLS use and the duration of foreign language study, and gender among 134 Saudi EFL learners. The findings suggested that cognitive, metacognitive and compensation strategies were the most frequently used strategies. The study, however,

did not report any significant impact of the duration of the study or gender on the types of LLSs. Another study by Alrashidi (2022) examined the types and frequency of LLS used by 256 English major students enrolled in three universities in Saudi Arabia. The researcher found that the most frequent LLS used was metacognitive, while the least one was memory. There was also a significant and positive connection between students' language proficiency levels and their LLS use. However, years of study did not significantly affect the LLS use.

In other linguistic and cultural contexts, a study by Lestari and Wahyudin (2020) explored the types of LLSs used by 76 Indonesian EFL learners. They found that metacognitive strategies were learners' most frequently used strategies, followed by social and compensation strategies. A study by Damanik (2022) investigated the LLSs used by 61 Indonesian learners in IELTS. The findings show that metacognitive followed by cognitive and compensation were the strategies most frequently used by learners, whereas affective and memory strategies were the least used. However, learners' language proficiency had no significant impact on their choice and frequency of LLS use.

2.2 Learning engagement (LE)

Engagement is one of the positive psychology factors in the domain of L2 education (Wang et al., 2021). The recent work of Hiver et al. (2021) and other scholars in the field of SLA has contributed to the extension of the learning engagement into the L2 education research. However, in comparison with the other factors such as motivation, enjoyment, grit and well-being, engagement is at its infancy in the domain of educational research, particularly in "connection with learning different languages in different contexts and cultures" (Wang et al., 2021, p. 5). Hiver et al. (2021) conceptualized L2 engagement as the degree of mental and physical involvement that language learners experience in doing a language learning task. Self-determination theory (SDT) is one of the most adopted theoretical frameworks to explain engagement (Skinner et al., 2008). This theory aims to explain how students maintain their motivation and be willing to use the new language for interaction without requiring constant effort from the teacher. According to this theory, learners have certain needs, such as need to feel a sense of competence, autonomy and relatedness, which must be met to help them feel willing to engage with the learning opportunities (Mercer, 2019). Based on this perspective, Mercer (2019) argued that many language teachers believe that a crucial factor to enhance L2 learners' ultimate achievement and success is fostering their engagement.

Engagement, in the present study, is conceptualized as encompassing the behavioral, emotional, cognitive and agentic dimensions (Reeve, 2013). First, behavioral engagement is the degree of students' involvement in the learning process "in terms of attention, effort, and persistence" (Reeve, 2013, p. 579). Second, emotional engagement "refers to the presence of positive emotions during task involvement such as interest and the absence of negative emotions such as anxiety" (Reeve, 2013, p. 579). Third, cognitive engagement involves "how strategically the student attempts to learn in terms of employing sophisticated rather than superficial learning strategies such as using elaboration rather than memorization" (Reeve, 2013, p. 579). Fourth, agentic engagement is a new aspect of student engagement. It relates to how students "express their preferences, ask questions, and let the teacher know what they like, need, and want" (Reeve, 2013, p. 591). Thus, the present study focuses on these four dimensions as they could provide a more comprehensive picture on their relationships with the categories of LLS.

A significant body of literature has shown that LE is related to other psychological constructs, such as motivation and language learning achievement (e.g. Guo, 2021; Noels et al., 2018; Oga-Baldwin and Nakata, 2017; Reeve and Lee, 2014). A sequential mixed methods study by Guo (2021) explored the interplay between two positive emotions – engagement and foreign language enjoyment – considering the factors of Chinese EFL

achievement and absenteeism. The findings indicated a positive and significant relationship between the two positive emotions; however, no significant impact was found for absenteeism or achievement. Guo (2021, p. 11) also found that "analysis of the trends of LE indicated that Chinese EFL learners preferred to engage themselves in their English learning more emotionally, behaviorally and cognitively than agentically." Similarly, Noels *et al.* (2018) found that language learners tended to be more engaged and motivated when they feel competent and autonomous. Mercer and Dörnyei (2020) asserted that learners' engagement can develop their communicative language ability, which can be achieved through extensive practice and involvement in the language learning process.

Learning engagement was also argued to be affected by certain learning environmental factors such as teachers' affective states. For example, Oga-Baldwin (2019) found that student engagement was affected by both individual psychological experiences and teacher-student relationships. Mercer (2019) similarly argued that learners who have positive relationships with their language teachers seem to enjoy learning more and become more involved in the language learning tasks. Moreover, Dewaele and Li (2021) found a significant relationship between teachers' enthusiasm – as an external factor – learners' enjoyment, boredom and social-behavioral engagement among 2002 Chinese EFL learners from 11 universities in China.

These studies demonstrate that engagement could be essential for students' language learning progress and achievement. It can predict students' success in language learning and help them maintain their motivation to learn. However, engagement has not been investigated with other essential factors, such as LLSs, which may increase language learning achievement.

Therefore, this study aimed to examine the frequency of as well as the relationships between the four dimensions of LE (i.e. agentic, behavioral, emotional and cognitive) and the categories of LLSs (i.e. cognitive, metacognitive, compensation, memory, affective and social) and their impact on language learning achievement of Saudi EFL learners majoring in English at King Khalid University (KKU), Saudi Arabia. Specifically, the study seeks to answer the following questions.

(1) What are the most frequently used LLSs among Saudi EFL college-level students at KKU?

(2) What are the most reported LE dimensions among Saudi EFL college-level students?

(3) What is the relationship between LLS categories and the dimensions of LE among Saudi EFL college-level students?

(4) Does LLS use predict the LE of Saudi EFL college-level students?

(5) Is there a relationship between LLS use, LE, and language learning achievement of Saudi EFL college-level students?

3. Research methodology
3.1 Research design
This study adopted a quantitative research approach, enabling researchers to "advance the relationships among variables and pose this in terms of questions and hypotheses" (Creswell, 2014, p. 8). Furthermore, the quantitative approach can also provide "a quantitative or numeric description of trends, attitudes, or opinions of a population by studying a sample of that population" (Creswell, 2014, p. 13). Therefore, this study adopted this approach to describe the statistical relationships between the main variables included in this study (i.e. LLSs, LE and language learning achievement). In addition, it was used to explore the possible

impact of using LLSs as predictors of the participants' levels of engagement in the language learning process.

3.2 Data collection and participants

The snowball sampling technique was used to recruit participants. This technique is a type of nonprobability sampling (Rooney and Ness Evans, 2018). Using nonprobability sampling techniques, it would not be possible to "specify the probability of selecting any one individual. You cannot say that everyone in the population has an equal chance of being selected" (Rooney and Ness Evans, 2018, p. 38). One of the advantages of this sampling technique is the ease of selection of participants (Rooney and Ness Evans, 2018). Thus, the participants in this study were asked to forward the survey link to the questionnaire through their university email accounts to their friends and classmates who were EFL learners in the English Department at the college level. An open access anonymous online questionnaire was used to collect the data. It remained online from March to June 2022. The online survey took approximately 10 min to complete. Instructions were given at the beginning of the survey, and confidentiality and anonymity were ensured to encourage honest responses. All participation was voluntary.

The target population of this study was Saudi undergraduate EFL students. The sampling frame included female university students majoring in English at King Khalid University in Saudi Arabia. There were 168 participants. Their ages ranged between 19 and 26 years old ($M = 21.45$, $SD = 1.11$). All participants were Saudi with no overseas experience. Their native language was Arabic, and they studied English as a foreign language for at least four semesters and a maximum of 8 semesters at the college level. The grade point averages (GPAs) for the participants ranged between 2/5 and 5/5 ($M = 4.09$, $SD = 0.682$). The GPA grading system in most Saudi universities has the following grading levels: 4.76–5 (exceptional), 4.51–4.75 (excellent), 4.01–4.50 (superior), 3.51–4 (very good), 3.01–3.50 (above average), 2.51–3 (good), 2.01–2.50 (high pass), 1.01–2 (pass) and 0–1 (fail).

3.3 Instruments

The online survey consisted of three main sections: (1) demographic information (i.e. age, language learning GPA grades and level of study), (2) an LLS scale and (3) an LE scale. The description of each section is described below.

3.3.1 Demographic information was designed to collect the participants' demographic data, such as age, language learning level and GPA.

3.3.2 The language learning strategy scale (LLS) was adopted from Oxford's (1990) Strategy Inventory for Language Learning (SILL). It consisted of six main categories of LLSs: cognitive (14 items; e.g. "I use the English words I know in different ways"), metacognitive (9 items, e.g. "I notice my English mistakes and use that information to help me do better"), memory (9 items; e.g. "I use new English words in a sentence so I can remember them"), affective (6 items; e.g. "I encourage myself to speak English even when I am afraid of making a mistake"), compensation (6 items; e.g. "To understand unfamiliar English words, I make guesses") and social strategies (6 items; e.g. "I ask English speakers to correct me when I talk"). All items were rated on a 5-point Likert scale. The participants were asked to indicate their response (never = 1, rarely = 2, sometimes = 3, often = 4, and almost always = 5). There were no modifications on the items of the SILL. Cronbach's alpha for the LLS scale was high ($a = 0.91$).

3.3.3 The learning engagement (LE) scale was adopted from Reeve and Tseng's (2011) Learner Engagement Scale. It consisted of 22 items assessing four aspects of LE: agentic (5 items; e.g. "I tell the teacher what I like and what I do not like"), behavioral (5 items; e.g. "The first time my teacher talks about a new topic, I listen very carefully"), emotional (4 items;

e.g. "When we work on something in class, I feel interested") and cognitive (8 items; e.g. "When I study, I try to connect what I am learning with my own experiences"). All items were rated on a 5-point Likert scale (never = 1, rarely = 2, sometimes = 3, often = 4, and almost always = 5). The four measures in this scale showed high internal reliability (a = 0.89).

The validity of the questionnaires was ensured by providing corresponding Arabic translations of all items in brackets. In addition, all scales used in this study had previously been used in several previous studies (e.g. Alhaysony, 2017; Damanik, 2022; Oga-Baldwin and Nakata, 2017) and had been determined to be valid and reliable in measuring the constructs.

3.4 Data analysis
A series of one-sample Kolmogorov–Smirnov (K-S) tests showed that the values for the variables – mainly LLS and LE – were normally distributed (K-S Z values range from 0.043 to 0.07 [all nonsignificant at $p > 0.01$]). Consequently, we opted for parametric statistics. Pearson correlations were calculated to explore the possible statistical relationships between the categories of LLSs and the dimensions of LE. They were also used to find the connection between LLSs, LE and the participants' age and language learning achievement. Finally, general linear regression analysis was used to examine the possible interplay between LLSs and LE and the impact of using LLSs as the main predictor of LE in the learning process. The Statistical Package for Social Science (SPSS, version 21) was used in this study.

4. Results
4.1 Descriptive statistics for the categories of LLS and dimensions of LE
Concerning the first and the second research questions, the descriptive statistical analysis indicated that the mean LLS score was considered medium (M = 3.454, SD = 0.543). In addition, the mean score of learning engagement was slightly similar to that of the LLS (M = 3.467, SD = 0.649).

For the dimensions of LE, the statistical analysis showed that behavioral engagement was reported most often (M = 4.05, SD = 0.94), followed by cognitive and emotional engagement (see Table 1). Agentic engagement, on the other hand, was the lowest among all dimensions (M = 2.09, SD = 0.94).

With regard to the frequency of the LLS categories, Figure 1 shows that metacognitive strategies were the most frequently used strategy (M = 3.748, SD = 0.757), followed by compensation strategies (M = 3.675, SD = 0.709), cognitive strategies (M = 3.426, SD = 0.621) and affective strategies (M = 3.342, SD = 0.734). Memory strategies (M = 3.252, SD = 0.573) and social strategies (M = 3.274, SD = 0.882) were ranked as the least frequently used strategies.

*4.2 The relationship between LLS categories and the dimensions of LE*
Concerning the third research question, "What is the relationship between LLS categories and LE dimensions?," the Pearson correlational analysis showed a significant and positive

Learning Engagement Dimensions	Mean (M)	Std. Deviation (SD)
Agentic engagement	2.09	0.94
Behavioral engagement	4.05	0.94
Emotional engagement	3.68	1.02
Cognitive engagement	3.84	0.76
Note(s): The table is created by the author of this article		

Table 1. Mean scores and the standard deviations of LE dimensions (n = 168)
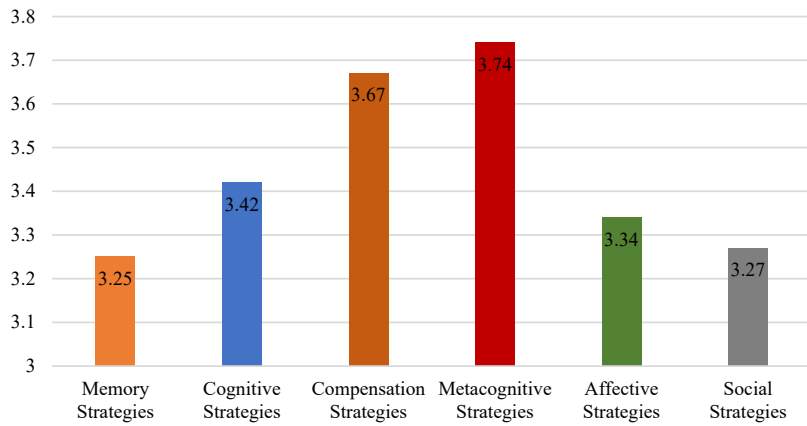
Source(s): The Figure is created by the author of this article

correlation between LLS use and LE ($r = 0.680$, $p < 0.001$). This result indicated that EFL learners who frequently used LLSs reported high classroom engagement levels (see Figure 2).

More interestingly, further correlational analyses showed that cognitive engagement correlated positively and significantly with cognitive strategies ($r = 0.505$, $p < 0.001$) (see Figure 3). Cognitive engagement, in addition, correlated positively and significantly with

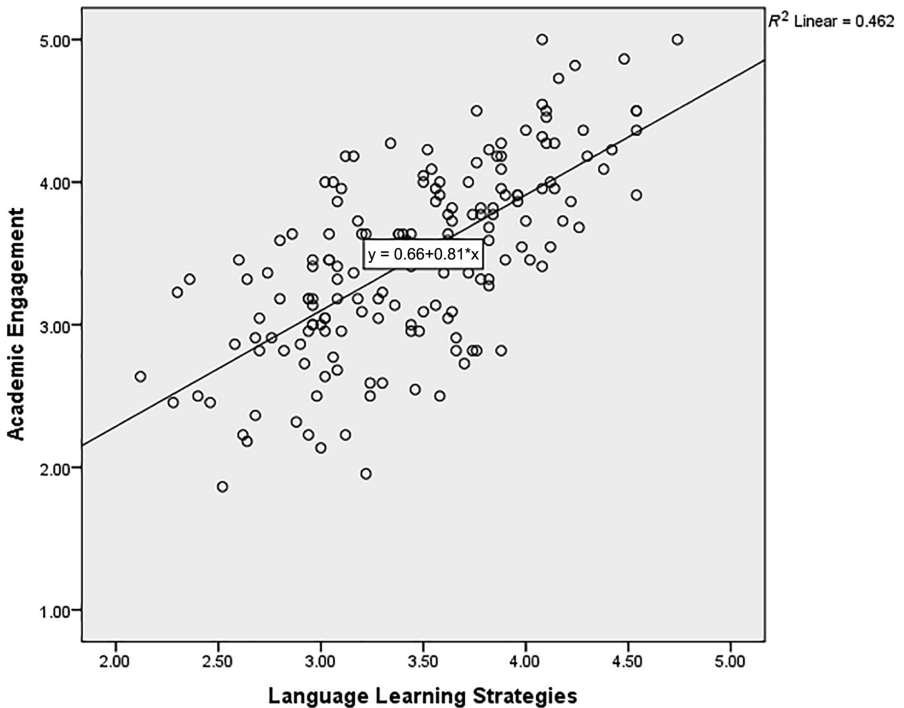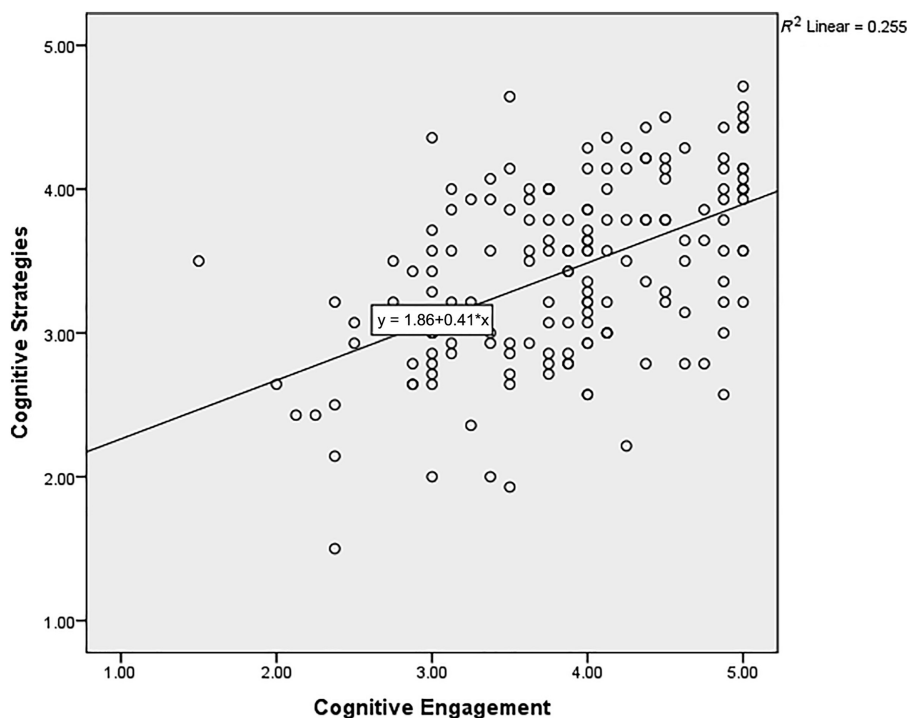**Source(s):** The Figure is created by the author of this article

the other categories of LLSs (e.g. with affective strategies: $r = 0.355$, $p < 0.001$; with memory strategies: $r = 0.380$, $p < 0.001$; with compensation strategies: $r = 0.519$, $p < 0.001$; with metacognitive strategies: $r = 0.590$, $p < 0.001$; and with social strategies: $r = 0.399$, $p < 0.001$).

Furthermore, the other dimensions of LE (i.e. agentic, behavioral and emotional engagement) correlated positively and significantly with all categories of LLS (see Table 2), indicating significant relationships between the categories of LLS and the dimensions of LE. For example, affective LLSs were positively and significantly linked to the degree of agentic ($r = 0.419$, $p < 0.0001$), behavioral ($r = 0.212$, $p < 0.0001$), cognitive ($r = 0.355$, $p < 0.0001$) and emotional

Figure 3.
The correlation between cognitive engagement and cognitive strategies (n = 168)

Source(s): The Figure is created by the author of this article

Pearson correlations		LE dimensions			
		Agentic engagement	Behavioral engagement	Cognitive engagement	Emotional engagement
LLS categories	Affective strategies	0.419**	0.212**	0.355**	0.414**
	Memory strategies	0.328**	0.310**	0.380**	0.381**
	Cognitive strategies	0.269**	0.386**	0.505**	0.500**
	Compensation strategies	0.055	0.398**	0.519**	0.372**
	Metacognitive strategies	0.165*	0.413**	0.590**	0.503**
	Social strategies	0.375**	0.322**	0.399**	0.420**

Note(s): *$p < 0.05$, two-tailed; **$p < 0.001$, two-tailed
The table is created by the author of this article

Table 2.
The correlations between categories of LLSs and LE dimensions (n = 168)

$(r = 0.414, p < 0.0001)$ LE. In other words, those participants who reported the frequent use of affective strategies to reduce their negative affective states in the classroom could be engaged easily during language learning tasks. Similarly, the frequent use of memory, compensation, metacognitive and social strategies may help the participants be engaged in the learning tasks at higher levels than those who may not use any of these important LLSs.

4.3 Language learning strategies as predictors of LE
Concerning the fourth research question, "Does LLS use predict LE?," the regression analysis produced a sample multiple correlation coefficient of 0.68, indicating that approximately 46.2% of the total variance in LE could be explained by the predictor variables (LLS), $F(2, 168) = 142.5$, $p < 0.0001$. In the first block, LLS use was significant ($b = 0.68, p < 0.0001$). The second model included the effect of language learning achievement on LE, and the results showed no significant effect. Thus, as shown in Table 3, LLS ($B = 0.81$) was a positive predictor of LE.

4.4 The relationships among LLS, LE and language learning achievement
Concerning the fifth research question, "Is there a correlation between LLS use, LE, and language learning achievement?," Pearson analyses showed a moderate and positive association between LLS use and language learning achievement ($r = 0.163, p = 0.03$). There was also a moderate and positive correlation between LE and language learning achievement ($r = 0.175, p = 0.02$). These results indicated that those EFL learners who frequently used LLSs reported high-grade marks in their language learning.

Overall, the results suggested that frequent use of LLSs predicts high levels of LE in the learning process. In addition, the results indicated that each category of LLSs could positively and strongly be linked to the various aspects of engagement. Finally, these results also showed that using LLSs and sustaining engagement could help Saudi EFL undergraduate learners attain high levels of foreign language achievement.

5. Discussion
The main goal of this study was to explore the possible impact of LLS use on the degree of LE, considering EFL learners' language learning achievement. The participants reported an average score of 3.45 for LLS use, similar to the mean (3.46) for LE. This finding suggests that

Model		Unstandardized coefficients B	Std. error	Standardized coefficients Beta	t	Sig
1	(Constant)	0.664	0.238		2.792**	0.006
	LLSs	0.812	0.068	0.680	11.93**	0.000
2	(Constant)	0.676	0.255		2.654**	0.009
	LLSs	354	0.361	0.297	0.983	0.327
	Memory strategies	0.097	0.125	0.086	0.773	0.440
	Compensation strategies	0.069	0.089	0.075	0.771	0.442
	Metacognitive strategies	0.137	0.118	0.160	1.161	0.247
	Affective strategies	0.058	0.084	0.065	0.684	0.495
	Social strategies	0.089	0.077	0.121	1.160	0.248
	Language learning achievement	0.062	0.055	0.066	1.139	0.256

Table 3.
Hierarchical regression analysis for predicting LE (n = 168)

Note(s): $R^2 = 462$, $\Delta R^2 = 0.459$, F change $= 142.54$*** for model 1
$R^2 = 0.468$, $\Delta R^2 = 0.449$, F change $= 72.05$** for model 2
(*$p < 0.05$. **$p < 0.01$. ***$p < 0.001$)
The table is created by the author of this article

Saudi EFL learners are actively engaged in learning English as a foreign language, probably due to the types of LLSs used to develop their linguistic knowledge and to be involved in accomplishing various learning tasks. In addition, the participants reported significantly stronger behavioral and cognitive engagement than agentic engagement. This finding means that learners' involvement in learning activities could depend on their cognitive and behavioral attention levels, which affect their understanding of tasks rather than their cooperation with the learning environment or context (Reeve, 2013). Based on the SDT theory, this finding could be explained as the learners' needs to believe that they can manage their own learning that is of value to them in order to maintain their feeling of autonomy and competence (Mercer, 2019). This finding was also similar to Guo's (2021) finding, in which Chinese EFL learners reported lower levels of agentic engagement than other dimensions, such as behavioral engagement. The differences between behaviorally engaged and agentically engaged learners could explain this finding. In other words, Reeve (2013) argued that "behaviourally engaged and cognitively engaged students may attend to, emulate, and internalize their teachers' tutoring, coaching, mentoring, and scaffolding, but agentically engaged students uniquely try to work collaboratively with their teachers to create personally more motivationally supportive learning environment" (p. 592).

Thus, it can be argued that Saudi EFL learners tended to be more behaviorally engaged with language learning than agentic learning due to the traditional learning context in most Saudi Arabian educational institutions. The impact of the learning context on LE could be explained by Guo's (2021) argument. She speculated that "the tradition of honoring the teacher and respecting his teaching" in a traditional educational context, "where certain agentic behaviors such as recommending a goal or objective to be pursued or communicating likes and dislikes freely, if not performed properly, may be regarded as being impolite and a compromise on the teacher's prestige and dignity" (p. 10).

The findings as to which LLSs were used with high frequency showed that the participants reported using metacognitive strategies, followed by compensation, cognitive and affective strategies. These results are consistent with previous findings in other contexts (Alhaysony, 2017; Damanik, 2022; Lestari and Wahyudin, 2020). Metacognitive strategies are part of the indirect strategies that may indirectly support learning (Oxford, 1990). The participants in this study used strategies that could help them regulate, manage and assess their learning and performances through planning, monitoring, evaluating and organizing. The participants may also have been aware that they should have a clear goal in their EFL learning, which is crucial for their learning progress (Damanik, 2022) and for maintaining their motivation. These metacognitive strategies may help EFL learners overcome learning challenges, particularly in a monolingual context such as Saudi Arabia. In this particular context, learners have few opportunities to use the foreign language in authentic contexts (Alhaysony, 2017).

The second most frequent strategy was the compensation strategy, which helped learners compensate for missing information in language comprehension and performance. These compensation strategies could enable EFL learners to guess the meaning of unknown words and utilize their linguistic resources when communicating using a foreign language. The participants reported that cognitive strategy was the third most frequent strategy. In other words, they tended to perform actions designed to manipulate or transform linguistic materials or input through analysis, repetition, summarization,and imagination (O'Malley and Chamot, 1990). The use of cognitive learning strategies could be attributed to the limited exposure to authentic language use in this context in the case of Saudi EFL learners. Affective learning strategies may help learners maintain and improve their positive emotions, motivation and attitudes, which are crucial for success in language learning (Oxford, 1990).

The findings of the simple linear regression analyses indicated that approximately 46.2% of the participants' engagement with their language learning could be explained by LLS use.

Concerning the impact of LLS, the findings strongly suggested that using LLSs is a positive and significant predictor of the individuals' engagement with language learning (LLS: $B = 0.81$, $p < 0.0001$). This finding supports previous findings that EFL learners' engagement can be influenced by individual differences and other psychological constructs (Guo, 2021; Oga-Baldwin and Nakata, 2017; Reeve and Lee, 2014). According to the SDT theoretical perspectives, this finding suggests that psychological and teaching resources, provided by teachers, can help learners develop their autonomy and interpersonal engagement (Mercer, 2019). In other words, in order to enhance students' engagement during language learning process, teachers need to both provide them with a supportive, low-anxiety learning environment and to train them to apply the various learning strategies.

Correlation analyses found positive correlations between the participants' LLS categories and LE dimensions. These correlations suggest that those participants who frequently used various LLSs, such as metacognitive, cognitive, compensation, affective memory or social strategies, can increase their cognitive, emotional, behavioral and agentic engagement in the learning tasks. In addition, the use of cognitive strategies that help learners manipulate materials through analysis, transformation or imaging supports learners' cognitive involvement in terms of employing those cognitive strategies to understand the linguistic materials instead of merely memorizing linguistic patterns. Systematic compensation learning strategies, such as guessing or overcoming limitations in language production, may support learners' emotional engagement. For example, it could help learners maintain positive emotions during task involvement, such as increasing interest, and overcoming negative emotions, such as anxiety. This finding is similar to that of Damanik (2022), who found a similar use of LLSs among Indonesian EFL learners regardless of their language proficiency levels.

Moreover, LLS use and high levels of LE could positively correlate with language learning achievement among Saudi EFL undergraduate learners. These positive relationships suggest that EFL learners who frequently apply LLSs can achieve high language learning progress and success. Thus, LLSs and engagement in the learning process may develop learners' awareness of the various aspects of linguistic competence and could enhance their abilities to apply that knowledge when using the language.

6. Conclusions and implications

This study sought to investigate the impact of LLS use as a predictor of LE and their possible impact on the language learning achievement among Saudi EFL undergraduate learners. Based on the findings, the following conclusions were drawn. First, the participants reported that the most frequent LLS used was metacognitive learning strategies, followed by compensation, cognitive, affective, memory and social strategies. This finding highlights the learners' awareness of the critical role of their ability to manage and organize their language learning to achieve their language learning goals. Second, the study found that using LLSs was a significant predictor of LE in the learning activity. This finding may add to the previous literature on the importance of considering various individual differences to understand learners' PP. Finally, the findings indicated positive relationships between categories of LLS and dimensions of LE, which suggests that learners' choice of appropriate LLSs may be suitable for their preferences and could determine their engagement and enjoyment in the classroom environment.

Hence, based on the main findings, this study suggested several pedagogical implications for policymakers in Saudi higher education English departments and English language teachers. First, policymakers in education systems need to give more attention to the integration of language learning strategy instruction in educational programs and curricula so that language teachers be aware of the importance of training their students in how to use

various LLSs. Second, policymakers also should give more efforts to change the nature of classroom interactions to be more interactive and learner-centered so that learners can practice using various LLSs and be more engaged in the classroom activities, which, therefore, develop their language learning achievement. They also should equip teachers with practical knowledge of the positive psychology factors and how to apply them in an instructional context to help students develop their language learning achievement.

Third, language teachers should understand the classifications and theories underlying LLSs and LE. Fourth, language teachers should consider managing various learning contexts that may impact students' engagement and motivation. In other words, they must find specific teaching techniques suitable for individual learner differences in terms of LLS and LE. Fifth, they should consider how to deal with learner variables such as positive emotions, which are essential for learners' language learning progress. Finally, language teachers should remember that LE can be developed with an interplay with other variables, such as LLS use, learning preferences and learning styles, with which the ability to develop language skills can be supported.

7. Limitations
This study has a few limitations. First, the study's sample was limited to a small number of Saudi EFL undergraduate learners. Therefore, the findings cannot be generalized to EFL learners from other linguistic and cultural contexts. Hence, more studies are needed to cover more extensive samples and categories, considering other individual differences such as attitudes, motivation and personality profiles. Another limitation was that the statistical data analyses could provide only a general picture of the relationship between LLSs and LE; further qualitative studies can thus provide deep insight into language learners' LE and LLS orientations. Further studies are also needed to investigate the relationship between each category of LLSs and each dimension of LE to help language teachers focus more on varying teaching materials and techniques to fit their students' LLSs and LE differences. In addition, future studies should focus on various psychological constructs of positive emotions, such as enjoyment, pride and well-being and relating them to learners' learning strategies, styles and preferences.

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