



Cyclical Self-regulated Learning Strategies and EFL Learners' Accurate Use of Grammatical Structures, and Emotion Regulation

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Abstract

Language proficiency seems not to be realized without language learner's engagement in terms of behavioral, emotional, cognitive, and metacognitive dimensions in the learning process. A mixed method was employed in this quasi-experimental study to examine the effectiveness of self-regulated learning (cyclical with and without emotion regulation) in improving EFL learners' accurate use of grammatical structures and to compare it with the form-focused (non-SRL) control group. One hundred twenty-two homogenized lower intermediate EFL College students were randomly distributed to the two experimental groups and the control group. Two writing tests were used as the pre-test and post-test. The data analysis of the ANCOVA showed that self-regulated learning (cyclical and ER) had a significant effect on the students' grammatical accuracy in writing, which was followed by the SRL (cyclical) group. The focus on the form group showed the lowest performance. The Emotion Regulation Questionnaire was administered to students in the pretest and posttest phases. The result of the paired sample t-test on emotion regulation represented a large effect size. The content analysis indicated that most students significantly held positive perceptions of the SRL strategies taught. Thus, the findings of this study have pedagogical implications for F/S teachers, students, and material developers who can design SRL tasks in which language skills are met.

Keywords: Emotion Regulation Strategy, Grammatical Structures Accuracy, Non-Self-regulated Focus on Form, Self-regulated Learning Models (Cyclical with and without Emotion Regulation)

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In the domain of S/F language, language proficiency seems to be manifested in students' engagement in terms of behavioral, emotional, cognitive, and metacognitive dimensions in their learning process (Krause & Coates, 2008). So, the accumulation of all engagement aspects seems to be better met in the key concept of self-regulated learning that creates a more independent learner who has been equipped with strategic knowledge of the language and is involved in self-directed learning containing self-evaluating and self-monitoring. This process highlights the essence of the self-regulation learning theory that was revealed by Zimmerman (2000). In this manner, SRL provides more language learning opportunities that facilitate the acquisition and use of language (Wang et al., 2021).

This knowledge of language may be a language skill or a component of language structure, which serves as a vital communicative resource and accuracy of writing (Widdowson, 1990), but the extent to which learners participate in and profit from a focus on form is determined by their L2 proficiency (Ellis, 2016). Indeed, a focus on form does not guarantee complete learner engagement in the learning process due to individual differences in language learning strategy awareness, knowledge, and use (Soodmand Afshar et al., 2021 & Voskamp et al., 2022). The major problem is that FL learners do not have enough information about self-regulated strategies or don't have enough motivation to get involved in learning tasks (Ha et al., 2023). Indeed, integrating self-regulated learning into input- and output-oriented learning tasks offers a new prospect for empowering language learners to use accurate grammatical structures.

Therefore, the significance of this study arises from the fact that the psycholinguistic and socio-cognitive perspectives of self-regulated learning strategies take a progressing approach to accurate use of grammatical structures in writing through form, meaning, and use along with integrative emotion regulation strategy used in a scaffolding-supportive context. To this purpose, the current study makes an effort to ascertain how cyclical self-regulated strategies, in addition to emotion regulation strategy, affect the students' grammatical structure accuracy in writing in an EFL context.

Literature Review

Regarding the aim of this study, attempts are made to review the literature review.

Self-regulation Learning

Strategy use in SRL demands a correlation of strategies in order to master a new skill or language. Zimmerman (2000) proposed strategic learners as students who have knowledge of alternative strategies and are capable of applying them on an appropriate

occasion, engage in an active procedure of meaning-making and adjust their thoughts, attitudes, and behaviors accordingly, and also know the merits and demerits of the selected strategy in relation to the task.

Self-regulated Language Learning Strategies

Zimmerman (2000) paved the way for educators to differentiate between self-regulated learning strategies and self-regulated learning processes. In this regard, cognitive, metacognitive, motivational, and behavioral processes are included in self-regulated learning processes. In return, performances that activate the learning of language skills are called self-regulation learning strategies. It has been reminded that learners don't have to use strategies automatically, but they should be trained on how to do so (Zimmerman, 2000).

Cyclical Self-Regulated Learning Model

SRL is a social cognitive theory-based construct (Zimmerman, 2000). The social cognitive theory sees self-regulation as a fundamentally context-dependent, self-generated process connected to one's expectations for future outcomes, beliefs about one's efficacy, and the application of a number of metacognitive techniques to track and manage regulatory behavior. According to this theory, forethought, performance, and self-reflection are the three interrelated stages that make up the cyclical process of SRL. The self-regulated learning cycle model (Zimmerman & Moylan, 2009) was amplified by adding an emotion regulation strategy in this study. Indeed, the decision to keep the current technique or try a new one is triggered by an adaptive or defensive reaction to the outcome, which is influenced by the learner's perception and emotional state. Thus, learners' behaviors are influenced by their earlier performance, making the entire process of self-regulated learning circular (Zimmerman, 2011). In other words, the regulatory and interpretation processes operate as mutually reinforcing loops until the desired outcome is achieved. Therefore, Self-regulation is informed not only by learners' reactive responses to learning outcomes but also by learners' active participation in the process of seeking knowledge and creating learning opportunities (Zimmerman, 2000).

Phase of Forethought

This is the preliminary stage, during which students immerse themselves in the assignment and attempt to analyze it in order to evaluate their ability to complete it successfully. Setting goals and making plans for how they will achieve them. Task interest, goal orientation, motivation, and effort all play a role in the activation of self-

regulatory strategies (Pintrich, 2000). Indeed, the first step in the self-regulation cycle is task analysis in order to determine the necessary strategies for doing tasks (Zimmerman & Moylan, 2009). Moreover, emotion regulation strategy as an activated agent of learners' engagement, planning, and performance was added to the strategies of cyclical self-regulated learning that was just applied in the SRL (cyclical with emotion regulation) group.

Phase of performance

During the execution phase, self-observation and self-control are the two most important techniques (Zimmerman and Moylan, 2009). Self-observation, self-monitoring, or self-supervision of the learning process is carried out during performance (Panadero & Alonso Tapia, 2014). Indeed, task management techniques, self-education, visualization, time management, structuring of the context, and help-seeking are all metacognitive dimensions of performance. The activation of interest incentives, inducements, and self-consequences is another facet of self-control (Wolters, 2003).

Phase of Self-Reflection

Throughout this phase, students actively judge their performance while also justifying it by asserting the reason for their outcomes (Panadero, 2017). At this point, students evaluate their performance and defend the reasons for their outcomes. As a result of this process, they could experience both positive and negative emotions, which will undoubtedly affect their motivation and control over their learning. In this regard, adaptive or defensive judgments are used to maintain current methods or experiment with new ones in order to achieve better results. (Zimmerman & Moylan, 2009). Thus, the entire self-regulated learning process is circular, in which learners' behaviors are influenced by their prior.

Emotion Regulation

Learning-related emotions can alter the connections between various conditions and operations, whether due to more biological temperaments or socially and situationally influenced moods (Teglasi et al., 2004). When a student's emotional state matches the condition in which he or she learned something, recall seems to improve. Indeed, emotional factors influence driving variables such as task motivation, which leads to improved mental processing during cognitive activity (Tyng et al., 2017) and also leads to self-efficacy, interest, course satisfaction, and goal-orientation, based on the feedback they have received (Kuhl, 2000). Indeed, Emotions as a powerful mediator may have a big impact on learners' L2 learning engagement and staying on track, which has a

substantial impact on their academic achievement (Razavipour et al., 2020; Wang et al., 2023).

Empirical Research Findings on SRL and EFL Learning

In the last decade, many studies (e.g., Bilican & Yesilbursa, 2015; El-Sakka, 2016; Mallahi, 2020; Rum et al., 2023; Sun & Wang, 2020; Tran, 2021; Tian et al., 2022; Wang et al., 2021; Yang et al., 2022) on self-regulated language learning have been conducted. However, it seems that the present study has been one of the first attempts to establish a quantitative and qualitative framework for detecting the effect of SRL on the S/F language learners' writing accuracy in terms of grammatical structures.

To highlight the significant role of positive mode and motivation in language learning, El-Sakka (2016) examined how anxiety and L2 speaking ability in college students were affected by self-regulated learning. The paired-sample t-test demonstrated that speaking skills and speaking anxiety had a statistically significant negative connection. As a result, self-regulation strategies dramatically enhanced learners' speaking proficiency and reduced their anxiety.

Another study highlighted the relationship between self-regulated learning and self-efficacy. Sun and Wang (2020) investigated how EFL college students' writing self-efficacy and writing self-regulated learning (SRL) practices are related to writing competency. The self-efficacy Q and self-regulated learning Q were administered and evaluated. The findings demonstrated that EFL students had a low degree of self-efficacy and seldom employed SRL approaches while writing. Furthermore, the results highlighted the bilateral connection between writing self-efficacy and SRL techniques as the main predictors of students' writing proficiency.

In line with previous research, Tran (2021) examined the self-regulated learning (SRL) strategies employed in the academic writing course by first-year university students majoring in English as well as the challenges they faced. The participants were 100 English-majoring freshmen. According to the descriptive analysis of a set of 30-item surveys, students used SRL tactics in their writing to a modest extent, and also most students struggled with three elements of writing: time management, method, and motive.

Yang et al. (2022) studied the impact of self-regulated learning-based teacher feedback on writing performance and techniques in English writing classes. The study involved 70 students, with the control group receiving traditional task-level feedback and the treatment group receiving process-level feedback and self-regulation through extra activities. Results showed that the SRL-based feedback intervention improved writing

performance and strategies, with the treatment group showing significant improvement in organizational, vocabulary, and content writing.

Rum et al. (2023) investigated how students' speaking skill is improved by self-regulated learning in terms of fluency. The study's sample of 33 students was drawn from one of the junior high schools. The students' post-test assessment of their fluency resulted in a higher mean score than the pre-test. Additionally, the data analysis revealed that the t-test value was higher than the values in the t-test table. It indicated that there was a significant gap between them.

However, the use of self-regulation techniques and language skills acquisition are positively correlated, according to earlier studies, but the effect of SRL strategies on grammatical structure accuracy as the language form is less evidenced, and the emotion regulation strategy is missing in the cyclical model of SRL and has also been a missing practical component in most SRL models (Panadero, 2017), whilst this study offers a model of SRL that is amplified by emotion regulation strategy, quantitative and qualitative measurement of SRL strategies instruction and practices on the use of language forms, and examining emotion regulation strategy use in a class in which there has been an attempt to improve SRL and language acquisition. Thus, due to the innovative nature of this study in the instructional context, the following research questions were addressed:

1. Is there any statistically significant difference among self-regulated learning (cyclical with ER), self-regulated learning (cyclical), and focus on form (non-SRL) as the control group in terms of accurate use of grammatical structures?
2. Does teaching dialectical behavior therapy techniques (DBT) have a statistically significant effect on EFL students' ER?
3. What are EFL self-regulated learners' perceptions of the strategies taught?

Method

Design

This quasi-experimental study using mixed-method research with an embedded design includes quantitative and qualitative data collection and analysis.

Participants

The participants in this study were selected out of a pool of 147 registered college students at Qazvin Islamic Azad University on the basis of their performance on the OPT in order to assess their English language proficiency. The students ranged in age from 20 to 31, and they were both male and female students from engineering colleges who had

studied English language learning at the university's English language department or English language institutes. Among them, 122 female and male students whose scores matched the required cut-off score (60-80) were chosen to participate in this study. The individuals were at the lower intermediate level and were randomly assigned to the two experimental groups and one control group, which included six classes: four experimental classes and two control classes, each with 20–21 participants, and were subjected to self-regulated and non-self-regulated treatments only by the researcher as the instructor for 9 weeks (36 hours) over 18 sessions. Eighty-two SRL students from the four experimental classes filled out the open-ended questionnaire on students' perceptions.

Instruments

The Oxford Placement Test

The Oxford Placement Test (2010) was used in order to assess participant homogeneity in terms of language proficiency. The test consisted of 120 questions (80 structures and 40 vocabularies) and a time limit of 40 minutes. The reliability index of OPT estimated was reported to be 0.70 in this study.

The Production Grammar Test

The use of target language structures was examined utilizing two writing tests, each with two sections as a pretest and posttest. The controlled writing was based on a graphic subject and consisted of three questions. The topic of the free writing task was about daily life, and it included the use of passive, simple present, present progressive, future, used to, modals, and I wish structures in context, as well as subject-verb agreement and correct word order. Both pre-and post-test papers were rated twice by two teachers based on a five-level scoring scale adapted from Knock's (2008) grammatical accuracy rating scale and also utilized by Saeidi (2009) to ensure intra- and inter-reliability of scores. Regarding the Pearson correlation of intra-reliability, there were significant agreements between the two ratings on the pretest ($r(120) = .790$, representing a large effect size, $p < .05$); and posttest ($r(120) = .867$, representing a large effect size, $p < .05$) of production. With regard to the Pearson correlation of inter-reliability, there were significant agreements between the two raters on pretest ($r(23) = .749$, representing a large effect size, $p = .000$), and posttest ($r(23) = .801$, representing a large effect size, $p = .000$) of production.

The Emotion Regulation Questionnaire

The ERQ is a self-reported 10-item questionnaire based on Gross and John's (2003) emotion regulation process model. The ERQ is designed to measure how effectively

people use two regulation strategies: cognitive reappraisal and expressive suppression, which were realized in ER techniques (DBT) used. The Persian version of the ERQ (Hasani, 2016) was used in this study (Appendix A). The initial ERQ two-component model was supported by explanatory and confirmatory factor analysis (the range of factor loadings was from .32 to .67). The total Cronbach's alpha reliability for the translated questionnaire used was 0.815.

The open-ended Questionnaire: Participants' Perceptions of SRL Strategies

The open-ended questionnaire was used, including three questions that were developed based on the research questions, such as those below:

1. What is your perception of the SRL strategies taught?
2. What are the advantages of the SRL strategies taught?
3. What are the challenges of learning and using SRL strategies?

Procedure

The current research was implemented in two independent stages: a pilot study and the main study, which comprised three phases, including forethought, performance, and self-reflection.

Pre-instruction

At a scene-setting session, the teacher explained the procedure for doing tasks in each group. The SRL (cyclical with emotion regulation) learners were interviewed concerning their learning problems in terms of cognitive and psychological barriers to language learning, and the consent form for emotion regulation treatment was signed by the individuals of the SRL (cyclical with ER) group. In this session, the writing pre-test was given to all participants in three groups: F on F (non-SRL), SRL (cyclical), and SRL (cyclical with emotion regulation). The ER questionnaire was completed by the SRL (cyclical with emotion regulation) group.

Instruction

The form-focused control group

Students were exposed to the input- and output-oriented focus on form tasks. The textual data in addition to the visual one consisting of daily life subjects (e.g., hobbies, holidays, technology, goals, ambition, etc.) as an input flooding, was selected from the Developing Grammar in Context Books (Elbaum & Peman, 2009; Nettle & Hopkins, 2003), which enriched learners with specified grammatical structures (passive, simple present, present progressive, future, used to, modals, wish) for each session in order to prepare learners for written production. Meanwhile, learners were taught writing

procedures as well as cohesion in terms of subject-verb agreement and correct word order. Then, learners got engaged in summarizing sample text. They were asked to rewrite the sample text about their own lives with the same grammatical structures.

The SRL (cyclical) group

The teacher provided a model of the designed tasks to the students. The teacher taught one self-regulated learning strategy by modeling how to put each strategy into action and providing the appropriate amount of scaffolding during practice.

The SRL strategies were taught as follows: students, with the help of the teacher, analyzed the task, established objectives, planned how to achieve them (goal setting), and a number of motivational ideas, such as the selection of a lecturer or interviewer in each group, influenced the activation of the learning process. Students were given time limits for each activity when working on their assignments (time regulation). Students had to complete the exercises within this time frame. Students collaborated in groups to develop reading and communication tasks. Concerning the flexible use of learning strategies, students were urged to share strategies and ask for help from their fellow students and the teacher (seeking help). Students were instructed to complete the activities in the correct order (organizing).

The teacher gave the students feedback for inaccurate responses. It was permitted to talk about the subjects where students made the most mistakes (feedback). Students had the chance to monitor the process of learning and evaluate their own learning progress by recording the strategies used and their strengths and weaknesses during the activity at the end of each session (self-evaluation). In each treatment session, speaking and writing assignments were based on the predetermined subject matter and grammatical structures.

In the last eight sessions, they practiced them based on a given worksheet to help them use SRL strategies in the designed input- and output-oriented focus on form tasks, which have been shared in the two experimental and one control groups. At the end of each class session, students were requested to send their opinions about the SRL strategies employed during that session via a virtual network. By doing so, students might compensate for weaknesses in the exercises.

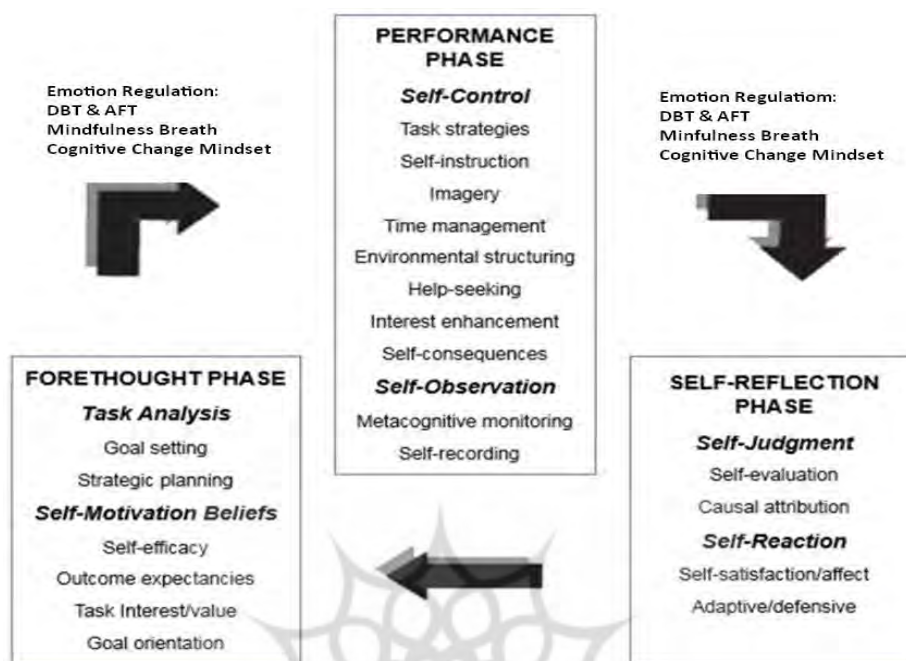


Figure 1. The developed model of cyclical SRL

Note. SRL cyclical model (adapted from Zimmerman & Moylan, 2009, in Panadero, 2017, p. 5)

The SRL (cyclical with ER) group

At the start of each session, an emotion regulation strategy was applied by the students of the SRL (C&ER) group. The emotion regulation strategy used in this study was based on Gross and John's (2003) process model, which includes cognitive reappraisal and expressive suppression that were realized using dialectical behavior therapy (DBT) techniques such as mindfulness breath, emotional freedom, and cognitive change of mindset. At first, mindfulness breath reduces learners' resistance and increases distress tolerance, which is known as acceptance skills (Linehan, 2015), and the process of emotion regulation through emotional freedom and cognitive change of mindset increases cognitive reappraisal and decreases expressive suppression in students.

In order to ensure that students receive appropriate treatment, the guidelines for ER strategy: DBT (dialectical behavior therapy) techniques were distributed among them. Concerning mindfulness breath, it was collectively practiced by teacher modeling as follows: close your eyes, concentrate on your breath, take a deep breath, inhale through your nose, and then exhale through your mouth to clear your mind and concentrate on the present situation. In this session, students were trained to care for their own emotions at the start of each session of treatment.

It seems that the mindfulness breath phase prepares learners to accept involving themselves in the next step that acts as emotional freedom, in which learners are exposed to their fears or stress issues by expressing their learning disorders and finding a proper solution for their problems with the help of the teacher, which leads to a cognitive change of mindset (cognitive reappraisal) that increases their emotion awareness, activates their mind processing, and decreases their learning disorders, which have originated from psychological attributes. In this phase, each student was asked to think aloud about their learning disorders with the statement, “Although I have problems with this issue or something is difficult to me, I accept myself and it will be improved and resolved by using the...”. Indeed, this strategy decreases expressive suppression, which ignites the motivation of students to engage in SRL strategies within tasks.

In this group, students were also exposed to the same procedure of the SRL strategies instruction and practice in the same input- and output-oriented focus on form tasks that were implemented in the group of cyclical SRL. Students sent their perceptions of the SRL strategies employed via a virtual network at the end of each class session.

In sum, students in all three groups were first exposed to the same input- and output form-focused tasks. The second and third experimental groups, SRL (cyclical) and SRL (cyclical with ER) were only taught cyclical self-regulation strategies. However, only the third group SRL (cyclical with ER) was taught an emotion regulation strategy in addition to cyclical SRL strategies.

At the final session of the class, the post-tests, including controlled writing and free writing, were given to learners in order to assess their grammatical structure accuracy. Then, an ER Q was administered to the SRL (C&ER) group in order to examine the effectiveness of the emotion regulation strategy (DBT) used. Furthermore, Eighty-two SRL students were given open-ended questions to collect qualitative data, allowing them to provide responses concerning their perceptions of the strategies taught.

Data Collection and Analysis

The one-way ANOVA of the Oxford Placement Test by groups was run. The one-way ANCOVA was run to compare the effects of three different treatments, two cyclical SRL models (cyclical with and without emotion regulation) and the form-focused (non-SRL) as the control group, on the EFL learners' accurate use of grammatical structures. A paired sample t-test was run to determine the ER of learners following instruction through the DBT strategy of emotion regulation. Content analysis based on the mixed procedure of Mayring's (2014) six-stage analysis was applied.

Results

Research Question One

A one-way analysis of covariance (one-way ANCOVA) was run to compare the SRL (cyclical & ER) model, the SRL (cyclical), and Focus on Form(non-SRL) groups' means on the posttest of writing after controlling for the effect of the pretest. The assumptions are explored as follows: First, the data's normality was evaluated using the skewness and kurtosis indices, as well as their ratios over the standard errors. The skewness and kurtosis indices were less than +/- 2 (Bae & Bachman 2010). As a result, the assumption of normality can be maintained.

Table 1.
Testing Normality of Data

Group		N	Skewness		Kurtosis	
			Statistic	Std. Error	Statistic	Std. Error
FonF	Preproduction	40	.103	.374	-.917	.733
	Postproduction	40	-.068	.374	-.061	.733
SRL(C)	Preproduction	41	-.101	.369	-.452	.724
	Postproduction	41	.673	.369	.669	.724
SRL(C&ER)	Preproduction	41	.004	.369	-.440	.724
	Postproduction	41	-.311	.369	.051	.724

Second, the one-way ANCOVA implies that the variances between groups are homogeneous. The non-significant findings of the Levene's test ($F_{(2, 119)} = .503, p > .05$) suggested that the assumption of variance homogeneity was kept.

Table 2.
Levene's Test of Homogeneity of Variances

F	df1	df2	Sig.
.503	2	119	.606

Third, one-way ANCOVA suggests that there is a linear connection between the pretest of writing (covariate) and the posttest (dependent variable). The significant results of the linearity test ($F_{(1, 117)} = 22.51, p < .05, \eta^2 = .206$ representing a large effect size) indicated that the relationship between the pretest and posttest of writing was a linear one.

Table 3.

Test of Linearity of Relationship between Pretest and Posttest of Writing

		Sum of Squares	df	Mean Square	F	Sig.
		(Combined)	75.625	4	18.906	7.595 .000
PostProduction * PreProduction	Between Groups	Linearity	56.048	1	56.048	22.515 .000
		Deviation from Linearity	19.576	3	6.525	2.621 .054
	Within Groups		291.261	117	2.489	
Total			366.885	121		
Eta Squared (η^2)			.206			

Finally, the last assumption requires that the linear relationship between the pretest and posttest of writing be roughly equal across the three groups; i.e., regression slope homogeneity. The non-significant interaction between the covariate (pretest) and independent variable ($F_{(2, 116)} = .674, p > .05$, partial $\eta^2 = .011$ indicating a small effect size) suggested that the assumption of regression slope homogeneity was maintained.

Table 4.

Test Homogeneity of Regression Slopes

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Group	10.217	2	5.108	4.593	.012	.073
Pretest	25.302	1	25.302	22.747	.000	.164
Group * Pretest	1.500	2	.750	.674	.511	.011
Error	129.029	116	1.112			
Total	22038.000	122				

After adjusting for the effect of the pretest, the findings of the descriptive statistics for the three groups' writing on the posttest showed that the SRL (cyclical & ER) group ($M = 14.54, SE = .168$) had the highest mean on the posttest of writing in terms of grammatical structure accuracy. This was followed by the SRL (cyclical) ($M = 13.78, SE = .165$) and Focus on Form ($M = 11.61, SE = .168$) groups.

Table 5.

Descriptive Statistics; Posttest of Writing

Group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
FonF	11.616 ^a	.168	11.283	11.949
SRL(C)	13.785 ^a	.165	13.459	14.110
SRL(C&ER)	14.541 ^a	.165	14.214	14.867

a. Covariates appearing in the model are evaluated at the following values:
Preproduction = 5.96.

Table 6 displays the main results of one-way ANCOVA ($F_{(2, 118)} = 81.50, p < .05$, partial $\eta^2 = .580$, representing a large effect size) showed that there were significant differences in the means of the three groups on the posttest of writing after adjusting for the impact of the pretest. Thus, it can be claimed that the null hypothesis, that there isn't any statistically significant difference among self-regulated learning (cyclical with ER), self-regulated learning (cyclical), and form-focused (non-SRL) as the control group in terms of accurate use of grammatical structures, was **rejected**.

Table 6.

Tests of Between-Subjects Effects; Posttest of Writing by Groups with Pretest

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Squared	Eta
Pretest	25.032	1	25.032	22.629	.000	.161	
Group	180.308	2	90.154	81.500	.000	.580	
Error	130.529	118	1.106				
Total	22038.000	122					

Table 7 displays the results of the post-hoc comparison tests. The results indicated that; A: The SRL (C&ER) group ($M = 14.54$) significantly outperformed the Focus on Form group ($M = 11.61$) on the posttest of writing after adjusting for the impact of the pretest ($MD = 2.92, p < .05$).

Table 7.

Pairwise Comparisons; Posttest of Writing by Groups with Pretest

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval for Difference	
					Lower Bound	Upper Bound
SRL(C&ER)	FonF	2.925*	.237	.000	2.349	3.500
	SRL(C)	.756*	.232	.004	.192	1.321
SRL(C)	FonF	2.168*	.236	.000	1.595	2.742

Note. The mean difference is significant at the .05 level.

B: The SRL(C&ER) group ($M = 14.54$) significantly outperformed the SRL(C) group ($M = 13.78$) on the posttest of writing in terms of grammatical structure accuracy after minimizing the influence of the pretest ($MD = .756, p < .05$). C: The SRL(C) ($M = 13.78$) significantly outperformed the Focus on Form group ($M = 11.61$) on the posttest of writing in terms of accurate use of grammatical structure after controlling the effect of the pretest ($MD = 2.16, p < .05$).

Research Question Two

Based on the findings of a paired-sample t-test, it can be argued that the participants had a higher mean on the posttest ($M = 46.63, SD = .470$) of ER than on the pretest ($M = 39.24, SD = .261$). The result of the paired-sample t-test ($t(40) = 12.43, p < .05, r = 0.73$, representing a large effect size). Table 9 indicated that the participants' ER posttest mean was significantly higher than the pretest mean. As a result, the null hypothesis that teaching dialectical behavior therapy techniques (DBT) doesn't have a statistically significant effect on EFL students' ER was **rejected**.

Table 8.

Paired-Samples t-test; Pretest and Posttest of ERQ

Paired Differences		95% Confidence Interval of the Difference		df	Sig. (2-tailed)	
Mean	Std. Deviation	Lower	Upper			
7.39	3.807	6.189	8.592	12.430	40	0.000

Research Question Three

The perceptions of the participants about the efficiency of the SRL models were collected through open-ended questions and transcripts of their diaries that were

evaluated based on the content analysis of Mayring's (2014) six-stage analysis, which applied mixed procedures including (1) summarizing (reduction), (2) nominal deductive category assignment, (3) inductive category formation, (4) content structuring/theme analysis, (5) reviewing/parallel form, and (6) reporting outcomes. To evaluate the category systems, phase-by-phase models of inductive (diaries: content collected at the end of each session) and deductive (responses to the open-ended questions derived from research questions) categorization elements were developed, and then responses were coded in which specific statements were analyzed and categorized into themes, including a) outcome perception, b) strengths, and c) challenges. Meanwhile, the data was analyzed by the second rater to ensure its credibility.

In response to the question of their perception of the SRL-based F on F method, a large number of the participants claimed that they had more positive impressions of their experiences during SRL training than during regular instruction. They indicated that they valued opportunities to engage in class, and practice agency that emphasized shared accountability between the instructor and students during SRL teaching. Some extracted responses are:

[Excerpt 1]: *"Before I wasn't aware of my weaknesses in interaction and writing, but now I can almost identify them".*

[Excerpt 2]: *" I've learned that if I follow the step-by-step techniques, I can write "*

In response to the question of the method's advantages, involvement in the self-regulated learning process was, according to almost all of the students who received SRL instruction, very helpful in fostering language use and their ability to build and employ stronger repertoires of SRL tactics throughout the three stages of SRL: forethought, performance, and self-reflection. The majority of SRL(C&ER) students highlighted the influence of emotion regulation techniques on their motivation and self-confidence. Some extracted responses are:

[Excerpt 1]: *"The strategies I employ boost my self-confidence, which is good for my self-efficacy".*

[Excerpt 2]: *" I employ affective regulation techniques to improve my English, which raises my confidence in myself".*

In response to the question of the challenges of the used method, a lack of enough time and insufficient feedback from many sources constituted areas of some learners' challenges when performing tasks in both SRL experimental groups. Some extracted responses are:

[Excerpt 1]: *"I struggled to manage my time in order to practice the Strategy I learned in class".*

[Excerpt 2]: *"I couldn't use enough of the available feedback".*

In sum, a high percentage of students in both groups had a positive perception of their educational methods.

Discussion

Regarding the role of self-regulation in language learning, the findings also substantiate previous results regarding the beneficial influence of self-regulated learning on the language skills, such as speaking proficiency and writing skills (e.g., El-Sakka, 2016; Morshedian et al., 2016; Rum et al., 2023; Sun & Wang, 2020; Tran, 2021; Yang et al., 2022).

In this study, regarding the analysis of the first research question, the students who were exposed to the SRL (C&ER) strategies instruction performed significantly better on the test of grammatical accuracy than the form-focused (non-SRL) control group. Of the two self-regulated models in this study, the cyclical model, in addition to the emotion regulation strategy, resulted in the best performance. And it was followed by the cyclical model. These findings are similar to Teng and Zhang's (2020) findings that using a self-regulated writing strategy led to higher awareness of learning processes and better management of learning behaviors, resulting in improved writing outcomes.

Also, the results of the comparison of the ERQ pretest and posttest supported the effect of the ER strategy taught on significantly improving learners' emotional states, which indicated a larger effect size that led to better cognitive processing and learning outcomes. Indeed, there was a substantial difference in terms of grammatical accuracy scores among both SRL groups due to the intervention of emotion regulation strategy in the SRL (C&ER) model. This finding is corroborated by the result reported by El-Sakka (2016), who studied the effect of self-regulated learning on the speaking proficiency of college students and their anxiety and found a negative connection between the two.

These results are also consistent with those of Efklides (2017) who highlighted the key role of affect in SRL not just as an autonomous process that might boost or impede performance during learning but also interacts with cognitive and metacognitive processes. In contrast, Bilican and Yesilbursa (2015) found no significant link between the two variables, suggesting that motivation and a positive learning mode in language learning may influence language proficiency.

Concerning the third research question, the result of qualitative data analysis of learners' perceptions of SRL strategies taught indicated that a large number of students in both groups had favorable impressions of the strategies taught. Indeed, the qualitative findings corroborated the quantitative findings.

In sum, there could be several possible explanations for such results: Firstly, a reasonable inference of the positive result can be attributed to SRL strategies that bring multiple variables into focus. Another possible reason is that participants' motivation and interest might have been raised through self-regulated strategy instruction. Learner engagement in self-monitoring and self-evaluating within communication and written tasks might have assisted learners in distinguishing knowledge gaps in their language structures and improving language use. In this regard, the results lend strong support to Trueswell's (2023) claim that language knowledge acquisition could be the result of high-level information processing.

Secondly, concerning the multifaceted attributes of learning and learners, an interaction between both learning conditions and learner characteristics leads to learning achievement (Zarrinjooei et al., 2023). SRL strategies used during the learning process within tasks are fluctuating and cyclical. It appears that the key factor that ignited the use of SRL techniques was an affective factor, which is emerging as a result of learners' integrative emotion regulation strategy use, and students' perceptions of the learning objective, task interest, and language learning procedure, all of which foster motivation and self-efficacy. They indeed stimulate learners' cognitive processes. A high level of motivation and a favorable perception of one's own efficacy appear to be associated with self-regulated learning, as confirmed by Scholer et al. (2018).

Third, the emotion regulation strategy added to the strategies of cyclical SRL as a developed model in this study could at first lead to the neuroplastic changes caused by mindfulness breath that can reduce anxiety, as claimed by Beauchemin et al. (2008), which improve the mind's ability to focus and have a conscious awareness (Siegel et al., 2009). So, the result of this study provided support to the studies of Sanger and Dorjee (2016) and Shao et al. (2020), who proposed that mindfulness, or cognitive change of mindset, acts as emotional freedom that can lead to activated mind processing and decrease the learning disorders that have originated from psychological attributes, including lack of motivation and self-confidence, which have emerged as a result of diverse reasons. Thus, the dissatisfaction usually related to learning a new language seems to have disappeared, and learners can make quick progress.

Conclusion

This study aimed to evaluate the effects of SRL learning models, including SRL(C&ER), SRL(C), and F on F (non-SRL) on the EFL learners' grammatical structure accuracy in writing. This research attempted to highlight the critical role of SRL strategies in instruction, in addition to ER strategy, on the students' accurate use of grammatical structures and the effective use of ER strategies by learners. Indeed, this study skillfully made a meaningful bridge among five major notions: self-regulation strategies, emotion regulation strategy, grammatical structure accuracy, and focus on form tasks. Another conclusion of this paper is that a satisfactory perception of the SRL strategies by learners increases their motivation to engage in the learning procedure. However, the limitations of this study are the diversity of learners in terms of psychological attributes that were not considered homogenized criteria before treatment, which might influence the frequency of the SRL strategies used during activities.

Concerning the theoretical implications, the current research contributes to social cognition theory by giving more proof of EFL learners' accurate use in the setting of SRL. The beneficial influence of high self-efficacy on the correct use of language structures is a result of the motivational and emotional strategies used by learners, which amplifies Zimmerman's (2000) cyclical self-regulated learning theory by implementing it in practice. The positive associations between emotion regulation strategies, self-regulated language learning, focus on form, and accurate use of grammatical structure corroborate the broaden-and-build theory (BBT) of pleasant emotions and their practical roles proposed by Fredrickson (2001). Furthermore, the significant influence of SRL on language structure accuracy verified the equal importance of SRL strategies in learning, as proposed by Bandura's social cognition theory (1986), environmental, behavioral, and personal processes.

Concerning the pedagogical implications for EFL learners, of particular interest in this study is diminishing learning barriers through applying emotion regulation strategy and practicing SRL strategies within multi-dimensional tasks such as input- and output-oriented activities in order to increase students' engagement in the learning process, which deepens their knowledge of the language.

Regarding EFL teachers, more effort is required from the instructor in terms of SRL strategy instruction and management. It is essential that instructors can also be provided with training in designing SRL tasks that lead to the appropriate model with respect to the English language learners' level. Therefore, syllabus designers and material developers can design SRL tasks in which language skills are met. Further investigations

are also suggested concerning the frequency of learners' engagement in SRL strategies and the effect of self-regulated learning on psychological aspects of language achievement.

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APPENDIX A:

Emotion Regulation Questionnaire (The Translated Persian Version)

همیشه	تقریباً همیشه	اغلب اوقات	بی نظر	به ندرت	خیلی بندرت	هرگز	عبارات		
							۱. وقتی می خواهم احساس مثبت بیشتری را داشته باشم، به چیزی دیگه ای فکر می کنم.	ارزیابی مجدد شناختی	
							۳. وقتی می خواهم احساس منفی کمتری (مانند نگرانی، غمگینی یا خشم) داشته باشم، به چیزی دیگه ای فکر می کنم.		
							۵. وقتی با موقعیتی استرس زا مواجه می شوم، فکرم را به گونه ای تغییر می دهم که منجر به آرام شدنم شود.		
							۷. وقتی می خواهم احساس مثبت شادی بیشتری داشته باشم، فکرم را درباره آن موقعیت تغییر می دهم.		
							۸. من احساسم را نسبت به مسائل از طریق تغییر در نحوه فکر کردنم کنترل می کنم.		
							۱۰. وقتی می خواهم در مورد چیزی احساس بد کمتری داشته باشم، فکرم را درباره آن موقعیت تغییر می دهم.		
							۲. من احساساتم را در خودم نگر می دارم.		سبک کوی
							۴. وقتی هیجان های مثبتی را احساس می کنم، مراقب هستم آن را نشان ندهم.		
							۶. من احساسات خود را با نشان ندادن آنها کنترل می کنم.		
							۹. وقتی احساس بدی دارم (مثل غمگینی، عصبانیت و نگرانی) دقت می کنم آن را نشان ندهم.		

The Emotion Regulation Questionnaire

The ERQ is a 10-item self-report questionnaire based on Gross and John's (2003) process model of emotion regulation. Please rate the following items based on your behavior in this class. Rating should be on a 7-point scale where **1= strongly disagree** to **7= strongly agree**

1	2	3	4	5	6	7
strongly disagree			neutral			strongly agree

Cognitive reappraisal

1-When I want to feel more positive emotion (such as joy or amusement), I change what I'm thinking about.

3-When I want to feel less negative emotion (such as sadness or anger), I change what I'm thinking about.

5-When I'm faced with a stressful situation; I make myself think about it in a way that helps me stay calm.

7-When I want to feel more positive emotion, I change the way I'm thinking about the situation.

8- I control my emotions by changing the way I think about the situation I'm in.

10-When I want to feel less negative emotion, I change the way I'm thinking about the situation.

Expressive suppression

2- I keep my emotions to myself.

4- When I am feeling positive emotions, I am careful not to express them.

6- I control my emotions by not expressing them.

9- When I am feeling negative emotions, I make sure not to express them.

Appendix B:

The open-ended Questionnaire: Participants' Perceptions of the Strategies Taught

The open-ended questionnaire was used, including three questions that were developed based on the research questions, such as those below:

1. What is your perception of the SRL strategies taught?
2. What are the advantages of the SRL strategies taught?
3. What are the challenges of learning and using SRL strategies taught?