Curriculum Research

Volume 5, Issue 3
Sept. 20, 2024

The impact of reflective learning on EFL learners' self-regulation: A mixed methods study

Article info

Article Type:
Original Research

Authors:
Salman Asshabi[1]
Mojgan Rashtchi[2]
Massood Siyyari[3]

Article History:
Received: 2024.05.29
Accepted: 2024.09.01
Published: 2024.09.20

Abstract

Self-regulation equips learners with the expertise to continue and improve their studies throughout their life span. The current study investigated the impact of reflective learning using Kolb's cyclical stages on EFL learners' self-regulation. The participants were 61 Iranian EFL learners from two intact university classes randomly assigned to the Reflective (n=30) and Non-reflective (n=31) groups. During an eight-week instruction, the Reflective group experienced reflective practices, and the Non-reflective group was exposed to traditional teaching. The data were collected through Seker's (2016) Self-Regulated Questionnaire, administered before and after the treatment and participants' think-aloud protocols. The quantitative data analysis using ANCOVA and MANOVA revealed that the Reflective group significantly outperformed the Non-reflective group in all self-regulated learning components except for external and metacognitive self-regulation subscales. The protocol data analysis substantiated the quantitative findings, indicating that reflective learning significantly improved learners' self-regulated skills. The results offer significant implications for language instructors and language learners.

Keywords: Kolb's Experiential Learning Cycle, Reflective Learning, Self-regulation

1. Ph.D. Candidate, Department of Foreign Languages, Faculty of Literature, Humanities and Social Sciences; Science and Research Branch, Islamic Azad University, Tehran, Iran. s.ashabi@cfu.ac.ir
2. TEFL Department, Faculty of Foreign Languages, North Tehran Branch, Islamic Azad University, Tehran, Iran, (Corresponding Author): m_rashtchi@iau-tnb.ac.ir
3. Department of Foreign Languages, Faculty of Literature, Humanities and Social Sciences; Science and Research Branch, Islamic Azad University, Tehran, Iran. m.siyyari@srbiau.ac.ir

1. Introduction

Improving language learning has long been an area of research studies in EFL contexts. Self-regulated learning as a vital construct in language learning has been the focus of several studies using various learning procedures, such as scaffolding (Muthmainnah et al., 2024; Van der Graaf et al., 2023), reflective writing behavior (Suraworachet et al., 2021), and reflective practices (Pazhoman & Sarkhosh, 2019). Self-regulated learning involves engaging learners with activities that can boost the effective learning of individuals outside the formal learning environments (Kouhpayehzadeh Esfahani, et al., 2023). Studies (Dunn, 2023; Lofdahl, 2023; Teng, 2022) show that enhancing self-regulated learning can improve language learning outcomes. Factors such as active engagement, self-adjustment, and self-monitoring in the learning process facilitate achieving specific goals (Li & Deng, 2024; Milikić et al., 2018) and contribute to lifelong learning (Schunk & Greene, 2018), which can allow learners to manage their studies independently. However, self-regulated learning requires instruction to help learners become self-regulated and succeed in language learning (Deekens et al., 2018).

Self-regulated learning as a cognitive (Chou, 2024) and meta-cognitive process (Loksa et al., 2022; Pazhoman & Sarkhosh, 2019) is in close connection with reflective learning (Boor & Cornelisse, 2021). Thus, the current study's researchers assume that instructing learners through reflective learning procedures can enhance their self-regulated skills and prepare them to become autonomous learners. This assumption accords with existing theories that indicate reflection incorporated through various reflective procedures in language learning classes cultivates self-regulation (Burner, 2007; Greenwood, 2010). Due to its cognitive and metacognitive nature, reflective learning requires higher-order thinking skills that support learners' self-regulated skills (Radović, 2024), particularly in academic settings. Therefore, to guarantee lifelong learning, which can foster learners' future success, the current study's researchers employed reflective learning practices with two purposes: first, to examine whether such practices could promote learners' self-regulated skills, and second, to explore which sub-components of self-regulation are affected by reflective learning.

2. Review of Related Literature

Several researchers have focused on reflection as the medium to enhance learning

outcomes (Dewey, 1933; Kolb, 1984, 1994; Moon, 2004; Schön, 1987) in all fields, including language learning. Dewey (1933), as a pioneer in the field, defines reflective thought as active and careful consideration of any belief comprising of two interrelated notions: firstly, a state of mental doubt in which thinking originates, and secondly, an act of inquiring to settle hesitation and perplexity. Kolb (1984), inspired by Dewey's ideas, argues that learners learn from daily life experiences in four cyclical stages such as *concrete experience* where countless opportunities occur for individuals to kick-start the learning cycle (stage 1), *reflective observation* in which learners involve themselves in thinking about what they experienced (stage 2), *abstract conceptualization* when learners conceptualize to make a hypothesis about their experiences (stage 3), and *active experimentation*, that learners effectively test the hypotheses they have adopted (stage 4). The essence of Kolb's model is that the different stages of learning should occur consecutively with no time-lapse, and learning should follow all stages one after the other. As Merriam and Caffarella (1999) assert, "The principle of continuity of experience means that every experience both takes up something from those which have gone before and modifies in some way the quality of those which come after" (p. 223).

Reflective learning as the manifestation of reflection has been discussed as a form of education in which students reflect upon their learning experiences and form a cycle of reflection and action (Ramsey, 2006). Many scholars have discussed the importance of reflective learning for promoting the quality of learning and enhancing learners' achievements (Daff et al., 2024; Frank, 2023; Kolb, 1984, 1994; Schön, 1987; Walsh & Mann, 2015). Indeed, reflective learning views learning as the process of experiencing and reflecting, resulting in a more profound understanding of concepts (Morrison, 2019). The target of reflective learning is practical problems amalgamated by doubt and confusion (Fullana et al., 2016). Thus, deep thinking about experiences and rethinking one's decisions are vital concepts in reflective learning. Sellars (2013) believes that reflection is a purposeful act that can lead to problem-solving, understanding, and learning success.

Different theories of self-regulated language learning describe regulation phases (Zajda, 2024; Zimmerman, 2000) in which students adopt different strategies for dealing with the challenges posed by a learning task (Aali Shirmard et al., 2022; Suraworachet et al., 2021). However, self-regulation is not a unitary construct that can

be entirely developed. Self-regulation reveals itself through its different subcomponents (Seker, 2016). Most studies have conceptualized self-regulation as a unitary construct and explored how it can be affected by implementing variables such as language skills, sub-skills, or specific instruction. For instance, the study by Muthmainnah et al. (2024) indicated that AI-mediated language training promoted learners' self-regulation. In another study, Suraworachet et al. (2021) investigated how reflective writing behavior improved learners' self-regulated competence. Pazhoman and Sarkhosh's (2019) study indicated that reflective practices could enhance learners' self-regulation. Similarly, multiple studies considering self-regulation a unitary construct showed that reflective practices could promote self-regulated learning (Asselin & Fain, 2013; Pedaste et al., 2012; Pike, 2017; Tucci, 2018).

However, studies conducted specifically on the impact of reflective learning on the subcomponents of self-regulation are scarce. It is axiomatic that self-regulation is primarily a cognitive, metacognitive, and evaluative process. Seker (2016) believes incorporating self-regulated learning strategies into foreign language teaching helps cultivate autonomous learning, leading to lifelong learning. As a result, researchers in the current study, presuming that sub-components shape self-regulated learning, investigated whether incorporating reflective learning practices could enhance learners' self-regulated skills. Thus, they adopted a convergent mixed methods approach (Creswell, 2015), developed a two-stage study, and simultaneously collected quantitative and qualitative data to answer the following research questions.

RQ1: To what extent does reflective learning impact Iranian EFL learners' self-regulation?

RQ2: How do the participants engage in reflective learning in terms of developing self-regulation?

3. Method

3.1. Participants

The participants were 61 TEFL undergraduate students (aged 21 to 26) in the fifth semester of their study in an Iranian uiversity. They were members of two intact classes randomly assigned to two treatment conditions. One class, consisting of 30 (13 males and 17 females) students, was assigned to the Reflective group, and the

other class, containing 31 students (15 males and 16 females), was selected as the Non-reflective group. Due to the educational setting constraints, the intact classes were more feasible than randomizing individual students into different groups. Informed consent was obtained from all participants, clearly explaining the nature of the study, their voluntary participation, and the confidentiality of their personal information. Participants were informed of their right to withdraw from the study without penalty.

3.2. Instruments

3.2.1. The Self-Regulated Learning Questionnaire

The Self-Regulated Language Learning Questionnaire (SRLLQ) was developed and validated by Seker (2016) was used as pretest and posttest to measure participants' self-regulation (see Appendix). The total internal consistency of the instrument was calculated using Cronbach's alpha (α= 0.75). The reliability of the questionnaire components is reported to vary from (α= 0.62 to α=0.78). The validity of SRLLQ has been computed using factorial analysis. Seker reported that after removing 13 items, the remaining 30 showed acceptable factor loadings (see Seker, 2016). The five-point Likert-type questionnaire consists of 30 items, including five subscales of internal motivation (5 items), external motivation (4 items), cognitive strategies (7 items), metacognitive strategies (10 items), and evaluation (4 items). The questionnaire was administered to the study groups as a pretest and posttest.

3.2.2. Think-Aloud Protocol

The think-aloud protocol was employed to capture the students' thought processes while participating in reflective learning activities. Think-aloud protocol is a kind of activity in which students express their thoughts while performing tasks or solving problems (Lundgrén-Laine & Salanterä, 2010; McKay, 2006). The think-aloud procedure is generally recorded or audio-typed by researchers. However, the procedure has been criticized as combining observation and retrospection, where it is probable for researchers to get significant information (Van Someren et al., 1994).

3.2.3. Materials

The researchers used *American English File 2* (Latham-Koenig et al., 2017) for instruction. The book has different parts devoted to the four language skills.

3.3. Procedure

The two groups participated in sixteen sessions of instruction for eight weeks. In each session, students were encouraged to participate in class discussions while engaging in reflective learning. One of the researchers, who was an English instructor, taught *American English File 2* (Latham-Koenig et al., 2017) to both groups. For teaching reflection to The Reflective group, the researchers adopted Kolb's Experiential Learning Cycle, and the Non-reflective group received the traditional way of teaching.

Reflective Group: In the reflective group, the teacher introduced Kolb's model to the class after a warm-up activity. To familiarize students with think-aloud practices, as a preparatory activity, the teacher asked the participants to verbalize their thought processes while engaged in reflective learning. The reflective group practiced the think-aloud activity in one session before initiating the instruction. The reflective group followed Kolb's Experiential Learning Cycle in four cyclical stages. The cycle involves learners' participation in concrete experiences, observation, and reflection about the experiences, constructing abstract concepts, and testing them in new situations. However, continuity among the stages is necessary. During the class, the teacher, one of the researchers, asked students to verbalize their thoughts when answering to record their voices. The instructor tracked the thread of their speech while taking notes for further clarification.

Reading: In each session, after having a warm-up, the teacher initiated one or two general questions to activate students' schema concerning the new learning activity. He read the assigned text and clarified the problem areas. Then, students formed groups and used the learning experience as a new opportunity to 'kick-start' the learning activity. The instructor encouraged students to participate in the learning experience by using words or phrases such as 'aha, bravo, that's it, well done' while students were trying to start talking about the reading experience. (*Stage 1: Concrete Experiences*).

Next, the students reflected on the reading experience and examined what they had in the concrete experience. They expressed as many sentences as they remembered. For example, the instructor asked about the author's intended message and how he conveyed the ideas to the reader. How did you like the learning experience? Why or why not? (*Stage 2: Reflective Observation*).

Then, the students reviewed what they had understood from the learning experience and conceptualized new concepts for some ideas in the text, connected some sentences, and made hypotheses concerning learning materials. For example, the teacher asked volunteers to discuss the purposes of some structures, combine some sentences to convey the same meaning, and compare some structures or ideas to gain a new understanding or form new concepts. He asked students to paraphrase some structures, share the same ideas differently, or express their views on other participants' views. (*Stage 3: Abstract Conceptualization*).

Finally, students applied their new understanding to similar learning contexts. For instance, the teacher asked some students what they would do if they were in the place of a given character in the reading passage and how they would relate the new experience to their new life experience, like being in a grocery or at a bookshop. For example, if the reading was about mountain climbing, the instructor asked learners how they would prepare for a long-running distance competition (*Stage 4: Active Experimentation*).

Listening: The instructor activated learners' schema by raising a few general questions related to the topic to motivate them to think and guess the content of the listening passage. The instructor stated that the structures and words used in the new listening skill were like those they had encountered earlier in their textbook. These encouraging sentences would create students' desire, openness, and willingness to give full attention to the listening section. The participants listened to the passage (CD of the book) while holistically paying attention to the message and ignoring details. In the next step, volunteers stated the central idea of the listening material. The teacher asked silent students to repeat some of their classmates' statements if they could not make sentences. The procedure continued until an acceptable number of sentences were uttered. More importantly, if students expressed wrong sentences, they were allowed to continue speaking since, at this stage, the purpose was not to understand the content of the listening passage but to participate in class discussion to improve listening and, as a result, speaking ability (*Stage 1: Concrete Experiences*).

In the second stage, the teacher pinpointed some basic structures mentioned in the previous cycle. Then, the class created more sentences by visualizing and thinking about the listening passage. In this way, students could easily imagine and remind themselves of what they experienced in the previous learning activity and tried

to mention other related sentences. Students were encouraged to think about the listening experience, imagine, and picture the main points in their minds (*Stage 2: Reflective Observation*).

In the third stage, students pictured the sentences in their minds, tried to keep the same ideas, and used their wording and structure to convey the same meanings. They reasoned and conceptualized the listening contents. Each person's statement acted as a listening activity for other classmates. For example, the students stated their opinions on their classmates' ideas by paraphrasing, summarizing, and providing their views. Thus, they formed new concepts concerning ideas mentioned in the listening activity (*Stage 3: Abstract Conceptualization*).

In the last stage, the learners listened to the passage (the CD) and marked the multiple-choice question. The teacher gave the students the correct answers and let the class think about the experience for five more minutes to raise any problems. The teacher assigned a similar topic to the last activity, and two volunteers did a listening activity. For example, suppose in an earlier listening activity, some passengers were waiting at the airport to go abroad for a holiday. The teacher selected a topic in which football players waiting in the bus station wanted to go to another city to hold a match. The volunteers should make a listening passage for it while collaborating and helping each other. Similar imaginary listening activities were repeated to help students practice unrehearsed situations (*Stage 4: Active Experimentation*).

Speaking: To start speaking, the instructor asked students to think about materials they had worked on before. By speaking to students or providing them with hints concerning a previous topic, the instructor motivated learners to start talking about the subject they had studied earlier. The teacher increased the difficulty level of the questions by starting with yes-no questions and moving to alternative questions. For example, the teacher asked a student, "*Amir, do you enjoy studying English? Do you live in a house or an apartment? Nahid, what TV shows do you watch? Why did you watch such a TV show? Explain. Yaser, where did you learn English?*" The teacher continued discussing similar experiences the students had encountered in their books to help them participate willingly in class discussions. (*Stage 1: Concrete Experiences*).

Next, the teacher asked the students to reflect on the structures practiced in

the previous stage and try to imagine them in their minds. He asked: *"Yaser, what TV shows did Nahid watch? Nahid, where did Yaser learn English? Did Amir live in an apartment or a building?"* By encouraging the students to participate in the question-and-answer exercises, the teacher tried to help them keep the sentences in their minds (*Stage 2: Reflective Observation*).

The instructor initiated a new activity by asking students to construct new concepts or similar structures to those used in the previous activity. For example, he asked a student, "*What do you think about Yaser's statement when he said he had learned English in different institutes?*" Volunteers combined some of the sentences and explained the structures they had learned. The learners used their own words and structures to convey the same meanings. The class discussed the structures they had practiced in the previous cycles. Thus, different voices were heard concerning the earlier structures and subjects the learners had experienced and observed. (*Stage 3: Abstract Conceptualization*).

Finally, a similar topic, such as being in a drugstore, was selected for the class. The participants used the previous structures and used them to the new situation. In so doing, different groups were formed; they discussed the topic in line with the framework of the structures they had practiced. They were reminded to apply what they had learned to the new situations. During group discussions, if a misunderstanding arose, the instructor helped solve the problems (*Stage 4: Active Experimentation*).

Writing: Generally speaking, the topic assigned for writing ability was connected to the issues discussed in the book. Therefore, the instructor reminded students to think about a topic they encountered earlier in some lessons, such as describing a photo. The learners were allowed to take notes during the discussions. The teacher tried to activate students' schema by reminding them to think about an event in the earlier lessons. He encouraged students to be active in the class and use the general guidelines he had provided during discussions. The purpose was to encourage students to participate in class discussions willingly (*Stage 1: Concrete Experiences*).

Following this stage, the teacher asked the students to reflect on the experience, review the written structures, and focus on them. For instance, if the topic

was "*My favorite photo*," they were asked to reflect on how the pictures, buildings, or faces were described in the previous learning contexts. Then, the learners read their notes and expressed themselves using different structures. (*Stage 2: Reflective Observation*).

Then, the learners interpreted some structures to form new concepts for the concepts or structures used in the previous stages. If a participant used a structure to describe an aspect of the given topic, other students conveyed the same idea differently. For example, if the learners had seen sentences such as "*The truck was as heavy as a rock, or The racing car sped up like an airplane on the road*" in their learning contexts, they made sentences like: "*My favorite sportsmen were as powerful as a truck, or my favorite sportsmen ran as fast as the racing car speeding up in the finished line*." (*Stage 3: Abstract Conceptualization*).

Finally, the students used the learned structures and concepts to develop an essay on the assigned topic in 50 minutes. They would generalize what they had practiced in the previous cycles to the new situations. In this stage, students were allowed to consult friends while writing the first drafts. It is worth mentioning that all the students wrote journals concerning the whole process of the writing activities after they had delivered their final composition. Their journals were discussed and corrected at the beginning of the following sessions (*Stage 4: Active Experimentation*).

The students' comprehension was examined after each learning cycle. Thus, continuity of understanding was essential in each cyclical stage of reflective learning. Furthermore, in each cycle, the learners' understanding was evaluated and compared with the previous stage to have a clear picture of the language learning process. Analyzing think-aloud protocols also showed the changes in students' behavior and substantiated the quantitative findings.

Non-reflective Group: *Reading:* The same book was taught in the Non-reflective group by the same instructor but in a different way. The teacher followed typical teaching procedures. After entering the class and having a warm-up, he raised two or three general questions concerning reading passages to activate the students' background knowledge. For instance, if the reading passage was about "*going on a holiday with a friend to another city or country*," the instructor addressed the class: "*What are your priorit*ies? *What things are you taking with you? What should the*

weather be like?" Then, the teacher read the assigned materials aloud as students followed him in their textbooks and explained them. He gave them time to review the text silently and raise any problems or misunderstandings. The teacher was ready to clarify the issue. Then, he asked volunteers to raise some comprehension questions to be answered by the participants. If they failed to answer correctly, the instructor gave them the correct answer. Moreover, the learners wrote the answers to the questions in their notebooks. As the final activity, the teacher asked volunteers to summarize the reading passage to check students' understanding of the reading materials.

Listening: Like the reading activity, the instructor introduced the passage and started by asking general questions to activate the participants' background knowledge. He provided them with some general guideline statements and suggested that they look for the central message of the passage. Then, he read the listening passage to them or played the book's CD. The teacher explained similar sounds, stress patterns, and rising and falling intonations to help students overcome potential misunderstandings. Furthermore, he presented them with redundant elements to indicate that their existence in the passage was for more clarification than creating the problems. Then, the passage was reread while students listened carefully and wrote the answers to the questions. The students' responses were checked. They had the opportunity to explain the reasons for their choices. Following this activity, the students had to raise questions to be answered by their classmates. As the last step, the teacher asked a few volunteers to give the gist of the listening passage.

Speaking: The instructor tried to engage as many students as possible in speaking activities. In American English File 2 (Latham-Koenig et al., 2017), speaking is taught in connection with other skills; thus, the instructor asked the participants to form two groups and think about the issues in the book while they were allowed to consult their textbooks. Afterwards, a student from one group raised a question, and any student from another could answer. For example, students asked: *"Where did Joe go on vacation*? *Who(m) did he go with? Why didn't he enjoy his vacation?"* Students from one group could ask as many questions as possible, and the other students answered. This procedure continued till the story ended. Finally, the whole class reported the same story from the beginning to the end, with each student, in one sentence. Thus, everybody had a chance to speak and improve their speaking

abilities.

Writing: The topic selected for the writing activity was generally similar to the subjects discussed in previous lessons. Therefore, the teacher raised some issues for the students to think about the structures. Then, he asked them to brainstorm and jot down in their notebooks as many sentences as would come to their minds. The teacher encouraged students to speak out their sentences to let the class hear different sentence structures that could deal with the same idea while he was correcting errors in punctuation, vocabulary, and diction. Moreover, the teacher discussed different types of paragraphs and explained coherence and cohesion. He helped the students develop a good composition on the topic under discussion in 50 minutes. Finally, he selected a few students to read their essays to correct errors. Students could develop their compositions at home if they liked; however, the teacher gave feedback on all writings in the next session and evaluated them as “weak, average, good, and excellent.”

4. Results

4.1. Quantitative Phase

A one-way ANCOVA was run to answer the first research question. The scores on the pretest were dealt with as a covariate to structural for pre-existing differences between the groups. Moreover, a MANOVA was utilized to examine the effect of the treatment on five subscales of the self-regulated language learning questionnaire. Table 1 summarizes the descriptive statistics for the groups’ self-regulation scores.

As displayed in Table 1 and Figure 1, the mean of learners’ self-regulation in the Reflective Language Learning group increased from the pretest (M= 107.80, SD= 8.44) to the posttest (M=112.10, SD=7.88). Conversely, the increase from the pretest (M=109.52, SD=8.86) to the posttest (M=110.68, SD=8.71) in the Non-reflective Language Learning group is almost slight.

Table 1.

Descriptive Statistics of Self-Regulation Scores on Pretest & Posttest

Administration	Group	N	Mean	SD	SEM
Pretest	Reflective	30	107.80	8.445	1.542
	Non-reflective	31	109.52	8.865	1.592
Posttest	Reflective	30	112.10	7.880	1.439
	Non-reflective	31	110.68	8.708	1.564

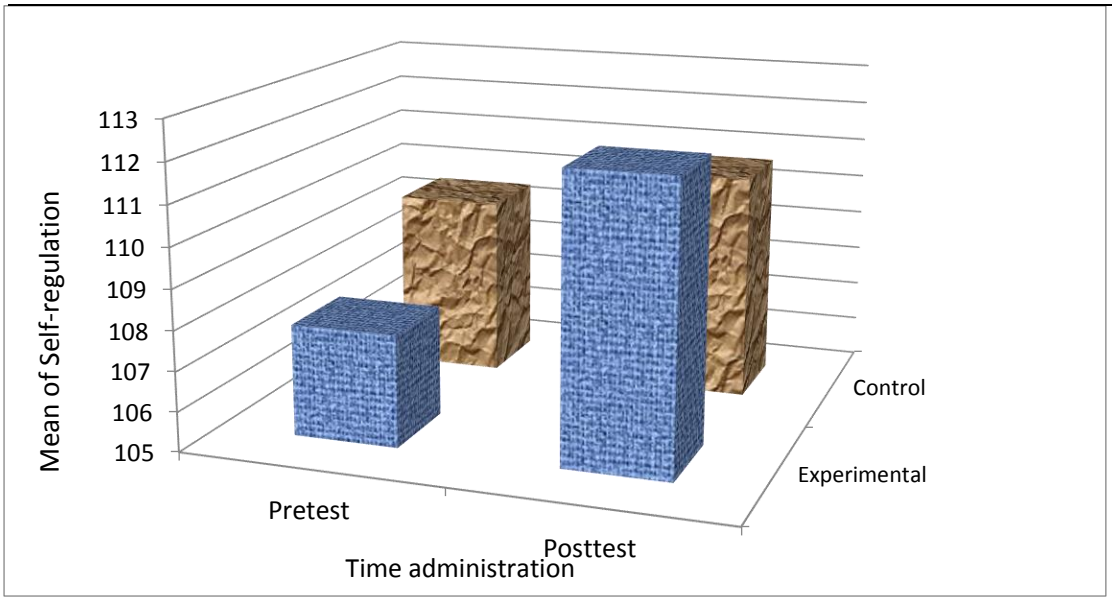

Figure 1. Bar graph of means of learners' self-regulation on pretest and posttest by group

Testing assumptions: According to Lazarton (1991), the assumptions of linearity, homogeneity of variances, and homogeneity of regression slopes must be examined before conducting ANCOVA. Table 2 shows the results of the assumption of a linear relationship between the dependent variable (self-regulation posttest) and the covariates (self-regulation pretest). As evident, the linear relationship between the self-regulation posttest and the self-regulation pretest was significant (F=743.02, p<.001); therefore, the linearity assumption was not violated.

Table 2.

Relationship between Self-Regulation Pretest & Posttest

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups (Combined)	3933.078	26	151.272	29.687	.000
Linearity	3786.127	1	3786.127	743.021	.000
Deviation from Linearity	146.951	25	5.878	1.154	.344
Within Groups	173.250	34	5.096		
Total	4106.328	60			

Table 3 shows that the homogeneity of variance assumption was met for self-regulation with Levene's test, .38>.05.

Table 3.

Equality of Error Variances for Learners' Self-Regulation Scores

F	df1	df2	Sig.
.785	1	59	.379

Table 4 shows that the third assumption (homogeneity of regression slopes) was met: the interaction between group and learners' self-regulation pretest (Group * Pretest) (F=1.26, p=.27) was not statistically significant.

Table 4.

Regression Slopes for the Effect of Reflective Language Learning on Self-Regulation

Source	Type III Sum of Squares	DF	Mean Square	F	Sig.	Partial Eta Squared (η_p^2)
Corrected Model	3928.818	3	1309.606	420.526	.000	.957
Intercept	34.671	1	34.671	11.133	.001	.163
Group * Pretest	3.927	1	3.927	1.261	.271	.022
Error	177.510	57	3.114			
Total	760802.000	61				
Corrected Total	4106.328	60				

A one-way ANCOVA was performed to compare the effectiveness of reflective language learning on learners' self-regulation. Participants' scores on the pretest of self-regulation were the covariate in the analysis (Table 5). After adjusting for the learners' self-regulation scores on the pretest, there was a significant difference between the groups' self-regulation scores on the posttest, $F(1, 58)=44.36$, $p<.001$, $\eta_p^2=.43$. Consequently, the null hypothesis, "There is no statistically significant difference between the self-regulation of the Reflective Language Learning group and the Non-reflective Language Learning group," was rejected, leading to the conclusion that reflective language learning enhances Iranian EFL learners' self-regulation.

Table 5 shows a strong relationship between the pre-intervention and post-intervention scores on the total learners' self-regulation, $p< .001$, $F (1, 58) = 1244.81$, $\eta_p^2= 95$.

Table 5.

Between-Subjects Effects of Reflective Language Learning on Self-regulation

Source	Type III Sum of Squares	DF	Mean Square	F	Sig.	Partial Eta Squared (η_p^2)
Corrected Model	3924.892	2	1962.446	627.338	.000	.956
Intercept	33.458	1	33.458	10.696	.002	.156
Pretest	3894.038	1	3894.038	1244.812	.000	.955
Group	138.765	1	138.765	44.359	.000	.433
Error	181.436	58	3.128			
Total	760802.000	61				
Corrected Total	4106.328	60				

The descriptive statistics of the pretest self-regulation on five subscales (Table 6) show closeness on the pretest.

Table 6.

Descriptive Statistics for the Subscales of Self-Regulation (Pretest)

Subscale	Groups	N	Mean	SD	SEM
External Motivation	Reflective	30	14.13	2.270	.414
	Non-reflective	31	14.23	2.334	.419
Internal Motivation	Reflective	30	19.50	2.515	.459
	Non-reflective	31	19.90	2.612	.469
Cognitive Strategies	Reflective	30	25.33	2.426	.443
	Non-reflective	31	25.71	2.452	.440
Meta-Cognitive strategies	Reflective	30	34.63	3.899	.712
	Non-reflective	31	35.32	4.238	.761
Evaluation	Reflective	30	14.20	2.203	.402
	Non-reflective	31	14.35	2.122	.381

Table 7 and Figure 2 depict the means for scores on five subscales of self-regulation in the groups on the pretest and posttest. The mean score for three internal motivation, cognitive strategies, and evaluation subscales has increased noticeably from the pretest to the posttest. However, the other two external motivation and meta-cognitive subscales do not show such an increase.

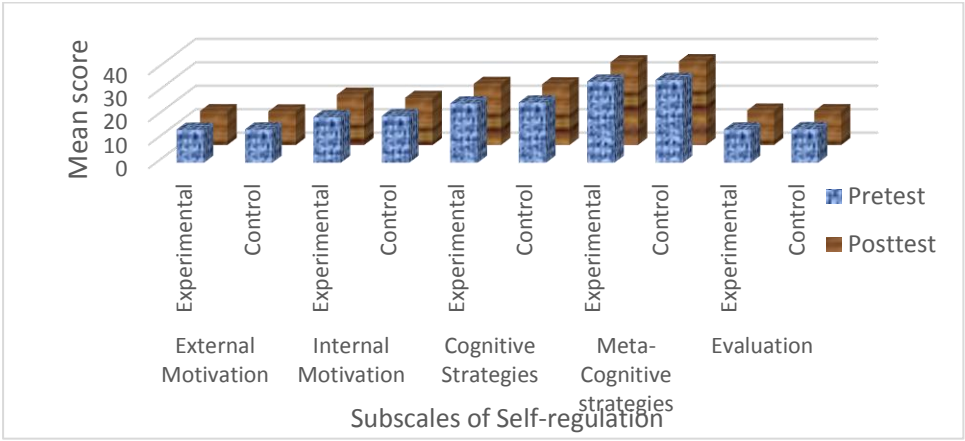

Figure 2. Bar graph on five subscales of self-regulation

Table 7.

Descriptive Statistics for Subscales of Self-Regulation (Posttest)

Subscale	Group	N	Mean	SD	SEM
External Motivation	Reflective	30	14.47	2.300	.420
	Non-reflective	31	14.35	2.360	.424
Internal Motivation	Reflective	30	21.47	2.345	.428
	Non-reflective	31	20.16	2.697	.484
Cognitive Strategies	Reflective	30	26.10	2.524	.461
	Non-reflective	31	25.90	2.385	.428
Meta-Cognitive strategies	Reflective	30	35.33	3.754	.685
	Non-reflective	31	35.77	4.153	.746
Evaluation	Reflective	30	14.73	2.067	.377
	Non-reflective	31	14.48	2.047	.368

Testing assumptions: According to Field (2009), three assumptions (interval data, independence of subjects, homogeneity of variances) should be examined before one decides to perform parametric statistical tests. The first assumption is not violated, as the data were on an interval scale. The assumption of participants' independence was also met.

As shown in Table 8, the significant value associated with Levene's test for three out of five subscales, internal motivation (p=.47), cognitive strategies (p=.84), meta-cognitive strategies (p=.32) exceeded the selected significant level, indicating the homogeneity of variances. However, the results indicated that the significant value for the other two subscales, external motivation (p<.001) and evaluation (p=.002), below the selected significant level, revealed the violation of the homogeneity of variance assumption. Thus, the researchers decreased the significance level from .05 to .01.

Table 8.

Equality of Error Variances for Scores on Subscales of Self-Regulation

Variable	F	df1	df2	Sig.
External Motivation	23.944	1	59	.000
Internal Motivation	.522	1	59	.473
Cognitive Strategies	.039	1	59	.844
Meta-cognitive strategies	1.004	1	59	.321
Evaluation	10.627	1	59	.002

Table 9 indicates that the assumption of homogeneity of covariance was met (Box's M=6.60, *F*=.479, *p*>.05).

Table 9.

Box's Test of Equality of Covariance Matrices for Subscales of Self-Regulation

Box's M	F	df1	df2	Sig.
6.605	.479	15	14981.202	.889

As seen in Table 10, multivariate tests showed a statistically significant difference (Wilks' Lambda=.38; *F* (5, 50) =16.24; *p*<.001) in the overall self-regulation scores on the posttest while controlling the effect of the pretest. The partial eta squared was .62, expressing a large effect size according to Cohen's guidelines (Cohen, 1988, pp. 284-287).

Table 10.

Multivariate Tests for Subscales of Self-Regulation

Effect		Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	Pillai's Trace	.157	1.855	5.000	50.000	.119	.157
	Wilks' Lambda	.843	1.855	5.000	50.000	.119	.157
	Hotelling's Trace	.186	1.855	5.000	50.000	.119	.157
	Roy's Largest Root	.186	1.855	5.000	50.000	.119	.157
Pretest of External Motivation	Pillai's Trace	.940	157.803	5.000	50.000	.000	.940
	Wilks' Lambda	.060	157.803	5.000	50.000	.000	.940
	Hotelling's Trace	15.780	157.803	5.000	50.000	.000	.940
	Roy's Largest Root	15.780	157.803	5.000	50.000	.000	.940
Pretest of Internal Motivation	Pillai's Trace	.897	87.148	5.000	50.000	.000	.897
	Wilks' Lambda	.103	87.148	5.000	50.000	.000	.897
	Hotelling's Trace	8.715	87.148	5.000	50.000	.000	.897
	Roy's Largest Root	8.715	87.148	5.000	50.000	.000	.897
Pretest of Cognitive Strategies	Pillai's Trace	.888	79.429	5.000	50.000	.000	.888
	Wilks' Lambda	.112	79.429	5.000	50.000	.000	.888
	Hotelling's Trace	7.943	79.429	5.000	50.000	.000	.888
	Roy's Largest Root	7.943	79.429	5.000	50.000	.000	.888
Pretest of Meta-Cognitive Strategies	Pillai's Trace	.934	141.517	5.000	50.000	.000	.934
	Wilks' Lambda	.066	141.517	5.000	50.000	.000	.934
	Hotelling's Trace	14.152	141.517	5.000	50.000	.000	.934
	Roy's Largest Root	14.152	141.517	5.000	50.000	.000	.934
Pretest of Evaluation	Pillai's Trace	.918	112.586	5.000	50.000	.000	.918
	Wilks' Lambda	.082	112.586	5.000	50.000	.000	.918
	Hotelling's Trace	11.259	112.586	5.000	50.000	.000	.918
	Roy's Largest Root	11.259	112.586	5.000	50.000	.000	.918
Group	Pillai's Trace	.619	16.246	5.000	50.000	.000	.619
	Wilks' Lambda	.381	16.245	5.000	50.000	.000	.619
	Hotelling's Trace	1.625	16.246	5.000	50.000	.000	.619
	Roy's Largest Root	1.625	16.246	5.000	50.000	.000	.619

Nevertheless, multivariate tests do not determine the precise difference between the two groups regarding the five subscales of self-regulation. Consequently, tests of between-subjects effects were run. Table 11 indicates that tests of between-subjects effects detected significant differences between the groups for three subscales of self-regulation: *internal motivation* posttest scores ($F(1, 54)=70.18$, $p< .001$), *cognitive strategies* scores ($F(1, 54)=8.35$, $p=.006$), and *evaluation* posttest *scores* ($F(1, 54)=7.18$, $p=.008$). However, tests of between-subjects effects revealed no significant difference in *external motivation* (F (1, 54) =1.73, $p=.19$) and *meta-*

cognitive strategies (*F* (1, 54) =.67, *p*=.42).

Table 11.

Between-Subjects Effects on Subscales of Self-Regulation

Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	Post-external motivation	303.292	6	50.549	156.316	.000	.946
	Post-internal motivation	370.423	6	61.737	100.367	.000	.918
	Post-cognitive strategies	327.762	6	54.627	104.465	.000	.921
	Post-meta-cognitive strategies	882.034	6	147.006	168.845	.000	.949
	Post-evaluation	232.920[e]	6	38.820	118.853	.000	.930
Group	Post-external motivation	.560	1	.560	1.731	.194	.031
	Post-internal motivation	43.168	1	43.168	70.180	.000	.565
	Post-cognitive strategies	4.371	1	4.371	8.355	.006	.134
	Post-meta-cognitive strategies	.583	1	.583	.670	.417	.012
	Post-evaluation	2.346	1	2.346	7.184	.008	.117
Error	Post-external motivation	17.462	54	.323			
	Post-internal motivation	33.216	54	.615			
	Post-cognitive strategies	28.238	54	.523			
	Post-meta-cognitive strategies	47.015	54	.871			
	Post-evaluation	17.638	54	.327			
Total	Post-external motivation	12987.00	61				
	Post-internal motivation	26803.00	61				
	Post-cognitive strategies	41592.00	61				
	Post-meta-cognitive strategies	78053.00	61				
	Post-evaluation	13265.00	61				

4.2. Qualitative Data on Learners' Self-Regulation

The researchers analyzed the qualitative data to answer the second research question and shed more light on the quantitative findings. In *stage one*, the teacher gave a writing activity and asked the reflective class to form groups and use their experience

with the connectors ‘so, although, and because’ to practice more. As usual, the teacher used encouraging statements to make students start speaking. While the students engaged in doing the task, their verbalizations were recorded. Then, learners’ verbalizations were transcribed, and analyzed through the systematic classification of coding and identifying themes or patterns (Hsieh & Shannon, 2005). Several protocols were extracted from the participants’ verbalizations while doing tasks. However, removing the repetitious themes reduced the number of protocols. The *themes that* emerged from think-aloud protocol analysis were based on more than two-thirds of the issues common among the participants’ verbalizations. The *‘themes’* that emerged from protocol data analyses were ‘interaction, sharing knowledge, and cooperation,’ helping learners improve their understanding of new concepts, which ended in *‘gradual improvement’* over Kolb’s cyclical learning stages. It is worth mentioning that, in case it was necessary to report a sample protocol, the researchers reported it anonymously.

In short, the content analysis of the common protocols indicated that the more students thought over the experience, the better they regulated their understanding. As inferred from the following sample protocols, the participants participated in the experience with willingness. They answered the questions raised by another participant; however, most could not generate appropriate sentences based on their meanings. The sentences expressed by some students in the final part of the activity were better than the first part, implying that the more students thought over the experience, the better they regulated their understanding, which is in line with Zimmerman’s findings (2001). A sample of participants’ protocols was:

Youness: *Why was Hannah driving fast?*

Aso: *Because she is in a hurry, so she liked to drive fast*. *Although she was tired, she was driving fast.*

Sahar*: Why didn’t Hannah see the man?*

Parastoo: *Because she was driving fast. Although he was driving fast, so Hannah didn’t see the man.*

Ashkan: *Let me explain. ‘So, although, and because.’ You know their meanings are different. Examples: Why did you sleep? Because I was tired. You cannot say: Although I was tired.*

In *stage two,* the instructor asked the class to think about the experience for five more minutes to generate more sentences. As they were doing the task, their verbalizations were recorded. The content analysis of the participants' common protocols indicated that they gradually regulated their understanding as they were increasingly involved in reflective thinking. In stage two, after the researcher asked students to think for five more minutes, the sentences expressed by participants were better than in stage one. In the second stage, participants used more meta-cognitive strategies such as planning, controlling, and evaluating their learning activities. As a result, the participants understood the use of connectors in the second stage much better than in the first stage. This finding is in congruence with Karaoğlan Yılmaz et al. (2018), indicating that meta-cognitive strategy (used as a result of reflective language learning) contributes to developing learners' self-regulation skills. A sample of participants' protocols in this sage was:

Ahad: *Why was Hannah driving fast?*

Shoresh: *Let us think about all of them in their context. 'Because' has two different meanings. It means 'since' at the beginning and 'therefore' at the end of sentences. Because (since) Hannah was in a hurry, he was driving fast.*

Delnia*:* *But I think all are different. According to the* places….. (pause) …., *Because I was tired, I slept soon. You cannot say…So I was tired, I slept soon. Say, I was tired, so I slept soon. Although I was tired, I didn't sleep soon.*

Sahar: *According to what you said, 'because and so' can have the same meaning in one place. 'Because' can mean 'since' in another place.*….(pause) …. *I was tired because I was driving fast. I was in a hurry, so I was driving fast.* …(pause)*… Although I was tired, I did not drive fast.*

The participants used new concepts and structures in stage three to state the same ideas. As usual, the verbalizations were recorded for content analysis, revealing that participants learned to use the connectors *'because, although,' and 'so.'* Thus, the researchers concluded that the more students engaged in reflective activities, the better their self-regulation abilities improved. The few errors observed were related to the slow learning of the students, who showed less self-regulated activities than the strong learners. These findings align with Cheng et al. (2016), implying that reflective students had significantly better self-regulated learning than moderate-reflection and

low-reflection students. This finding verifies the positive effect of reflective performance on self-regulated learning. A sample of the participant's protocols in stage three was:

Ahmad: *Why was Hannah driving fast?*

Saman: *She was driving fast because she was in a hurry. Because she was in a hurry she was driving fast.*

Kamil: *Although she was in a hurry, she was not driving fast. She was not driving fast although she was in a hurry. Although she was not a good driver, she was driving fast.*

Sina: *Why didn't Hannah see his friend?*

Galavish: Although he *was wearing a dark coat, so Hannah didn't see him at first. Hannah was driving fast, although she didn't see him. Because she was thinking about her driving, she didn't see him.*

In *stage four*, the teacher asked the students to review the learning experience to generalize it to the new learning situation. He asked them to develop a paragraph on *"Describe your study room' using those connectors in their writing*." The content analysis of their writing revealed that most participants could write a well-developed paragraph on the topic. A sample of the participants' composition by Rezvan in this stage was:

> *I live in an apartment with my family members. Our apartment has two rooms. My sister has one room and I also have another room. The length of my room is 3 meters, and its width is 2.5 meters,* ***so*** *my room is not big. It has two small windows and one door. There are a lot of pictures on wall. I have a shelf for my books. There is a white board in front of the shelf.* ***Although*** *writing on paper is comfortable, I don't like to write on the paper. Moreover,* ***since*** *my room is small, it is a little dark. But it has a good view. It is nice to study in my room* ***because*** *it is a quiet place.*

As observed from the sample paragraph, the participant could generalize connectors to the new learning situation. Furthermore, the previous learning stages showed that the participants had gradually improved their self-regulated abilities, starting from *stage one* and ending in *stage four.* The qualitative study indicated that

reflective learning improved in all sub-components of self-regulation learning; however, considering the quantitative results, the improvement for *internal motivation, cognitive strategies, and evaluation* was noticeable except for *external motivation and meta-cognitive*.

5. Discussion

This study investigated the impact of reflective learning using Kolb's Experiential Learning Cycles on EFL learners' self-regulation. The results indicated that reflective learning significantly impacted learners' self-regulation. The quantitative and qualitative data analyses revealed that reflective learning could boost learners' self-regulation. The study also verified the existence of a significant difference in internal motivation, cognitive strategies, and evaluation posttest scores between the Reflective and Non-reflective groups; however, no significant difference was observed in external motivation and meta-cognitive strategies. This finding could be because reflection mainly targets learners' cognitive abilities rather than affective factors.

The findings are aligned with several studies that reported reflective learning improves self-regulation (Chang et al., 2016; Greenwood, 2010; Karaoğlan Yılmaz et al., 2018; Pazhoman & Sarkhosh, 2019; Suraworachet et al., 2021; Wang et al., 2017). The *'themes'* that emerged from protocol data analyses were 'interaction, sharing knowledge, and cooperation,' which helped learners improve their understanding of new concepts and ended in 'gradual improvement' over Kolb's cyclical learning stages.

The study showed that as students gradually engaged in reflective learning, they expressed themselves better in each stage compared with the previous ones. Additionally, the more students thought over the experience, the better they regulated their understanding. This finding aligns with Zimmerman (2001), who asserts that individuals' thoughts are the major elements of self-regulation. The study revealed that learners' self-regulation improves in stages, from stage one of Kolb's reflective learning cycle to stage four. The study also accords with Ghanizadeh (2017), who argues that reflection moderates self-regulation and achievement.

Despite the quantitative findings in which reflective learning indicated no significant impact on metacognitive strategies, the results of the think-aloud protocol

data analysis revealed that participants used more meta-cognitive strategies such as planning, controlling, and evaluating their learning activities; however, weak students showed less self-regulated activities compared to the strong learners. These findings find support from Chang et al. (2016, p.1), who state, “High-reflection students had significantly better self-regulated learning than moderate-reflection and low-reflection students, which implies that reflective performance had a significantly positive effect on self-regulated learning.”

6. Conclusion

The findings highlighted the importance of reflective learning in educational centers for successful learning inside and outside the class. Furthermore, the current study assumes that adopting appropriate reflective activities under a teacher’s guidance, peer collaboration, sharing knowledge, and learning alone can improve learners’ self-regulation, resulting in lifelong learning and better language performance. Besides, the study presented a detailed picture of how reflective learning could enhance the components of self-regulation, showing that using various reflective activities results in skilled and self-regulated learners.

The study also showed that reflective practices can engage learners in learning activities more deeply and lead to self-regulation. Therefore, teachers can use reflective practices and adjust their teaching to language learners’ proficiency levels. Course designers and material developers can also develop activities for reflective learning in textbooks to foster students’ thinking about materials and cultivate their self-regulation. Curriculum planners should also consider the importance of reflection in developing self-regulation and thus try to integrate it into their educational planning.

Another implication of the study is applying the think-aloud protocol procedure in language classes to provide teachers with ample opportunities to delve into the complex nature of language learning and pave the way for them to engage students in learning tasks effectively. It also makes teachers learn about the unique characteristics of individuals in their attempt to recognize their weaknesses and strengths to eliminate problem areas and facilitate learning. Then, by pinpointing learners’ weaknesses and strengths, they would devote more time to using activities and adjust their instruction to the levels of language learners. Finally, using various

reflective activities results in skilled and self-regulated learners.

References

Aali Shirmard, A., Nateghi F, Faghihi A. (2022). Designing and Validating the Optimal Model of Extracurricular Curriculum for Junior High School Students with a Social Harms Prevention Approach. Curriculum Research, 2(3), 18-31.

Asselin, M., Fain, J.A. (2013). Effect of reflective practice education on self-reflection, insight, and reflective thinking among experienced nurses: A pilot study. *Journal for Nurses in Professional Development* *29*(3), 111-119. http://dx.doi.org/10.1097/NND.0b013e318291c0cc

Boor, I., & Cornelisse, S. (2021). How to encourage online self-regulation of students. *Communications of the Association for Information Systems*, *48*(1), 27. http://dx.doi.org/10.17705/1CAIS.04827

Burner, K. J. (2007). *The effects of reflective and reflexive writing prompts on students' self-regulation and academic performance*. The Florida State University.

Chang, C. C., Liang, C., Shu, K. M., Tseng, K. H., & Lin, C. Y. (2016). Does using e-portfolios for reflective writing enhance high school students' self-regulated learning? *Technology, Pedagogy and Education*, *25*(3), 317-336. https://doi.org/10.1080/1475939X.2015.1042907

Chou, S. W., Hsieh, M. C., & Pan, H. C. (2024). Understanding the impact of self-regulation on perceived learning outcomes based on social cognitive theory. *Behaviour & Information Technology*, *43*(6), 1129- 1148. https://doi.org/10.1080/0144929X.2023.2198048

Cohen, A.D. (1998). *Strategies in learning and using a second language.* Longman.

Creswell, J.W. (2015). *A concise introduction to mixed methods research*. Sage.

Daff, L., Tame, C., & Sands, J. (2024). A course design approach that encourages reflective practice habits. *The International Journal of Management Education*, *22*(2), Article 100990. https://doi.org/10.1016/j.ijme.2024.100990

Deekens, V.M., Greene, J.A., & Lobczowski, N.G. (2018). Monitoring and depth of strategy use in computer-based learning environments for science and history. *British Journal of Educational Psychology*, *88*(1), 63-79. http://dx.doi.org/10.1111/bjep.12174

Dewey, J. (1933). *How we think: A re-statement of the relation of reflective thinking to the education process*. Heath & Co.

Dunn, R. H. (2023). *The modern classrooms project: Student efficacy and achievement* [Doctoral dissertation, East Tennessee State University].

Field, A. (2009). *Discovering statistics using SPSS (3rd ed).* Sage.

Frank, N. (2023). Learning beyond content: Using weekly reflection to promote student confidence and lifelong learning. *Habits of Mind*. Paper 9.

Fullana, J., Pallisera, M., Colomer, J., Fernández Peña, R., & Pérez-Burriel, M. (2016). Reflective learning in higher education: A qualitative study on students' perceptions. *Studies in Higher Education, 41*(6), 1008-1022. https://doi.org/10.1080/03075079.2014.950563

Ghanizadeh, A. (2017). The interplay between reflective thinking, critical thinking, self-monitoring, and academic achievement in higher education. *Higher Education, 74*, 101–114. https://doi.org/10.1007/s10734-016-0031-y

Greenwood, J.C. (2010). *The effect of reflective portfolio use on student self-regulation skills in science*. Western Connecticut State University.

Hsieh, H.F., & Shannon, S.E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, *15*(9), 1277-1288. https://doi.org/10.1177/1049732305276687

Karaoğlan Yılmaz, F.G., Olpak, Y.Z., & Yılmaz, R. (2018). The effect of the metacognitive support via pedagogical agent on self-regulation skills. *Journal of Educational Computing Research*, *56*(2), 159-180. http://dx.doi.org/10.1177/0735633117707696

Kolb, D.A. (1984). *Experiential learning*. Prentice-Hall.

Kolb, D. (1994). *Experiential learning: Experience as the source of learning and development.* Prentice-Hall.

Kouhpayehzadeh Esfahani, M., Rashtchi, M., Rostami Abousaidi, A. A., & Mowlaie, B. (2023). Teaching writing assessment: Does metacognitive awareness-raising work? *Journal of Language and Translation*, 13(4), 27-45.

Latham-Koenig, C., Oxenden, C., & Seligson, P. (2017). *American English file*. Oxford University Press.

Lazarton, A. (1991). *A computer supplement to accompany: Hatch and Lazaraton- the research manual: Design and statistics for applied linguistics*. Newbury House Publishers.

Li, H., & Deng, J. (2024). A survey on the current situation of self-regulated learning in online environment—taking a course of Chinese culture as an example. *Automation and Machine Learning*, *5*(1), 138-144. https://dx.doi.org/10.23977/autml.2024.050118

Lofdahl, H.A. (2023). *An investigation of variables that predict string students' musical achievement*. The University of North Carolina at Greensboro.

Loksa, D., Margulieux, L., Becker, B. A., Craig, M., Denny, P., Pettit, R., & Prather, J. (2022). Metacognition and self-regulation in programming education: Theories and exemplars of use. *ACM Transactions on Computing Education (TOCE)*, *22*(4), 1-31. http://dx.doi.org/10.1145/3487050

Lundgrén-Laine, H., & Salanterä, S. (2010). Think-aloud technique and protocol analysis in clinical decision-making research. *Qualitative Health Research*, *20*(4), 565-575. http://dx.doi.org/10.1177/1049732309354278

McKay, S.L. (2006). *Researching second language classrooms*. Routledge.

Merriam, S., & Caffarella, R. (1999). *Learning in adulthood: A comprehensive guide (2nd edition).* Jossey-Bass.

Milikić, N., Gašević, D., Jovanović, J. (2018). Measuring effects of technology-enabled mirroring scaffolds on self-regulated learning. *IEEE Transactions on Learning Technologies*, *13*(1), 150-163. http://dx.doi.org/10.1109/TLT.2018.2885743

Moon, J.A. (2004). *A handbook of reflective and experiential learning: Theory and practice*. Routledge Falmer.

Morrison, K. (2019). Reflective practice at the Scottish prison service. *Work Based Learning e-Journal International, 8*(1), 122–128.

Muthmainnah, M., Cardoso, L., Alsbbagh, Y.A.M.R., Al Yakin, A., & Apriani, E. (2024, June). Advancing sustainable learning by boosting student self-regulated learning and feedback through AI-driven personalized in EFL education. In A. Alnoor, M. Camilleri, H.A. Al-Abrrow, M. Valeri, G.E. Bayram, Y.R. Muhsen (Eds.), *International Conference on Explainable Artificial Intelligence in the Digital Sustainability* (pp. 36–54). Springer Nature Switzerland. https://doi.org/10.1007/978-3-031-63717-9_3

Pazhoman, H., & Sarkhosh, M. (2019). The relationship between Iranian English high school teachers' reflective practices, their self-regulation and teaching experience. *International Journal of Instruction*, *12*(1), 995-1010. https://doi.org/10.1080/14623943.2017.1379384

Pedaste, M., Mäeots, M., Leijen, Ä., & Sarapuu, T. (2012). Improving students' inquiry skills through reflection and self-regulation scaffolds. *Technology, Instruction, Cognition and Learning*, *9*(1-2), 81-95.

Pike, P. D. (2017). Exploring self-regulation through a reflective practicum: a case study of improvement through mindful piano practice. *Music Education Research*, *19*(4), 398–409. https://doi.org/10.1080/14613808.2017.1356813

Ramsey, C. (2006). *Introducing reflective learning.* Thanet Press.

Radović, S., Seidel, N., Menze, D., & Kasakowskij, R. (2024). Investigating the effects of different levels of students' regulation support on learning process and outcome: In search of the optimal level of support for self-regulated learning, *Computers & Education, 215*, Article 105041. https://doi.org/10.1016/j.compedu.2024.105041

Schön, D.A. (1987). *Educating the reflective practitioner: Towards a new design for teaching and learning in the professions*. Jossey-Bass.

Schunk, D.H., & Greene, J.A. (2018). *Historical, contemporary, and future perspectives on self-regulated learning and performance.* In D.H. Schunk & J.A. Greene (Eds.). *Handbook of self-regulation of learning and performance* (pp. 1–15). Routledge/Taylor & Francis Group.

https://doi.org/10.1007/s11409-023-09364-9

Seker, M. (2016). The use of self-regulation strategies by foreign language learners and its role in language achievement. *Language Teaching Research, 20*(5), 600–618. https://doi.org/10.1177/1362168815578550

Sellars, M. (2013). *Reflective practice for teachers*. Sage.

Suraworachet, W., Villa-Torrano, C., Zhou, Q., Asensio-Pérez, J.I., Dimitriadis, Y., & Cukurova, M. (2021, September). Examining the relationship between reflective writing behaviour and self-regulated learning competence: A time-series analysis. In *European Conference on Technology Enhanced Learning* (pp. 163-177).

Teng, L.S. (2022). Self-regulated learning and second language writing. Springer. https://doi.org/10.1007/978-3-030-99520-1_2

Tucci, A.E. (2018). *Self-regulation through goal setting and reflective practice: Impact on students' perceived scholastic competency and motivation in ninth-grade mathematics classrooms* [Doctoral dissertation, Western Connecticut State University].

Van der Graaf, J., Taub, M., & Fan, Y. (2023). Introduction to special issue on facilitating self-regulated learning with scaffolds: Recent advances and future directions. *Metacognition and Learning*, *18*(3), 623-629. https://doi.org/10.1007/s11409-023-09364-9

Van Someren, M.W., Barnard, Y. F., & Sandberg, J. A. C. (1994). *The think aloud method. A practical guide to modeling cognitive processes.* Academic Press.

Walsh, S., & Mann, S. (2015). Doing reflective practice: A data-led way forward. *ELT Journal, 69*(4), 351–362. http://dx.doi.org/10.1093/elt/ccv018

Wang, H.H., Chen, H.T., Lin, H.S., & Hong, Z.R. (2017). The effects of college students' positive thinking, learning motivation and self-regulation through a self-reflection intervention in Taiwan. *Higher Education Research & Development*, *36*(1), 201-216. http://dx.doi.org/10.1080/07294360.2016.1176999

Zajda, J. (2024). *Engagement, motivation, and students' achievement*. Springer

Nature Switzerland. https://doi.org/10.1007/978-3-031-61613-6_1

Zimmerman, B. J. (2000). Attaining self-regulation: A social cognitive perspective. In M. Boekaerts, P.R. Pintrich, & M. Zeidner (Eds.). *Handbook of self-regulation* (pp. 13–39). Academic Press. https://doi.org/10.1016/B978-012109890-2/50031-7

Zimmerman, B.J. (2001). Theories of self-regulated learning and academic achievement: An overview and analysis. In B.J. Zimmerman & D.H. Schunk (Eds.), *Self-regulated learning and academic achievement: Theoretical perspectives* (2nd ed., pp. 1–37). Lawrence Erlbaum.

Appendix

Self-Regulated Language Learning Questionnaire Seker (2016)

		Strongly disagree	Disagree	Agree	Strongly agree
1	I am learning English because my department requires it.	1	2	4	5
2	I am learning English because my future job requires it.	1	2	4	5
3	I am learning English because my teachers require it.	1	2	4	5
4	I am learning English because my society wants it.	1	2	4	5
5	I am learning English because I want to be able to use Technology better	1	2	4	5
6	I am learning English because I want to be successful in my future job.	1	2	4	5
7	I am learning English because I want to communicate with foreigners	1	2	4	5
8	I am learning English because I want to be successful in life	1	2	4	5
9	I am learning English because I want to feel successful at it.	1	2	4	5
10	When studying English, I can use my materials efficiently	1	2	4	5
11	I know what is important to learn when studying English	1	2	4	5
12	When studying English, I find outside school sources to help me.	1	2	4	5
13	When studying English, I work on the tasks in order of Importance.	1	2	4	5
14	When studying English, I plan my study ahead.	1	2	4	5
15	When studying English, I understand the tasks.	1	2	4	5
16	When studying English, I translate everything into Turkish.	1	2	4	5
17	When my English progress drops, I study more.	1	2	4	5
18	When the study material is difficult, I skip it and find an easier one.	1	2	4	5
19	I can find enough time to revise for my English exams.	1	2	4	5
20	When the study material is difficult, I give up studying.	1	2	4	5
21	When the study material is difficult, I ask for assistance.	1	2	4	5
22	When the study material is difficult, I search for alternative ways to understand and complete it.	1	2	4	5
23	I can find enough time to do my homework.	1	2	4	5
24	I can find enough time to study English.	1	2	4	5
25	When studying English, if my friends call me, I give up work and go.	1	2	4	5
26	When studying English, I can concentrate for a long time	1	2	4	5
27	I believe I can overcome my learning difficulties.	1	2	4	5
28	I am satisfied with my English progress.	1	2	4	5
29	I evaluate my exam results.	1	2	4	5
30	I evaluate my overall English progress.	1	2	4	5