Using Self-Regulated Learning Strategies in Blended Classrooms to Improve Students' Receptive Language Proficiency

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Abstract

The Self-Regulated Learning (SRL) Strategies have served as a basis in blended classrooms over a period of time to conduct experiments on various students' problems. The technique of blended classrooms has shown optimistic results and has offered new opportunities for improving students' reading and learning skills, mainly known as receptive language proficiency. This study investigated how integrating SRL strategies within a blended classroom enhances English as a Foreign Language (EFL) learners' reading comprehension and writing skills. A quasi-experimental research design was employed, with participants divided into an experimental group, which utilized SRL strategies, and a control group, which did not. The findings revealed that the experimental group significantly outperformed the control group in both writing and reading comprehension skills. The mean scores for the experimental group were 84.30 for writing skills and 87.20 for reading comprehension, compared to 66.70 and 70.10, respectively, in the control group. These statistically significant differences, with p-values less than 0.001, confirm that SRL strategies substantially enhance students' receptive language proficiency in a blended EFL classroom. Furthermore, SRL strategies effectively improved reading comprehension at all levels—literal, inferential, and critical—highlighting their comprehensive impact on students' cognitive development. This study highlights the importance of incorporating SRL strategies in blended learning environments to improve EFL learners' language proficiency, offering a valuable approach for educators aiming to enhance students' reading and writing capabilities.

Keywords: EFL, SRL, Blended Classroom, Technology in Classroom

1. Introduction

The educational landscape has seen a transformative shift in digitized education through the flow of online learning, steering in an era of digital change within this sphere. Over the years, we have seen a paradigm shift in education from old teaching methods to new ones, incorporating more digital solutions, new techniques, and different creative methods to teach students better (Fathi et al., 2023). Resultantly, researchers have been able to find out positive changes in learning models and, therefore, proving that these techniques have served as a basis for improving overall education and learning (Widayanti & Meria, 2023; Zarifis & Efthymiou, 2022). Specifically, Over the years, online education has served as an accessible and efficient way for learning English as a Foreign language (EFL). In light of educational technology, it is a notable idea that EFL students, being the energetic mediators, have become the core of the education process. To achieve student's learning goals in a technology-enriched learning environment, independent administration of a skill set is the basis for accomplishing such an achievement (Zhang, 2022).

1.1 Learning English as a Foreign Language (EFL)

Keeping in mind the global prevalence of English, Learning English as a foreign language (EFL) is increasingly in demand in different aspects such as teaching and learning. Some countries have set learning English as a foremost language learning strategy for their students to clearly understand the language (Fisher et al., 2024). Arslan (2020) examines the benefits and challenges of teaching English as a foreign language, highlighting the importance of writing and speaking skills (Arslan, 2020). As per research findings, English being taught as a second language worldwide using innovative instructional techniques has enhanced students' capability to have more grip over the language (Singer, 2024; Tursunova, 2024).

However, students face many difficulties while learning English as a second language since they are eager to learn English using the old techniques. Other challenges faced by EFL students include listening, speaking, reading, and writing. Students need to get proficiency in the language while learning English as a foreign language (Sayuri, 2016; Sasmita & Setyowati, 2021). It is being observed that for many EFL students, reading and writing are the most important of the four function skills (listening, speaking, reading, and writing) because they contribute to developing the overall language skill (Alsalihi, 2020). Among these macro skills, reading is considered the basic skill of

English learning. At the same time, writing comes second since it forms the basis of receptive language proficiency since many of the students who are fluent in English lack reading comprehensive skills and creative writing skills (Fisher, 2024). Further details of receptive language proficiency, which includes reading and writing skills, are given in the upcoming sections.

1.2 Creative Writing Skills

Writing that provides readers with an aesthetic experience and amusement and a chance for visionary thinking, thoughts, and feelings is called creative writing. According to Chen and Zhou (2010), creative writing is an open-ended method for fostering creative thinking concerning students' thinking skill development. One of the trickiest things to do is to write creatively. Therefore, to develop writing skills among learners, teaching writing calls for various procedures and tactics (Adas & Bakir 2013). The 21st century demands fresh instructional approaches, inventiveness, and various abilities from its writing instructors. In addition to being an excellent teacher, a writing course instructor must also be proficient in theory and research to implement the theory (Clark, 2011).Clear communication of the writer's ideas is made possible by excellent writing. In order to create an instructional model for EFL writing courses, educators and instructors must investigate various approaches to teaching creative writing and learning processes. They must then choose the most appropriate approach to serve as the foundational teaching approach for the course, such as a problem-based approach or a blended learning approach that incorporates problem-based instruction (Quvanch & Na, 2020).

1.3 Reading Comprehension

An interactive mental process that the reader exercises through reading is reading comprehension, which is used to extract the general meaning of the issue (Bari & Shaaban, 2010). Reading comprehension is the foremost goal of the reading process, and the reader must read or comprehend the text to understand its meaning. English as a foreign language, the ability to read is crucial ability for students to grow and succeed academically. After mastering reading skills, EFL learners make more advancements in language attainment. Students should be motivated to read fluently and actively, enabling them to interact with the text more easily and grasp its meaning (Ardiansyah & Meirani, 2022). According to Halim and Subramaniam (2020), reading fosters one's capacity for creativity. In order to allow students to excel in their careers and to master the skill of reading, Mahmoud (2020) asserts that reading is very necessary as plenty of information is communicated through writing. Therefore, an EFL learner must master reading skills to understand the text in its true essence. Moreover, research shows that certain reading comprehension skills need to be considered while preparing EFL learners (Hussein & Al-Sultani, 2022). The detail of these skills is given below.

1.4 Reading Comprehension Skills

There are several skills involved in reading comprehension, according to Hussein & Al-Sultani (2022), which include classifying the major ideas, Setting views in order of their logical development, capacity to understand instructions and maps, Illustrate results and inferences from what the reader reads, capacity to evaluate and discuss what the writer reads, Understand the style of writing, Identify the characteristics of readable writing and capacity to achieve the author's goal. Hussain (2022) further classified those skills into literal, inferential, and critical levels.

1.5 Self-Regulated Learning- A Way to Enhance EFL Students' Receptive Language Proficiency

Self-Regulated Learning (SRL) has encouraged EFL students to work more effectively, learn new innovative techniques, and broaden their horizons. At the same time making the learning process more efficient. Students become more engaged and learn proactively when self-regulated learning methodologies are used (Bravo Zambrano, 2023). They gain the capacity to keep track of their development, modify their approach to learn when necessary, and show tenacity in the face of difficulties. By developing self-regulation, students may become self-directed learners who can adapt their methods to various learning activities and environments, improving their learning results' efficacy. Moreover, self-regulated students exhibit metacognitive awareness by showing their educational experiences, assessing their performance, and pinpointing areas needing development (Theobald, 2021). Using SRL methods is crucial for improving English reading comprehension and writing skills. Given that reading comprehension and SRL may be mutually beneficial, these two factors have been included as attentional variables. Students who design learning assignments, establish realistic objectives, monitor their progress, and reflect thoughtfully on their learning journeys engage in self-regulated learning, comprised of a range of behaviors, motives, and metacognitive functions (Zambrano, 2023).

According to Zimmerman's model, SRL strategies can enhance learners' reading and writing skills (Alvi et al., 2016; Panadero & Alonso-Tapia, 2014). There are three conducts, including planning, monitoring, and evaluating phases of learning, which enable learners to steer the complicated landscape of reading comprehension efficiently and simultaneously share their own learning experiences (Zhu et al., 2024). In the planning phase, learners introduce their reading expeditions by performing activities such as showing reading tasks and forming their learning objectives. In the monitoring phase, ongoing growth and self-assessment are observed while progress is being chased in the reading process. Finally, learners examine the effectiveness of their selected strategies, have an inclusive assessment of their understanding, and pave the way for continued learning success in the evaluating phase (Wang, 2023). Other than that, for improving the writing skills, the zimmerman's model can also work efficiently. According to Zimmerman, four interconnected processes can be used to improve learners' writing skills. Monitoring and self-evaluation is the initial step in the process. It happens when students assess their own efficacy based on recordings and observations of past performances and results. The second step involves students analyzing the written learning assignment, creating clear learning objectives, and developing or improving the approach to reach the objectives. This process is known as goal setting and strategic planning. Monitoring the implementation of the strategy is the third. Students go through this process

when they attempt to apply a method in controlled situations and track how accurately they can write. Strategic outcome monitoring is the last procedure. It happens when students concentrate on the connections between learning objectives and tactical procedures to assess efficacy in writing more creatively. As a result, it concentrates on how students employ particular procedures to inspire creativity and direct their writing skills. Apart from using self-regulation strategies alone, research has shown that incorporating SRL strategies into blended EFL classrooms also improves the EFL learners' receptive language proficiency. Further details of blended classrooms are given in the upcoming section.

1.6 The Blended Classroom Approach

The term "blended learning" refers to the combination of traditional in-person instruction and online learning. Blending is combining two or more substances to create a new mixture. In pedagogical domains, "blended learning" is used interchangeably to refer to a combination of online and face-to-face training and e-learning combined with traditional instruction (Porter et al., 2014). To put it briefly, blended learning combines classroom-based instruction with technology-enabled teaching and learning, as seen in Figure 1.
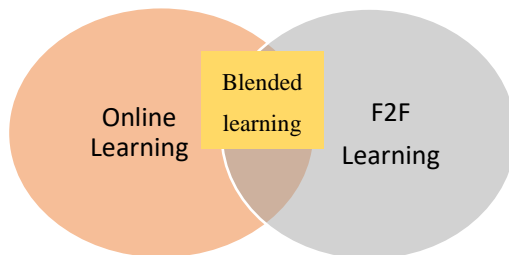

Figure 1. The blended learning

One of the ideas that is frequently mentioned in research that attempts to incorporate technology into contemporary educational activities is blended learning. It is primarily defined as the fusion of traditional in-person and virtual instruction. To improve learning outcomes, blended learning incorporates using several instructional methods and a learning environment. Numerous studies have examined the challenges instructors and students encounter when taking online courses in the literature (Hockly, 2018 & Hrastinski, 2019). Compared to face-to-face instruction, teachers could waste more time in these settings. On the other hand, as blended learning combines traditional and online instruction, it offers superior learning where advantage is taken from the strengths of both online and face-to-face instructions (Onah & Sinclair, 2017).

1.7 Using SRL Strategies in Blended Classroom

As a process, SRL describes behavior patterns, motivation, and metacognition that students employ to acquire knowledge and skills. According to the literature, students' capacities for self-regulation may alter as they transition to new tasks or learning environments. SRL can enhance the conditions for learning by enabling and facilitating control over the key learning elements. One setting where students can take charge of and direct their learning is blended learning (Eggers et al., 2021). Blended learning is an instructional strategy that integrates online and in-person delivery methods to maximize socialization and efficacy in the classroom. Direct instruction, indirect instruction, group instruction, and customized computer-assisted learning are all included in blended learning. Many prior research have examined SRL in blended learning environments; however, most of these studies, including those by Broadbent and Fuller-Tyszkiewicz (2018), are carried out at the postsecondary education level. As there are limited studies on secondary-level education, particularly for improving receptive language proficiency in the Saudi context, this study seeks self-regulated learning of secondary school students in Saudia Arabia who learn English in a blended classroom environment. In particular, this study compared students' receptive language proficiency before and after learning in SRL-based EFL blended classrooms.

1.8 Problem Statement

Learning English as a second language has been a problem for many students due to old teaching methods (Sasmita & Setyowati, 2021). Although much emphasis is paid to improving the quality of EFL programs in Saudia Arabia, EFL learners still undergo numerous challenges. The hurdles, impediments, challenges, or issues EFL students face are discussed in previous studies (AbuZaid et al., 2020). For instance, in their foundation year, Akhter (2020) conducted research at King Abdulaziz University in Jeddah, Saudi Arabia. Students were fresh graduates of secondary schools from all across the country. Thus, they came from all regions. Students were desirous enough to learn English according to interviews. However, they mentioned that more emphasis should be given to practical or scenario-based learning. Alaraj (2016) explains some of the EFL external difficulties that students had to face, which were categorized into four groups: (1) Less experience with and rehearsal of language in real-time scenarios, (2) Lack of training of Educators, (3) Absence of motivation among the students (4) Unsuitable curriculum. According to Al-Nasser (2015), learning English in Saudi Arabia has many problems. Those problems are because of the policy-making and its implementation since it deals with English as a second school subject, presenting English not as a life skill but as a subject and at the same time introducing it at a later stage (Shah, 2013).

In many Saudi educational institutions, EFL learners continue to face difficulties in English, especially in reading and writing, despite the

significance placed on EFL programs (Al-Hamlan & Baniabdelrahman, 2015). In order to reduce students' difficulties in learning EFL, the knowledge of the blended classroom approach has proved to be a stage to overcome the challenges students face (Onah & Sinclair 2017). The difficulties in the teaching and learning process in the EFL environment have been brought to light by research done in the Saudi setting, especially in reading and writing, but has failed to come to a solution that shows the right path to what needs to be done to mitigate this cause (Al-Hamlan & Bani Abdelrahman, 2015). Resultantly, there is a dire need for hours of research to overcome the difficulties students face in reading and writing English as a second language.

Lack of receptive language proficiency is one of the main obstacles that students in EFL learning must overcome. Students' poor interest in and proficiency with reading and writing in EFL classes impacts their learning outcomes. The learning process of reading and writing in a foreign language is made substantially more difficult by native language interruption and unfamiliarity (Priyanto, 2024). Since words are seen as the smallest expressive units of the message and because of the significance of the reading procedure, vocabulary is seen by international students as their biggest reading difficulty in English. Current educational techniques for addressing this issue might be addressed with a precise and thorough grasp of the reading process (Rohmatillah, 2017). After overcoming the reading procedure, students' biggest challenge is writing English. Over time, Strategies and methods have been used in Saudi Arabia to eradicate these issues. One of the strategies includes using self-regulated learning strategies in blended classrooms, which has been taken into account and implemented in different institutions and has shown remarkable results. A study was done in Saudi Arabia to investigate how male students at a Saudi Arabian institution govern and manage their own learning in a blended learning course. The study used the "framework" proposed by Pintrich et al. (1991), and as a result, it examined three primary learner characteristics: motivation, cognitive and metacognition, and learning resource management. The most obvious component of the participants' self-regulated learning was used to categorize the quantitative results, which were further verified and qualitatively assessed. The research findings also demonstrated a favorable overall level of self-regulated learning, even if the overall results indicated that the motivational component of self-regulated learning was the most obvious element among students in that course (Alshahrani, 2015).

In a follow-up study, Kassab et al. (2015) investigated the connections among medical students enrolled in a blended learning curriculum, their self-regulated learning style, and their academic performance. Path analysis revealed that students' motivation was strongly impacted by how well they thought the blended experience's in-person component was. The two components of motivation that were directly impacted by the SCEQ scale's "quality of teaching" were intrinsic goal orientation and control over learning. Additionally, students' self-efficacy was directly impacted by a suitable course workload. Furthermore, students' critical thinking and peer learning were directly impacted by the e-learning scale, but their metacognitive regulation was indirectly impacted. Students' exam scores were directly impacted by their time and study environments, effort management techniques, and resource management strategies.

Hamouda (2018) looks at how sensitive Saudi students are to using a blended learning method to improve their ability to write essays in English. While the control group received instruction via standard lecture methods, the experimental group was taught using a blended learning approach. Data-gathering tools were pre- and post-writing essay assessments, questionnaires, and interviews. Independent-sample t-test results revealed that participants in the blended learning group did significantly better in writing than those in the control group. The study's results also showed that the matched experimental group's pre- and post-achievement test scores differed statistically significantly in favor of the post-test. Adopting a blended learning strategy in essay writing instruction was credited with this improvement. Self-regulated learning (SRL) is a form of instruction that has developed students' learning mechanisms and enabled them to study learning approaches in greater detail (Sinkkonen & Tapani, 2024). The development of self-regulation in students leads to becoming self-reliant learners who can adapt to new situations and activities. This improves the efficacy of their learning results, particularly in reading and writing (Theobald, 2021).

Additionally, self-regulated learners exhibit a metacognitive awareness, allowing them to reflect on their learning procedures, assess their performance, and pinpoint areas where they still need to improve (Turan et al., 2009). Numerous research papers have examined the impact of blended classroom practices on EFL students' performance in Saudi Arabia (Hamouda, 2018; Alrouji, 2020; Alrouji, 2022; Aljumah & Profile, 2019), along with the use of self-regulated learning strategies for such purpose (Abdelhalim, 2022; Alshammari, 2016; Alanazi, 2020; Alreshoud & Abdelhalim, 2022). Nevertheless, using self-regulated learning practices in Blended EFL classrooms to enhance EFL learners' reading comprehension abilities and writing skills is still lacking in research. Moreover, although much research has been done on the advantages of the blended classroom in the EFL context, not much is known about how using a variety of SRL tactics in conjunction with a blended classroom approach might help students become better readers. Since the Blended Classroom approach has been widely considered an interactive and efficient approach to help students achieve their goals, there was a need to extract the study in which SRL methodologies are used in improving the overall receptive language proficiency of students in Blended EFL courses. This study aimed to close this gap by examining how successful self-regulated learning methods might enhance students' reading and writing abilities in blended English as a foreign language (EFL) courses.

1.9 Research Questions

RQ #1. *Is there any difference in students' writing skills after working in an EFL blended classroom, with or without utilizing self-regulated learning strategies?*

RQ #2. *How many students' reading comprehension skills are improved through utilizing self-regulated learning strategies in the blended EFL classroom?*

RQ #3. Based on three levels (literal, inferential, and critical), how successful are self-regulated learning techniques for enhancing EFL learners' reading comprehension abilities in blended EFL classrooms?

Hence, it was hypothesized that,

Ha: Using self-regulated learning strategies significantly and positively affects EFL learners' reading comprehension skills in the blended EFL classroom.

Hb: EFL learners' writing skills significantly improved after working in a blended EFL course while practicing self-regulated learning strategies.

2. Methodology

This study examined how students' reading comprehension and writing abilities in blended English as a foreign language (EFL) classrooms were affected by self-regulated learning (SRL) practices. The study employed a quasi-experimental research design and was experimental in nature. A pretest-posttest control group design was specifically chosen, wherein course participants were split into the experimental and the control groups. The intervention offered to the experimental group was having them participate in a blended English as a foreign language classroom and practice various self-regulated learning practices. Conversely, the control group did not engage in self-regulated learning; instead, they worked in the EFL course using the blended classroom concept. Hence, using SRL strategies was the independent whereas the EFL learners' receptive language proficiency was the dependent variable in the current research.

2.1 Procedure of the Study

Based on the self-regulated learning theory, the blended classroom model is one of the numerous models used to organize the current study. The blended classroom was created for EFL courses to help students become more proficient readers and creative writers with a primary focus on encouraging self-regulated learning. For this reason, various SRL techniques were applied, such as goal-setting, self-efficacy, offering and accepting help, structuring educational activities, time management, providing and getting feedback, and self-reflection or self-evaluation techniques. The adopted SRL-based blended classroom model is shown in Figure 2.
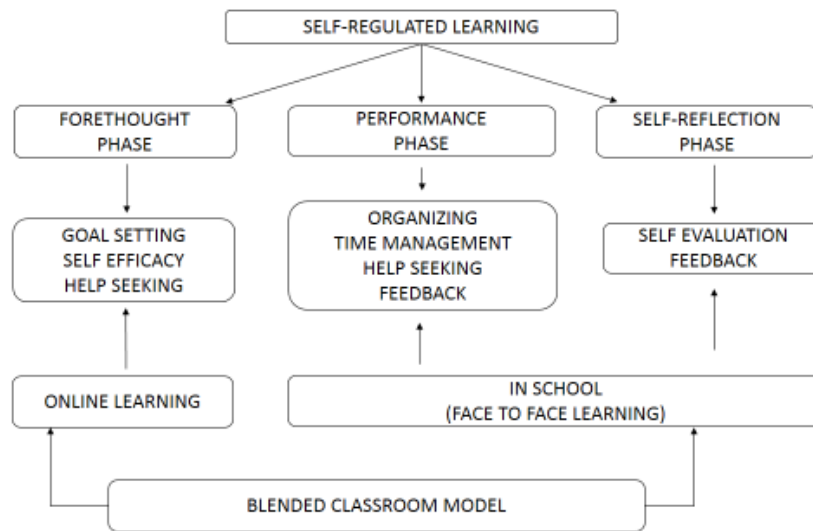

Figure 3. The Blended Classroom Model Based on SRL

This experimental study was designed to keep in view the three phases of Zimmerman's model: forethought, performance, and self-reflection. It was a semester-long program where students from English as Foreign Language (EFL) courses joined the research in the context of Saudi Arabia. The focus was to assist the EFL learners in improving their reading comprehension and writing skills. During intervention, and a blended classroom model was designed for the experimental and control groups. However, self-regulated learning strategies were practiced with only an experimental group.

2.1.1 Controlling the Extraneous Variables

The following key variables were controlled to ensure the reliability of the results:

1. **Participants' Initial Proficiency Levels**: A pre-test was administered to both experimental and control groups to ensure comparable levels of English language proficiency before the intervention. This eliminated the potential influence of differing baseline capabilities on the results.

2. **Instructional Materials**: Both groups received identical instructional materials, including PowerPoint presentations, worksheets, and video content. The experimental group, however, received additional guidance and materials on SRL strategies to assess their specific impact.

3. **Classroom Environment and Instruction Time**: Both groups operated in identical classroom settings, with the same instructors, lesson durations, and schedules to minimize external environmental influences.

4. **Assessment Methods**: Both groups completed the same pre-test and post-tests, and all assessments were conducted under the same conditions to ensure consistency.

5. **External Variables**: Efforts were made to minimize external distractions by conducting sessions during the same hours and in similar settings. Additionally, students were instructed not to share materials or insights across groups to maintain the integrity of the experimental design.

Before starting the intervention, the experimental and control groups were pre-tested to ensure that each group was comparable regarding their language proficiency levels. The pre-test findings indicated that the English proficiency levels of the two groups were comparable. This ensured that any differences between the later observed groups could be attributed to the intervention itself rather than variations in their starting proficiency levels. After that, the intervention started.

During the intervention period, both groups worked under the blended classroom model, where all the instructional material was provided to the students through Google Classroom. They watched the material (a PowerPoint presentation, a related video link, and a worksheet) at home as a home task and were also given lectures during their classes. However, apart from that, the experimental group was given some extra material regarding multiple SRL strategies and their utilization in the learning process. Students watched the material at home and during the class, they performed multiple activities. Further details of those self-regulated learning strategies are given in the text below. Students were motivated to move forward toward their term goals as part of the goal-setting strategy, which helped them feel more in control of their education. The goal of the self-efficacy strategy was to consistently inspire students by fostering in them the notion that they could accomplish their assignments independently. Learners were urged to learn from their errors and not repeat the same mistakes. Throughout the intervention, help-seeking and feedback techniques gave learners the direction and assistance they needed. Peer feedback was made possible, and cooperative learning was encouraged through facilitated peer interaction. Under the instructor's supervision, students independently organized their assignments as part of the organization strategy. They were also urged to split up and work together in their groups on the tasks given to them.
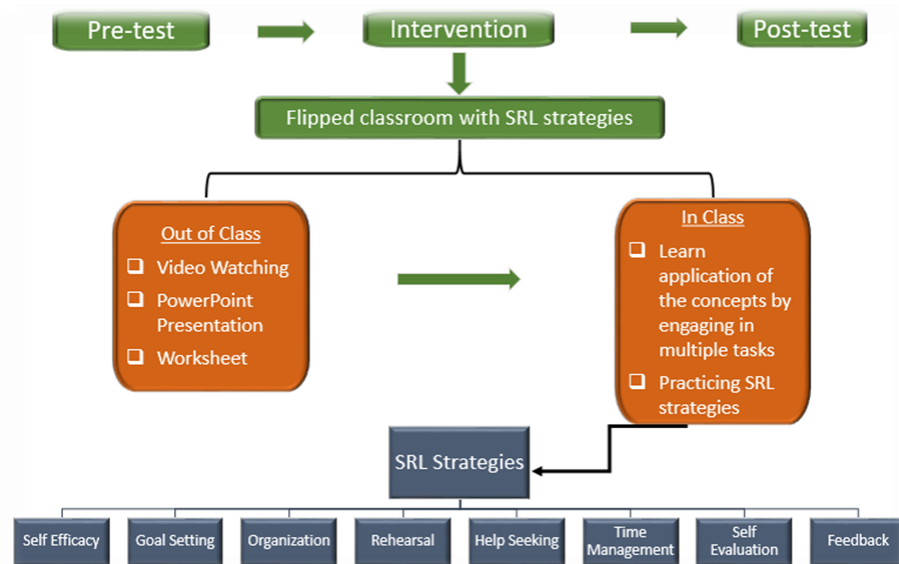

Figure 3. Intervention is given to the experimental group in an SRL-based blended classroom

With the rehearsal technique of self-regulated learning in the blended classroom, students had a lot of opportunities to practice and reinforce their learning using several media, including watching instructional videos, PowerPoint presentations, and writing materials. The use of Q&A sessions and class discussions encouraged students to participate actively in the learning process. To help them grasp the ideas even more, they were also urged to impart their knowledge to classmates. As part of the time-management strategy, students were told to arrange their assignments and other extracurricular activities into a flexible schedule that fit their schedules. They could acquire efficient time management techniques as a result, both alone and in clusters. Finally, students set benchmarks for themselves through self-evaluation. The details of this intervention, which was given to the experimental group, are shown in Figure 3. On the contrary, the control group also worked in the blended EFL classroom without practicing SRL strategies. They just went through the powerpoint presentation and watched the related video at home, then participated in different hands-on tasks during class.

After the intervention, both groups were post-tested to evaluate their reading comprehension and writing skills. A post-test was adapted from Gaml and Elghotmy (2023) to assess the reading comprehension skill. Through the post-test, EFL learners' reading skills were measured at literal, inferential, and critical understanding levels. All these skills were measured through a rubric. The details of these three levels, along with the sub-skills measured through the rubric, are given in Table 1.

Table 1. Reading comprehension levels measured through the post-test (adapted from Gaml and Elghotmy, 2023)

SN	Reading comprehension skills at three levels	Measured Sub-skills	Rubric		
			Outstanding 3	Satisfactory 2	Needs Improvement 1
1	Literal comprehension level	✦ Enough vocabulary to read the sentences ✦ Interpreting words in a specific context ✦ Identify the main idea ✦ Understand supporting details			
2	Inferential comprehension level	✦ Assume cause-effect relationships ✦ Deduce intended hidden meaning ✦ Relate prior knowledge with the new information			
3	Critical comprehension level	✦ Identify the author's goal behind the expression ✦ Explain the connections between the sentences ✦ Deduce logical conclusion			

2.2 Participants of the Study

As per the focus of current research, the EFL students were selected from Saudi Arabia. They were taking a course regarding learning English as a Foreign Language (EFL) at the secondary school level. In total, 64 students took part in the research, aged 15-17 years. They were equally distributed in the experimental and control groups. Hence, each group comprised 32 students.

2.3 Data Collection Tool

As a pre-test, the English proficiency test developed by AL-Harbi and Alshumaimeri (2016) assessed students' English proficiency levels in both experimental and control groups. The main purpose was to ensure that each group was at a comparable level. In total, there were 40 multiple-choice questions in the test. A post-test was given after the intervention to measure any appreciable differences in the students' performance following their contribution in the blended classroom while practicing with and without the SRL strategies. The pre-test was used in Saudi before and after rigorous reliability analysis and validation (AL-Harbi & Alshumaimeri, 2016; Alkhalaf, 2023).

Contrary to this, for assessing reading comprehension skills, the post-test was adapted from Gaml and Elghotmy (2023) to assess EFL learners' reading skills at three different levels. Moreover, as per Hammad (2014) and Hamouda (2018), written essay-type tests proved to be more effective for assessing students' proficiency in creative writing, including multiple sections. For this, guidance was taken from Ahmed (2012), where students' writing skills were assessed through writing tests. A pre-and post writing test was used to check improvement in students' writing skills after working in a blended EFL classroom, with or without practicing SRL strategies. The test was for 40 marks, and 45 minutes were allocated, as Ahmed (2012) used in the Saudi context. However, a split-half method of reliability analysis was employed to further test the reliability of the pre and post-test. Results showed that tests were highly reliable to be used in current research.

2.4 Data Analysis

Using SPSS 25.0 software, statistical analysis was performed on the quantitative data that had been gathered. The proposed hypothesis was investigated using inferential statistics. More specifically, the analysis made use of two tests. To determine whether there was a significant change in the student's reading comprehension and writing abilities when taught in a blended EFL classroom with or without the inclusion of SRL methods, the independent sample t-test was first used. The present study's data satisfied the requirements for running a t-test because it was parametric in nature and had a normal distribution.

Furthermore, students from the experimental group were also measured based on their performance in the three reading comprehension levels (literal, inferential, and critical). In order to find major differences in students' reading comprehension skills across three levels, ANOVA was conducted. Because of this, an extensive examination of the impact of the self-regulated learning strategies on students' reading comprehension and writing abilities in the blended EFL classroom was possible, using both the t-test and the ANOVA to determine the importance of differences observed in the data.

3. Data Analysis and Results

Descriptive statistics were calculated for both the experimental and control groups to analyze the impact of self-regulated learning (SRL) strategies in a blended classroom on students' receptive language proficiency. The analysis focused on two main areas: reading comprehension skills and writing skills. The results are presented below.

3.1 Descriptive Statistics

The descriptive statistics for the post-test scores of the experimental and control groups were calculated. The mean score for the experimental group in the post-test was 85.75, with a standard deviation of 6.45, while the control group had a mean score of 68.40, with a

standard deviation of 7.88. This indicates a higher performance in the experimental group across all measured areas of receptive language proficiency.

3.2 Hypothesis Testing Results

To determine whether the mean scores between the experimental and control groups were statistically significant, independent sample t-tests were conducted for reading comprehension and writing skills (see Table 2). The study hypothesized that using Self-Regulated Learning (SRL) strategies in a blended classroom would significantly and positively affect students' receptive language proficiency, specifically on their reading comprehension and writing skills.

Ha: Using self-regulated learning strategies significantly improves EFL learners' reading comprehension skills in the blended classroom.

The independent sample t-test results support ***Hypothesis 1***. The experimental group received instruction using SRL strategies and achieved a significantly higher mean score ($M = 87.20$) in reading comprehension than the control group ($M = 70.10$). The t-test result ($t = 9.14$, $p < 0.001$) indicates that this difference is statistically significant at the 0.001 level. Therefore, it can be concluded that incorporating SRL strategies in the blended classroom significantly improved the students' reading comprehension skills.

Hb: EFL learners' writing skills significantly improve after practicing self-regulated learning strategies in a blended classroom.

Similarly, the independent sample t-test results provide strong evidence to support ***Hypothesis 2***. The experimental group demonstrated a significantly higher mean score in writing skills ($M = 84.30$) than the control group ($M = 66.70$). The t-value ($t = 8.60$) and the corresponding p-value ($p < 0.001$) indicate that this difference is statistically significant. Thus, it can be concluded that SRL strategies significantly and positively improved students' writing skills in the blended classroom setting.

Table 2. Independent Sample t-test Results for Reading Comprehension and Writing Skills

Skill	*Group*	*Mean*	*t-value*	*p-value*
Reading Comprehension	Experimental	87.20	9.14	< 0.001
	Control	70.10		
Writing Skills	Experimental	84.30	8.60	< 0.001
	Control	66.70		

3.3 Answers to Research Questions

The study results indicate a significant difference in students' writing skills between the experimental group, which utilized self-regulated learning (SRL) strategies, and the control group, which did not. The experimental group exhibited markedly higher writing skills, as evidenced by their mean score (M = 84.30) compared to the control group (M = 66.70). The difference was statistically significant (t = 8.60, p < 0.001), suggesting that integrating SRL strategies in the blended classroom substantially enhances students' writing skills.

The study found that students' reading comprehension skills improved significantly when SRL strategies were incorporated into the blended EFL classroom. The experimental group, which engaged with SRL strategies, achieved a mean score of 87.20, significantly higher than the control group's mean score of 70.10. The difference was statistically significant (t = 9.14, p < 0.001), demonstrating that SRL strategies substantially improve students' reading comprehension skills within the blended learning environment.

The study's analysis of reading comprehension at three levels—literal, inferential, and critical—revealed that SRL strategies were effective across all levels. Students in the experimental group demonstrated enhanced comprehension abilities at each level, significantly outperforming the control group. This suggests that SRL techniques successfully improve EFL learners' reading comprehension abilities across different cognitive levels within a blended classroom setting. The findings affirm the effectiveness of SRL strategies in fostering deeper understanding and critical engagement with reading materials.

4. Discussion

According to Al-Hamlan and Baniabdelrahman (2015), difficulties faced by EFL learners while reading and writing in different Saudi educational institutions should be considered. Thus, a study should be conducted to overcome those problems by incorporating updated instructional techniques or methods. Thus, this research focused on incorporating Self-Regulated Learning (SRL) strategies within a blended classroom to study its impact on the EFL students' reading comprehension and writing skills in Saudi Arabia. It allowed a group of students to incorporate SRL strategies within the blended classroom approach (Experimental group). At the same time, the other group lacked instructions on using SRL strategies in the blended classroom approach (Control group).

The findings showed a noteworthy difference in the post-test results. The students who utilized SRL strategies in their learning had a stronger grip over the language, especially their reading comprehension and writing skills, than those who didn't practice SRL strategies. They understood their assignment well, implemented different self-regulated learning techniques under their instructor's guidance, and could get command over the language very well. These findings also align with the research of Ardiansyah and Meirani (2022), Hamouda (2018), Alrouji (2020), Alrouji (2022), and Aljumah and Profile (2019), who suggested that students' English language proficiency is boosted in a blended EFL classroom. Also consistent with the findings of Mahmoud (2020), Ozturk and Cakiroglu (2021), Al-Harbi and Alshumaimeri (2016), Abdelhalim (2022), Alshammari (2016), Alanazi (2020), Alreshoud & Abdelhalim (2022) this and Wang (2023), that English language skills are improved by using SRL strategies in a blended EFL classroom. Moreover, three levels of reading

comprehension skills were measured in current research, which included Literal, Inferential, and Critical Skills.

4.1 Recommendations

Keeping the post-test results in mind, a few recommendations are made for effectively implementing SRL strategies in a blended classroom in an EFL context, especially in the Kingdom of Saudi Arabia.

1. ***Identifying the Grey Areas:*** The first step of solving the problem is to identify the problem in detail and find all the grey areas. Thus, in the EFL context, we need to understand what type of problems students face while learning EFL and then act accordingly. Implementing strategies according to the problem identified is the first step toward solving a problem.

2. ***Giving Importance to SRL Strategies:*** *It is recommended that using Self Regulated Strategies in problem-solving should b*e an integral part of the student's routine. Students must be encouraged to exercise their minds, evaluate themselves, manage their time, outperform others using little help, and use creativity and innovations in their tasks, thus giving positive results.

3. ***The Blended Classroom Approach:*** It is highly recommended to use the Blended classroom approach side by side with emphasis on SRL strategies to allow the students to enhance their proficiency with the English language, especially in reading and writing.

4. ***Breaking Stereotype- Traditional Classroom approach:*** In order to enhance students Self- Regulated skills, the traditional Classroom teaching approach needs to be broken and instead replaced with creative learning along with Classroom teaching, giving reading assignments, and watching movies to be completed outside of the traditional classroom, simplifying students' collective reading responsibilities through E-learning, and nurturing reflection and self-direction of reading comprehension skills.

5. ***Peer feedback exchange:*** The practice of facilitating peer feedback exchange during reading activities fosters a pleasant learning environment. Students actively support one another's development by offering insightful criticism and insightful observations. This enhances their understanding and promotes a culture of ongoing development and assistance to one another. Thus, students should be encouraged to practice peer feedback.

6. ***Pre-class access to instructional materials:*** Before moving on to more dynamic and engaging in-class activities, students should have access to instructional materials before class. This will allow them to study the subject at their own pace and ensure they fully understand it. Students who use online platforms to efficiently use their in-class time for practice and hands-on learning activities will profit even more from this (Stöhr et al., 2020).

4.2 Future Research Opportunities

Future research can investigate the durability and long-term impacts of the blended classroom method using SRL techniques in Saudi Arabian EFL learning situations. Future research initiatives should explore the effectiveness of online collaborative blended instruction in various educational settings to provide a more nuanced understanding of its application. Additionally, a comparison analysis might be carried out to determine how SRL methods affect the development of other language abilities (listening, grammar, vocabulary, etc.).

5. Conclusion

The present study investigated the potential benefits of using self-regulated learning (SRL) strategies in blended English as a foreign language (EFL) classrooms, specifically regarding enhanced reading comprehension, writing skills, and improved student learning outcomes. The findings demonstrated that students' reading comprehension and writing skills were enhanced when SRL tactics were integrated into the blended classroom format. Therefore, this method may help ESL/EFL learners who frequently struggle to read and write. It is imperative to recognize some of the study's limitations, though. First, the quantitative methodology used in this study may have limited our ability to comprehend the phenomenon fully. Second, data were gathered from a particular geographic area, and a limited sample size was used due to time and resource constraints. As a result, extra care should be taken when extrapolating the findings to a larger population. Before introducing blended learning into their classes, teachers must be well-prepared. They must comprehensively understand blended learning, including its definition, applications, common obstacles, and solutions. Teachers must also update and review the actions and activities they utilize regularly. It is also recommended that educational institutions possess the necessary resources to execute blended classroom learning. Facilities like computers and fast internet access ought to be provided. Lastly, more research should be done to examine the issue of the used instructional materials fully. A similar study with different learner groups and settings is needed to provide a wider perspective on implementing SRL strategies on blended classroom learning in EFL scopes. To conclude, this study provides a fundamental investigation that supports the ongoing efforts to improve EFL learning quality and tackle the difficulties EFL learners' encounter.

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Authors' contributions

Competing interests

The authors declare that they have no known competing financial interests or personal relationships that could have influenced the work reported in this paper.

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References

Abdelhalim, S. M. (2022). An investigation into English majors' self-regulated writing strategies in an online learning context. *Language Teaching Research, 26*(6), 983-1004. https://doi.org/10.1177/13621688221100296

Adas, D., & Bakir, A. (2013). Writing difficulties and new solutions: Blended learning as an approach to improve writing abilities. *International Journal of Humanities and Social Science, 3*(9), 254-266.

Ahmed, O. N. (2012). The effect of different learning styles on developing writing skills of EFL Saudi learners. *British Journal of Arts and Social Sciences, 5*(2), 220-233.

Akhter, T. (2020). Problems and challenges faced by EFL students of Saudi Arabia during COVID-19 pandemic. *Rupkatha Journal on Interdisciplinary Studies in Humanities, 12*(5), 1-7.

Alanazi, M. H. (2020). The predictive effects of self-regulated writing strategies on writing performance of Saudi EFL university students. *Journal of Educational and Psychological Studies [JEPS], 14*(4), 668-678. https://doi.org/10.24200/jeps.vol14iss4pp668-678

Alaraj, M. M. (2016). EFL acquisition: External problems and difficulties: An investigative interview to examine Saudi students' thoughts and feelings. *Journal of Language Teaching and Research, 7*(3), 484-492. https://doi.org/10.17507/jltr.0703.12

Al-Hamlan, S., & Baniabdelrahman, A. A. (2015). A needs analysis approach to EFL syllabus development for second-grade students in secondary education in Saudi Arabia: A descriptive analytical approach to students' needs. *American International Journal of Contemporary Research, 5*(1), 118-145.

Al-Harbi, S. S., & Alshumaimeri, Y. A. (2016). The flipped classroom impact in grammar class on EFL Saudi secondary school students' performances and attitudes. *English Language Teaching, 9*(10), 60-80. https://doi.org/10.5539/elt.v9n10p60

Alkhalaf, M. (2023). Flipped classroom approach in EFL context: Implementing self-regulated learning to improve students' performance in use of grammar. *International Journal of English Language and Literature Studies, 12*(3), 238-253.

Alreshoud, A. A., & Abdelhalim, S. M. (2022). The impact of self-regulated strategy development on enhancing Saudi female English

majors' reading comprehension skills and self-efficacy. *Arab World English Journal, 13*(2), 312-327. https://doi.org/10.24093/awej/vol13no2.21

Alrouji, O. O. (2020). The effectiveness of blended learning in enhancing Saudi students' competence in paragraph writing. *English Language Teaching, 13*(9), 72-82. https://doi.org/10.5539/elt.v13n9p72

Alrouji, O. O. (2022). The effects of using a blended learning approach on EFL students' essay writing at Shaqra University, Saudi Arabia (Doctoral dissertation, Macquarie University). Available from Macquarie University Theses Collection.

Alsalihi, H. D. (2020). Main difficulties faced by EFL students in language learning. *Journal of the College of Education for Women, 31*(2), 19-34. https://doi.org/10.36231/coedw.v31i2.1358

Alshahrani, S. (2015). Exploring the ways in which learners regulate their learning on a blended learning course at King Khalid University, Saudi Arabia (Doctoral dissertation, University of Southampton). Retrieved from https://eprints.soton.ac.uk/378013/

Alshammari, S. R. (2016). Improving Saudi English learners' second-language acquisition in argumentative writing through self-regulated strategy development (Doctoral dissertation, University of Kansas). Retrieved from https://kuscholarworks.ku.edu/handle/1808/22534

Ardiansyah, W., & Meirani, W. (2022). Boosting students' reading comprehension attainment with the flipped classroom model: A pilot study at State Polytechnic of Sriwijaya. *International Online Journal of Education and Teaching, 9*(2), 871-883.

Arslan, A. (2020). A systematic review on flipped learning in teaching English as a foreign or second language. *Journal of Language and Linguistic Studies, 16*(2), 775-797. https://doi.org/10.17263/jlls.759257

Bravo Zambrano, J. (2023). The promotion of self-regulated learning in English instruction at Colombian universities (Doctoral dissertation). Available from Colombian National University Theses Collection.

Broadbent, J., & Fuller-Tyszkiewicz, M. (2018). Profiles in self-regulated learning and their correlates for online and blended learning students. *Educational Technology Research and Development, 66*(6), 1435-1455. https://doi.org/10.1007/s11423-018-9584-y

Chen, S., & Zhou, J. (2010). Creative writing strategies of young children: Evidence from a study of Chinese emergent writing. *Thinking Skills and Creativity, 5*(3), 138-149. https://doi.org/10.1016/j.tsc.2010.09.003

Eggers, J. H., Oostdam, R., & Voogt, J. (2021). Self-regulation strategies in blended learning environments in higher education: A systematic review. *Australasian Journal of Educational Technology, 37*(6), 175-192. https://doi.org/10.14742/ajet.6678

Fathi, J., Mohammaddokht, F., & Afzali, M. (2023). Exploring Iranian EFL teachers' attitudes toward the use of learning management systems in English classes. *Íkala, Revista de Lenguaje y Cultura, 28*(1), 30-48. https://doi.org/10.17533/udea.ikala.v28n1a02

Fisher, R., Tran, Q., & Verezub, E. (2024). Teaching English as a Foreign Language in higher education using flipped learning/flipped classrooms: A literature review. *Innovation in Language Learning and Teaching, 1-20.* https://doi.org/10.1080/17501229.2023.2174726

Gaml, M. E. M., & Elghotmy, H. E. A. (2023). Using web-based flipped learning to develop secondary stage students' EFL reading comprehension skills. *Journal of Research in Education and Teaching, 12*(2), 115-129. https://doi.org/10.1080/17501229.2023.2159829

Hamouda, A. (2018). The effect of blended learning on developing Saudi English majors' writing skills. *International Journal of English and Education, 7*(2), 40-83.

Hockly, N. (2018). Blended learning. *ELT Journal, 72*(1), 97-101. https://doi.org/10.1093/elt/ccx056

Hrastinski, S. (2019). What do we mean by blended learning? *TechTrends, 63*(5), 564-569. https://doi.org/10.1007/s11528-019-00375-5

Hsieh, Y. H., Lin, Y. C., & Hou, H. T. (2016). Exploring the role of flow experience, learning performance, and potential behavior clusters in elementary students' game-based learning. *Interactive Learning Environments, 24*(1), 178-193. https://doi.org/10.1080/10494820.2013.819218

Hussein, S. H., & Al-Sultani, S. H. S. (2022). The relationship between question relations strategy and reading comprehension. *Journal of Positive School Psychology, 6*(2), 4303-4308.

Kassab, S. E., Al-Shafei, A. I., Salem, A. H., & Otoom, S. (2015). Relationships between the quality of blended learning experience, self-regulated learning, and academic achievement of medical students: A path analysis. *Advances in Medical Education and Practice, 6*, 27-34. https://doi.org/10.2147/AMEP.S75833

Mahmoud, N. H. (2020). Using flipped classroom learning model in developing some EFL reading skills among students at the Faculty of Specific Education. *Journal of Research in Education and Teaching, 6*(1), 484-493.

Onah, D. F., & Sinclair, J. E. (2017). A multi-dimensional investigation of self-regulated learning in a blended classroom context: A case study on eLDa MOOC. In *Interactive Collaborative Learning: Proceedings of the 19th ICL Conference-Volume 2* (pp. 63-85). Springer International Publishing. https://doi.org/10.1007/978-3-319-93692-8_9

Panadero, E., & Alonso-Tapia, J. (2014). How do students self-regulate? Review of Zimmerman's cyclical model of self-regulated learning. *Anales de Psicología, 30*(2), 450-462. https://doi.org/10.6018/analesps.30.2.167221

Pokhrel, S., & Chhetri, R. (2021). A literature review on the impact of the COVID-19 pandemic on teaching and learning. *Higher Education for the Future, 8*(1), 133-141. https://doi.org/10.1177/2347631120983481

Porter, W. W., Graham, C. R., Spring, K. A., & Welch, K. R. (2014). Blended learning in higher education: Institutional adoption and implementation. *Computers & Education, 75*, 185-195. https://doi.org/10.1016/j.compedu.2014.02.013

Priyanto, D. (2024). Efforts to improve reading skills in English language learning using comic media in class XI. akt. 2 SMK negeri 1 padangsidimpuan odd semester of the 2023/2024 school year. *Jurnal Liner (Language Intelligence and Educational Research), 7*(1), 100-116.

Quvanch, Z., & Na, K. S. (2020). A review on the impact of blended learning on English writing skills. *Innovative Teaching and Learning Journal (ITLJ), 4*(1), 41-50.

Rahman, A. A., Aris, B., Mohamed, H., & Zaid, N. M. (2014, December). The influences of flipped classroom: A meta-analysis. In *2014 IEEE 6th Conference on Engineering Education (ICEED)* (pp. 24-28). IEEE. https://doi.org/10.1109/ICEED.2014.7194667

Rasheed, R. A., Kamsin, A., Abdullah, N. A., Kakudi, H. A., Ali, A. S., Musa, A., & Yahaya, A. S. (2020). Self-regulated learning in flipped classrooms: A systematic literature review. *International Journal of Information and Education Technology, 10*(11), 1-6. https://doi.org/10.18178/ijiet.2020.10.11.1453

Rohmatillah, R. (2017). A study on students' difficulties in learning vocabulary. *English Education: Jurnal Tadris Bahasa Inggris, 6*(1), 75-93. https://doi.org/10.24042/ee-jtbi.v6i1.479

Sayuri, S. (2016). Problems in speaking faced by EFL students of Mulawarman University. *Indonesian Journal of EFL and Linguistics, 1*(1), 47-61. https://doi.org/10.21462/ijefll.v1i1.6

Shah, S. R., Hussain, M. A., & Nasseef, O. A. (2013). Factors impacting EFL teaching: An exploratory study in the Saudi Arabian context. *Arab World English Journal, 4*(3), 85-93.

Sinkkonen, M., & Tapani, A. (2024). Review of the concept "self-regulated learning": Defined and used in different educational contexts. *International Journal on Social and Education Sciences, 6*(1), 130-151. https://doi.org/10.46328/ijonses.123

Subedi, S., Nayaju, S., Subedi, S., Shah, S. K., & Shah, J. M. (2020). Impact of e-learning during the COVID-19 pandemic among nursing students and teachers of Nepal. *International Journal of Science and Healthcare Research, 5*(3), 68-76.

Theobald, M. (2021). Self-regulated learning training programs enhance university students' academic performance, self-regulated learning strategies, and motivation: A meta-analysis. *Contemporary Educational Psychology, 66*, 101976. https://doi.org/10.1016/j.cedpsych.2021.101976

Turan, S., Demirel, Ö., & Sayek, İ. (2009). Metacognitive awareness and self-regulated learning skills of medical students in different medical curricula. *Medical Teacher, 31*(10), e477-e483. https://doi.org/10.3109/01421590903193521

Turan, Z., & Akdag-Cimen, B. (2020). Flipped classroom in English language teaching: A systematic review. *Computer Assisted Language Learning, 33*(5-6), 590-606. https://doi.org/10.1080/09588221.2019.1584117

Tursunova, M. (2024). The importance of teaching English as a second language. *Modern Science and Research, 3*(1), 196-199. https://doi.org/10.47764/msr.2024.103

Urbina, S., Villatoro, S., & Salinas, J. (2021). Self-regulated learning and technology-enhanced learning environments in higher education: A scoping review. *Sustainability, 13*(13), 7281. https://doi.org/10.3390/su13137281

Wang, Y. (2023). Enhancing English reading skills and self-regulated learning through online collaborative flipped classrooms: A comparative study. *Frontiers in Psychology, 14*, 1255389. https://doi.org/10.3389/fpsyg.2023.1255389

Widayanti, R., & Meria, L. (2023). Business modeling innovation using artificial intelligence technology. *International Transactions on Education and Technology, 1*(2), 95-104. https://doi.org/10.52696/012354

Wu, W. C. V., Hsieh, J. S. C., & Yang, J. C. (2017). Creating an online learning community in a flipped classroom to enhance EFL learners' oral proficiency. *Journal of Educational Technology & Society, 20*(2), 142-157.

Zhang, Y. (2022). The effect of educational technology on EFL learners' self-efficacy. *Frontiers in Psychology, 13*, 881301. https://doi.org/10.3389/fpsyg.2022.881301

Zheng, B., Ward, A., & Stanulis, R. (2020). Self-regulated learning in a competency-based and flipped learning environment: Learning strategies across achievement levels and years. *Medical Education Online, 25*(1), 1686949. https://doi.org/10.1080/10872981.2020.1686949

Zhu, M., Berri, S., Koda, R., & Wu, Y. J. (2024). Exploring students' self-directed learning strategies and satisfaction in online learning. *Education and Information Technologies, 29*(3), 2787-2803. https://doi.org/10.1007/s10639-023-11201-3

Zimmerman, B. J. (2008). Investigating self-regulation and motivation: Historical background, methodological developments, and future prospects. *American Educational Research Journal, 45*(1), 166-183. https://doi.org/10.3102/0002831207312909