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The Place of Self-efficacy and Self-regulation in Reading Comprehension in Online Classes

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Abstract

Online classes, among other things, may require confidence, persistence, use of effective strategies, managing distractions, and maintaining focus on the part of the learners. Due to the prevalence and unique nature of this mode of instruction, it seems necessary to examine the factors that contribute to successful learning outcomes. This study examined the function of internet self-efficacy and online self-regulated learning in an online reading course. 264 university students completed the Persian versions of the Online Self-regulation Questionnaire (Cho & Cho, 2017) and the Online Learning Self-Efficacy Scale (Zimmerman & Kulikovich, 2016). Their reading performance was evaluated by the reading section of the TOEFL. The results, analyzed by a bivariate correlation, showed a significant correlation between internet self-efficacy and reading comprehension. Also, a significant positive connection was found between reading comprehension and self-regulated learning. Learners confident in using online environments and active in regulating their cognitive processes during reading tasks showed better comprehension outcomes. The regression analysis findings, however, show that self-efficacy ($\beta = 0.47$, $t = 8.15$, $p < 0.00$) is a stronger predictor of reading performance than self-regulation ($\beta = 0.16$, $t = 2.89$, $p < 0.00$). The findings highlight the importance of promoting self-regulation and internet self-efficacy to improve reading comprehension. Further research should explore other factors, such as cultural perspectives, teaching methods, cognitive abilities, and technological advancements.

Keywords: Internet self-efficacy, online instruction, reading comprehension, self-regulated learning, successful learning outcomes

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1. Introduction

Foreign language learning, including reading comprehension is a complicated process affected by several affective factors. In this study, we deal with the relationship between self-efficacy and self-regulated learning strategies among English language learners in an online college setting. These learners cope with some challenges, managing academic, linguistic, cultural and personal factors. Our study intends to understand how internet self-efficacy beliefs and online self-regulated learning strategies, relate to student success. By examining these variables, we try to expand language learning methods and inform educational approaches in online classes.

Online classes offer several interesting features that have contributed to their popularity among learners of all ages. One significant advantage of online instruction is the flexibility it provides in terms of class scheduling and the opportunity for individualized learning experiences. Online instruction's popularity highlights the need to assess instructional techniques for student success. It is vital to incorporate strategies that promote self-efficacy and self-regulation in online learning. This includes setting clear goals, giving feedback, and encouraging reflection to maintain learner motivation and cultivate effective study habits. By doing so, the full potential of online instruction can be realized, leading to wider educational opportunities.

Self-regulation in learning (SRL) is crucial for educational success (Broadbent & Poon, 2015; Chen & Bonner, 2020; Jia, 2021) as it enables effective management of learning and desirable outcomes. Goal setting, control, and evaluation are key factors influencing SRL capacity. SRL is especially important in online classes with limited teacher support. Zimmerman (2013) explains SRL through social cognitive and information processing theories. SRL is universally essential for academic achievement despite cultural variations (King & McInerney 2014). Self-regulation strategies have a link to psychological factors like self-efficacy and self-esteem, contributing to deep learning. According to Yokoyama (2019), there is a significant relationship between the development of self-regulation skills, proficiency in using the internet, and the level of success achieved in online learning.

Recent studies by Hong, Liu, Cao, Tai, and Zhao (2022) support previous research done by Duan and Hong (2019) and Kuo, Walker, Schroder, and Belland (2014), indicating a consistent finding that students with high levels of self-confidence are inclined to exert greater effort in tackling learning obstacles. Moreover, these confident individuals exhibit improved determination and employ advanced techniques in information assimilation.

The relationship between Online Learning Self-Efficacy (LSE) and reading comprehension performance has been explored in several studies. LSE refers to an individual's belief in their ability to effectively perform tasks related to online learning (Mills, Pajares, & Herron, 2007). Research findings reveal a positive correlation between high self-efficacy in reading strategies and better reading performance among students (Lee & Jonson-Reid, 2015; Liao & Wang, 2018; Shih, 2019).

2. Literature Review

In the context of Iranian colleges and universities, English is taught as a foreign language. The primary emphasis is placed on developing reading comprehension skills. This focus on reading proficiency has a significant impact on overall academic achievement. Success in reading skills, like other forms of learning, depends on different cognitive and affective variables. Drawing upon Plato's assertion that 'Education is all about emotions,' (Jain & Demetriou, 2021). It becomes pertinent to explore affective factors within the educational context. While no single study can comprehensively address all these factors, the current research focuses on two specific factors: self-efficacy and self-regulation in the learning process.

Zimmerman (2000) refers to self-regulated learning (SRL) as the purposeful adjustment of thoughts, emotions, and behaviors in order to achieve desirable goals. It includes strategies such as planning, managing time, maintaining attention, organizing information, practicing, creating a favorable environment, and effectively using social resources. These efforts are crucial for optimizing learning outcomes and fostering academic success.

Social factors shape self-regulatory skills, which are important for managing thoughts, emotions, and behavior. McInerney (2008) stated that social modeling, where people observe and imitate others' self-regulatory behaviors, greatly influences the acquisition of these skills. Social guidance, feedback, and collaboration are important for enhancing individuals' self-regulatory abilities Additionally, social collaboration fosters the development of self-regulation by engaging individuals in joint problem-solving and decision-making processes (Fawcett, & Garton,

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2005). Culture plays a crucial role in shaping a society's self-regulation practices, values, and expectations, making it a key factor alongside social influences in the enhancement of self-regulation characteristics (Zhao et al., 2021).

Educational psychology draws attention to strategies of self-regulation of learning and sheds light on cognition, motivation, and emotion in learning. In order to learn self-regulation skills, learners must actively engage in metacognition, motivation, and behavior strategies. Zimmerman (1989) and Pintrich (2000) have examined SRL from different perspectives, highlighting its practical and organized nature, with learners setting goals, monitoring their progress, and making adjustments. Numerous studies emphasize the importance of effective learning regulation for success. SRL empowers students to independently use their cognitive abilities to promote their academic skills. In general, SRL helps students control their behavior, emotions and thoughts during their education (An, 2021; Lawson, 2019).

According to Rose et al. (2018), different learning strategies for second language acquisition significantly influence self-regulated learning. Dörnyei (2005) contends that self-regulated learning skills have five primary domains, including emotion, satiation, metacognition, commitment and environmental control. These domains are further comprised of specific skills and strategies to regulate and manage the learning process to achieve desired outcomes. Therefore, in order to implement an efficient language learning program, self-regulated learning should be taken into consideration.

According to a study conducted by Dent and Koenka (2016), academic performance was strongly correlated with learning self-regulation. Specifically, they found that metacognitive regulation behaviors such as monitoring and planning played a significant role in this connection. Moreover, strong self-regulated learning skills bring about favorable results for second-language learners in online education. Furthermore, a noteworthy correlation exists between the ability to self-regulate and the language proficiency achievements of second language learners in an online setting.

It is hypothesized that teachers can boost the self-regulatory skills of second language learners by providing them with support in their online learning. Having good self-regulation skills is crucial for achieving academic success, as multiple studies have consistently shown that there is a direct correlation between self-regulation and academic achievement. Studies have shown that students who receive guidance on learning strategies have a higher probability of possessing self-control and achieving greater results (Bandalos et al., 2003).

Through an experimental study, Deng (2012) evaluated the outcomes of college English classes. Students' self-regulation was enhanced by using a variety of techniques in the experimental class. They included personalized learning plans, motivation orientation, continuous progress monitoring, self-evaluation, reinforcement, and regulation of the learning environment. Using these strategies during three semesters significantly improved the final examination and the English proficiency of the experimental class students.

Kondo et al. (2012) examined the listening and speaking skills of Japanese university students. A mobile phone application with guidance for self-regulated learning was compared to a classroom setting incorporating SRL. The findings revealed that learners experienced more substantial enhancements in their language skills when exposed to a mobile learning setting.

According to Zhu, Valcke, and Schellens (2008), the use of some specific self-regulation methods directly correlates with enhancing deep learning. Moreover, Haugen (2005) finds that self-esteem and academic self-efficacy are associated with self-regulatory learning strategies. It is believed that these psychological factors contribute to higher academic achievement and motivation. Additionally, self-regulatory strategies are essential to learners' autonomy and self-regulation.

As self-regulation positively influences efficacy in online instruction (Adeyinka & Mutula, 2010), it seems necessary to understand it. Online platforms for second language learning require learners to independently initiate and maintain cognitive processes, emotions, and behaviors. Self-regulation, second-language learning, and online learning settings all share this concept. Understanding the function of SRL in second language development via online channels seems essential for comprehending the psychological, cognitive, and behavioral processes of learners. Additionally, it can enhance their mastery of language skills and foster their capacity to participate in self-directed learning using digital resources.

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Bandura (1997) says individuals who believe in their own abilities regulate themselves more effectively, which leads to positive academic performance. Whereas, less-efficacious individuals may not be able to regulate their behaviors, resulting in poor performance. In this theory, the most influential factor that contributes to the attainment of goals is self-efficacy. Therefore, it is critical to develop self-efficacy to maximize academic performance. This can be done through providing positive reinforcement, clear goals and objectives, and giving students a chance to manage their learning.

Internet self-efficacy denotes students' self-confidence in their skills to use the Internet for educational purposes. This conviction plays a central part in their performance and accomplishments in online courses, as it impacts their drive to actively pursue information and use online means effectively. The import of self-efficacy in internet use in predicting academic success has been substantiated (Aldhahi et al., 2021; Alqurashi, 2018; Dinh et al., 2022; Wang & Sun, 2020). Online learning success is largely determined by students' Internet self-efficacy. Educators should make efforts to develop and cultivate this confidence in their students. Teaching internet skills and providing support can be effective interventions for this purpose.

It has been found that effective use of Learning Management Systems correlates with self-efficacy. Robbins, Lauver, Le, David, and Langley (2004) argued that behavior regulation and self-efficacy positively influence academic achievements, supporting the idea that self-efficacy is beneficial to success. Online education research has helped scholars to better understand the theory of self-efficacy. It has been approached from different perspectives, especially technological one (Alqurashi, 2016). The claim can be attested by referring to studies that dealt with self-efficacy in computer usage (Jan, 2015; Pellas, 2014), information retrieval (Kuo, Walker, Schroder, & Belland, 2014), and learning management systems (Martin, Tutty, & Su, 2010). Researchers have studied online learning environments to determine the influence of self-efficacy on other learning factors. Gebara (2010), Joo, Lim, and Kim (2013), Xiao (2012) examined self-efficacy in online instruction settings. Their findings indicate that self-efficacy correlate with factors such as motivation, engagement, and achievement.

In addition to computer proficiency, information retrieval, learning management systems, and online instruction, the aforementioned studies have contributed to an increased understanding of online learning self-efficacy. By investigating these areas, researchers have enhanced our understanding of how individuals perceive their abilities and confidence when engaging in online learning activities. Gaining a deeper interpretation of internet self-efficacy in online learning, educators can design and implement online learning management systems that cater to students' needs. Furthermore, it has also enabled instructors to identify areas where students may need additional support or instruction.

Researchers have found that there is a complex relationship between students' self-efficacy and academic achievement, according to Honicke and Broadbent (2016), Schöber et al. (2018), and Talsma et al. (2018). It needs to be noted, however, that specific circumstances may not result in reciprocal effects. Therefore, in order to promote better academic outcomes for students, acknowledging the importance of self-efficacy is crucial. One way to do this is by implementing plans that augment students' self-efficacy and providing them with the necessary resources to support their achievements.

Kim et al. (2015) obtained a strong relationship between self-efficacy and self-regulated learning. It has been established by Zimmerman and Martinez-Pons (1992) that learners' self-regulation improves their confidence in their academic abilities. Among Chinese students studying English, self-regulation strategies are more common in reading courses (Li & Wang, 2010). Kim et al. (2015) argue that learners with low self-efficacy exhibit different self-regulated learning strategies than highly efficacious learners.

A technology-based learning program has some advantages. Students engage themselves in their learning activities, and their confidence is boosted. Wu and Yang (2016) found that technology-enabled learning improves motivation, confidence, engagement, and self-regulation skills throughout the learning process. Online learning environments have yet to be fully explored for SRL and self-efficacy (Anam & Stracke, 2016), though.

Studies have demonstrated that language learners' self-regulatory strategies are associated with self-efficacy in traditional settings (Bai, 2014; Kim, 2015). In online settings, the self-regulation and self-efficacy of EFL learners interact with each other in a reciprocal manner. This implies that these associations can work in both directions (Boekaerts, Pintrich, & Zeider, 2005). Self-efficacious students tend to demonstrate greater self-regulation in their learning process. Similarly, learners with greater skills in self-regulation tend to be more efficacious. It is further

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suggested that both traditional and online settings can benefit from self-regulatory language learning strategies. These can improve learning outcomes and foster self-efficacy in language learners.

Dabbagh (2007) argues that successful students in face-to-face and online classes exhibit above-average motivation, self-regulation, self-efficacy, interaction, and technical skills. Nevertheless, individual students may differ in self-efficacy, self-regulation, and emotional abilities. Some students prefer traditional, teacher-centered education while others prefer online education. Hence, teachers should consider influential factors when planning courses. The design, management, and implementation of online and traditional courses has a significant impact on student satisfaction (Lee, 2014).

The relationship between self-regulation and self-efficacy and the acquisition of English language skills has been studied extensively. Typically, studies are conducted in traditional classroom settings (Kim, Wang, Ahn, & Bong 2015). Online language learners' self-regulation and self-efficacy have been studied sparingly. To shed some light on the importance of self-regulation and self-efficacy in online language learning, conducting additional research seems fruitful. This research should primarily focus on the issues that learners encounter while engaging in online learning activities. Additionally, research should explore the differences between traditional and online language learning. We therefore attempt to address the following questions.

1. Is there a significant correlation between online self-regulation and reading comprehension among EFL learners?
2. Are there any significant relationships between EFL learners' internet self-efficacy and their reading comprehension?
3. Is there a significant relationship between online self-regulation and internet self-efficacy among EFL learners?
4. How do online self-efficacy and self-regulation predict reading comprehension among EFL students?

In what follows, the writer takes up the method of the study, entailing the participants, the instruments, the procedure and the design of the study.

3. Methodology

3.1 Design

The researcher used a descriptive and correlational design to examine the direction and strength of the relationship between the variables of the study, namely, self-regulated learning, internet self-efficacy and reading comprehension.

3.2 Participants

The research included 315 students who had a general language course at a university. Their ages fell within the 18-21 range, and they were pursuing degrees in the field of engineering. 282 students completed the questionnaires. 18 of the questionnaires were incomplete or inaccurate. These questionnaires were deemed unsuitable for analysis due to potential biases. Our analysis included 264 accurate and complete responses. The researcher utilized Persian versions of the questionnaires to make sure the respondents understand of the questionnaire items. Because these questionnaires had not previously been published in Iranian research journals, they had to be translated independently. In order to ensure precision, two professors proficient in both languages back-translated the questionnaires.

3.3Instruments

In order to achieve the goal of the study, two questionnaires were utilized: the 'Online Self-regulation Questionnaire' and the 'Online Learning Self-Efficacy Scale'. Moreover, the researchers included the reading section of the TOEFL test, to assess the students' reading skills These instruments were selected for their proven reliability.

3.3.1The online Self-regulation Questionnaire (OSQ)

The questionnaire designed by Cho and Cho in 2017, covers three constructs and includes a total of 30 items. The first construct (items 1 to 11) assessed how students dealt with course materials. Interactions, collaboration, and communication with instructors were examined in the second construct (items 12-20). The third construct (items 21-30) examined students' positive engagement in peer interactions, group discussions, and collective learning. The

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responses of the participants were assessed using a Likert scale, which spanned from 1, representing "not true at all," to 7, indicating "very true of me."

3.3.2 Online Learning Self-Efficacy Scale (OLSES)

The 'OLSES' which was designed by Zimmerman and Kulikovich in 2016, consists of 22 distinct tasks. Each of these activities is given a score ranging from 1 to 6, indicating the level of confidence the respondent has in their capability to succeed in that specific task. A score of 1 indicates a lack of confidence and a score of 6 signifies a high level of confidence. The OLSES consists of three main components: Learning, Time, and Technology. Each component encompasses specific items that align with related aspects of online learning. The 'Learning' component includes activities numbered 11, 12, 13, 14, 15, 17, 18, 19, 21, and 22. The 'Time' component incorporates activities numbered 8, 9, 10, 16, and 20. The 'Technology' component encompasses activities numbered 1, 2, 3, 4, 5, 6, and 7.

3.3.3 Reading Comprehension Test

The TOEFL reading section was utilized to evaluate the students' reading comprehension skills. It entails recalling words' meanings, understanding words in context, and interacting with textual and external clues. This test also measures skills such as finding synonyms and searching for specific information efficiently and students' comprehension of grammatical relationships and references within the text. Additionally, the test assesses the ability to locate relevant information by skimming and scanning. Finally, the section examines the students' ability to recognize the author's style and tone, which enables them to understand the text's intended message better.

3.4 Procedure

315 students enrolled in our university's general English course were tested on reading proficiency in autumn 2022. The test was administered by means of our virtual education system. To gather further research data, we used Google Forms to prepare and distribute questionnaires to these students. The researcher utilized Persian versions of the questionnaires to ensure that the respondents understand of the questionnaire items. Because these questionnaires had not previously been published in Iranian research journals, they had to be translated independently. In order to ensure precision, two professors proficient in both languages back-translated the questionnaires.

5. Results and Discussion

In the study, Iranian students enrolled in online reading classes were examined for their self-regulation of learning and internet self-efficacy using two surveys and the reading section of the TOEFL. Statistical analyses, using SPSS and AMOS, included descriptive statistics, reliability, construct validity, correlation, and regression analyses. Here are the results.

Table 1 displays the distribution of internet self-efficacy, self-regulation in learning and reading comprehension scores among participants. The lowest observed score for internet self-efficacy was 73 (within a range of 22 to 132), while the highest score reached 132. On average, participants scored 102.32. Notably, this mean indicates that participants achieved 77% of the maximum possible self-efficacy. Additionally, the table presents data on SRL. The lowest SRL score recorded was 114 (within a range of 30 to 210), with the highest score reaching 210. Participants' average SRL score was 162.12, corresponding to 77% of the maximum possible SRL. Furthermore, the table provides statistical information related to reading comprehension. The lowest score observed in this test was 25 (within a range of 0 to 40), while the highest score reached 39. On average, participants scored 33.58, representing 83% of the maximum attainable score. Given that engineering students in Iranian universities typically find English to be a simple subject, this average seems reasonable.

Indexes of normality of the distribution are provided in Table 1. Standard deviation for internet self-efficacy, self-regulation in learning and reading comprehension are 15.98, 24.44 and 3.04, respectively. The coefficient of variation is, 0.15 for both internet self-efficacy and self-regulation in learning. This index for reading comprehension is 0.09. Coefficient of variation compares the standard deviation to the mean. If it is greater than 1, it is often considered high. Since this index is well below 1 in this sample, it seems that the data is normally distributed. The table also provides information regarding skewness and kurtosis. The skewness is, 0.1 for both internet self-efficacy and self-regulation in learning. This index for reading comprehension is -0.59. normal. The kurtosis is -0.96 for internet self-efficacy and -0.79 for self-regulation in learning. This index for reading comprehension is 0.14. Since the kurtosis values in this study are within the range of -2 and +2, the sample is a normal univariate distribution.

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Table 1. Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Efficacy	264	73.00	132.00	102.3295	15.98363	.105	-.962
Self-reg	264	114.00	210.00	162.1212	24.44238	.106	-.790
reading	264	25.00	39.00	33.5871	3.04341	-.595	.149

The reliability of the measures was evaluated. Cronbach's Alpha coefficient was estimated for each measure. Table 2 presents the obtained coefficients for Self-efficacy, Self-regulation, and Reading test as .9, .94, and .86, respectively. These coefficients suggest that the instruments exhibit satisfactory levels of reliability. This suggests that the items within each measure exhibit a robust internal consistency of the instruments.

Table 2. Reliability of the instruments

Instrument	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Self-efficacy	.89	.9	22
Self-regulation	.94	.94	30
Reading	.86	.87	40

Table 3 presents the findings related to construct validity. Specifically, the Root Mean Square Error of Approximation (RMSEA) values for Self-regulation, Self-efficacy, and Reading are estimated as 0.08, 0.07, and 0.01, respectively. These values indicate satisfactory results. According to Browne and Cudeck (1993), models with an RMSEA less than 0.08 and a PCLOSE value of 0.5 or higher are considered adequate.

Table 3. Model Fit statistics of the instruments

Instruments	RMSEA	LO 90	HI 90	PCLOSE
Self-regulation	.08	.06	.09	.5
Self-efficacy	.07	.06	.09	.5
Reading test	.01	.01	.02	1

After conducting a thorough assessment of the questionnaires and the reading test for their reliability and validity, the researcher can confidently proceed to address the central research questions. The first three research questions were answered by a bivariate correlation. Detailed findings are presented in Table 4.

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Table 4. Correlations among self-efficacy, self-regulation and reading

	Efficacy	self-regulation	reading
efficacy		.50	.56
self-regulation	.50		.40
Sig. (2-tailed)	.00	.00	.00
N	264	264	264

The findings show a strong and positive connection between self-regulation and reading skills (r=0.40, n=264, p=0.00). Additionally, there is a significant association between internet self-efficacy and comprehension of reading material (r=0.56, n=264, p=0.00), and a similarly important relationship between self-regulation and self-efficacy (r=0.50, n=264, p=0.00). This index implies that self-regulation and self-efficacy highly correlate with each other (as in Cohen, 1988, pp. 79–81).

The R^2 value for self-regulation and reading comprehension is 0.16, meaning that self-regulation can explain 16 percent of the variability in reading comprehension. In simpler terms, self-regulation abilities can account for 16 percent of the differences observed in reading comprehension scores. In the same vein, the R^2 value for self-efficacy and reading comprehension displays a correlation of 0.31, indicating that 31 percent of the differences in reading comprehension scores can be ascribed to self-efficacy levels implying that this factor plays a slightly more significant role than self-regulation in elucidating the discrepancies in reading comprehension abilities among individuals.

The R^2 value for self-regulation and self-efficacy is 0.25, indicating a robust association between these two variables. This implies that 25 percent of the differences in each of these variables can be explained by the variations in the other variable. A standard linear regression analysis was performed to see how well internet self-efficacy and self-regulated learning can predict performance in reading comprehension. In order to evaluate the multicollinearity in the data set, a correlation between the independent variables was calculated and found to be 0.5 (Table 2). This level of correlation, according to Pallant's (2020) guideline, cannot disturb regression coefficients.

Table 5 presents compelling data that prove the statistical significance of the overall regression analysis. The coefficient of determination (R^2) value of 0.33 indicates that self-regulated learning and internet self-efficacy explain approximately 33 percent of the variability detected in reading comprehension. Hence, our findings propose that by promoting self-regulatory skills and self-efficacy, one can enhance reading comprehension.

Table 5. Model Summary for self-regulation, self-efficacy and reading comprehension

					Change Statistics				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change
1	.57	.33	.32	2.24	.33	65.60	2	261	.00

F-statistics (F = (2,261) 65.6, p = 0.00) help the researcher to show that the model of the relationship among self-regulated learning, internet self-efficacy, and reading comprehension holds reliable. The findings imply that this association is not random. The results suggest that self-regulated learning and confidence in using the internet influence reading comprehension.

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Table 6. Regression coefficients of self-efficacy, self-regulation and reading comprehension

	Unstandardized Coefficients					Correlations			Collinearity Statistics	
Model	B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part	Tolerance	Tolerance
(Constant)	20.91	1.16		17.92	.00					
Self-efficacy	.09	.01	.47	8.15	.00	.56	.45	.41	.75	1.33
Self-regulation	.02	.00	.16	2.89	.00	.40	.17	.14	.75	1.33

Additional information regarding collinearity is given through the Variance Inflation Factor (VIF) value, which is noted as 1.33. The value being below the critical threshold of 3 suggests that there is no need to worry about multicollinearity in this particular situation. Hence, the model is unaffected by these independent variables because the correlation between them is not too high. Furthermore, a variety of diagnostic tests were conducted to ensure that the regression model was precise. Outliers were identified and assessed in order to determine their impact on the results. Analyses indicate that they had no undue influence on the results. Linearity assumptions were also examined. Self-regulation, self-efficacy, and reading skills exhibit a positive linear relationship and the homoscedasticity of the residuals, which is defined as equal variance across all levels of the predicted variables, was further examined and found to be satisfactory. The regression analysis shows that the linearity assumptions are satisfied. Therefore, regression models can be used to predict data accurately.

The regression analysis findings provide strong evidence of a positive association between self-efficacy levels and reading comprehension. This is supported by a beta coefficient of 0.47 (t=8.15, p=0.00), indicating that a one-unit increase in self-efficacy leads to a 0.47-unit increase in reading comprehension. Furthermore, findings reveal a statistically significant and positive association between self-regulatory learning and reading skills. The beta coefficient of 0.16 (t=2.89, p=0.00) suggests that for a one-unit increase in self-regulated learning, there is a 0.16 unit increase in reading comprehension. Although this relationship is not as robust as the one observed for self-efficacy, it is still statistically significant.

In the present study, we investigated the place of self-regulation in learning and internet self-efficacy in reading comprehension and the intricate relationship between self-regulation and self-efficacy among English as a Foreign Language (EFL) learners, emphasizing their mutual influence. Drawing upon influential studies by Bai (2014), Kim (2015), and Boekaerts, Pintrich, and Zeider (2005), we explored how self-efficacy and self-regulation interact bidirectionally, shaping learners' academic outcomes. It may be safe to claim that both traditional classroom settings and online language learning environments can harness self-regulatory strategies to enhance learning efficacy and foster self-confidence in language learners.

Bai (2014) and Kim (2015) have independently established a positive association between learners' self-efficacy beliefs and their engagement in self-regulatory behaviors. When students perceive themselves as capable and competent, they are more likely to employ effective learning strategies. Similarly, self-regulation—characterized by planning, monitoring, and adapting one's learning approach—contributes to boosting self-efficacy.

Boekaerts et al. (2005) introduced the concept of bidirectional interactions between self-regulation and self-efficacy. Notably, self-efficacious students exhibit greater self-regulation, as they persistently seek optimal learning strategies. Simultaneously, learners good at self-regulation tend to cultivate higher self-efficacy beliefs. This reciprocal relationship underscores the need for holistic interventions that address both dimensions.

Students who believe SRL strategies are important for academic success would welcome the chance to learn these strategies. Our results are in line with the previous literature (e.g., Bandalos et al., 2003; Dent & Koenka, 2016; Watson

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et al., 2020) who hold that the use of SRL techniques assists students in comprehending their learning process and enhancing their academic performance.

The research findings align with previous studies by Aldhahi et al. (2021), Alqurashi (2018), Dinh et al. (2022), and Wang and Sun (2020), emphasizing the pivotal role of self-efficacy in predicting academic success through internet use. It seems crucial for teachers to foster this confidence in students. Implementing targeted interventions, such as teaching internet skills and offering support, can significantly contribute to enhancing self-efficacy and, consequently, academic achievement.

In summary, the outcomes of the current study indicate that promoting self-efficacy and self-regulated learning not only enhances reading comprehension but also empowers students to control their learning process. Educators can utilize these insights to design effective interventions that address students' beliefs and encourage their engagement in learning.

6. Conclusions and Implications

It is important to be self-regulatory and self-efficacious in order to improve reading comprehension. Remarkably, high self-efficacy emerges as a significant predictor of test scores, as individuals with greater self-efficacy have a tendency to see themselves as skilled at comprehending intricate texts and conquering obstacles that come their way. This belief fosters motivation, persistence, and confidence in one's reading abilities, resulting in improved comprehension outcomes.

SRL strategies may empower students to take over their own learning. These strategies include setting specific goals, planning and organizing study time, monitoring progress and employing various strategies to regulate learning (Watson et al., 2020). By implementing these strategies, students can actively engage in their own learning, allowing them to become more self-aware and reflective learners.

To enhance self-regulatory learning, Cleary and Zimmerman (2004) designed the Self-regulation Empowerment Program (SREP). It includes graphing, modeling, coaching, and practice. The program involves self-control, self-observation, and gathering information for future learning. It also includes reflecting on self-monitoring information, evaluating performance, and making adjustments. SREP enables learners to manage their learning, closely check their improvement, and maximize learning outcomes.

Students can also develop the confidence to take responsibility for their learning through these strategies. It might be helpful to integrate SRL strategies into the instruction. This can help learners develop better study habits, become more independent learners, and become more self-reliant and motivated. By utilizing SRL strategies, students can foster greater autonomy in their learning, thereby enhancing their academic achievements both within the classroom and in their future endeavors.

According to Bartimote-Aufflick et al. (2016), efficacy perceptions are shaped by social or verbal encouragement; for example, being told that one is capable of accomplishing something may influence the individual to achieve it. Taking into consideration this important factor in shaping self-efficacy, the following list of activities has been compiled as potential strategies to foster learners' self-efficacy in the process of learning. Involving students in these activities can strengthen their belief in their abilities and enhance their overall academic performance.

- Employ classroom interaction to facilitate students' utilization of multimedia resources, such as videos, rather than relying solely on independent viewing. Enhance lecture effectiveness by incorporating multimedia elements and enabling students to interact with one another (e.g., Govaere, de Kruif, & Valcke, 2012).

- Learners should be scaffolded, especially when discussing unfamiliar topics (Gurlitt & Renkl, 2010).

- Use a concept map format instead of a traditional browsing structure for e-learning materials (as in Shaw, 2010).
- When solving problems, serve as a model for your students; provide positive feedback when they follow the correct strategy (e.g., Zimmerman & Kitsantas, 2002).
- Offer additional, individualized support for concepts and skills they haven't mastered (Cheung, Li, & Yee, 2003).
-Make sure the tasks are challenging but manageable; provide guidance when needed (Papastergiou 2010).

In line with the findings of this study, it is necessary for educators, parents, and policymakers to recognize the importance of enhancing self-regulation and self-reliance among learners. Implementing strategies and interventions

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that foster self-regulation skills and enhance self-efficacy in reading can significantly contribute to improving overall reading comprehension abilities and academic success. It is widely believed that learning a foreign language involves many learner variables. Hence, the study's limited scope means there is a need for further research to investigate other variables, such as cultural background, teaching methods, and technological advancements. This approach would offer a broader insight into reading comprehension skills.

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