The Relationship between Self-regulated Learning Strategies and English Language Abilities and Knowledge of Undergraduate Students

Charinee Chansri[a] , Akadet Kedcham[b], Montha Polrak[c*]

[a] charinee.ch@kmitl.ac.th, Department of Languages, Faculty of Liberal Arts, King Mongkut's Institute of Technology Ladkrabang, Thailand
[b] kedcham@hotmail.com, Educational Research and Evaluation Programme, Faculty of Education, Bansomdejchaopraya Rajabhat University, Thailand
[c] montha.po@kmitl.ac.th, Department of Languages, Faculty of Liberal Arts, King Mongkut's Institute of Technology Ladkrabang, Thailand
[*] Corresponding author, montha.po@kmitl.ac.th

ABSTRACT

This paper aimed to explore the impact of self-regulated learning strategies on English language abilities and knowledge of 421 final-year undergraduate students at a public university in Thailand. The instruments used in the present study were 1) the 65-item Questionnaire of English Self-Regulated Learning Strategies (QESRLS), and the English Exit Exam (EEE) comprising 80 multiple-choice items, namely, 20 items for the grammar part, 20 items for the reading part, 20 items for the writing part, and 20 items for the language function (speaking) part. Descriptive statistics of frequency, percentage, mean, and standard deviation as well as inferential statistics of Pearson Correlation Coefficient and Multiple Indicators Multiple Causes (MIMIC) Model were utilized to analyze the data gained. The findings reveal the

correlation between the participants' use of self-regulated learning strategies and the overall English language abilities and knowledge as well as the four aspects of them: grammar, reading, writing, and language function (speaking). Besides, the interpretation guessing strategies, the self-evaluation strategies, and the persistence strategies when faced with challenges were positively associated with the English language abilities and knowledge. The findings shed some light on the integration of self-regulated learning strategies into English language courses or curricula.

Keywords: self-regulated learning strategies, English language abilities and knowledge, undergraduate students

Introduction

The concept of self-regulated learning, as one of non-linguistic factors, which plays an important role in language learners' academic success, has emerged in the realm of educational psychology since the mid-1980s. Such a concept is based on the social cognitive theory that holds the belief on the influence of self-regulation on human functioning in general and on academic functioning (Usher & Schunk, 2018). With such a belief, self-regulated learning involves learners' process in which self-regulated learning strategies are selected and used so that learners can obtain their academic accomplishments (Zimmerman, 1990).

Since self-regulated learning has been considered a vital psychological variable that leads to learner's academic achievement (Goulão & Menedez, 2015; Khampirat, 2021; Pintrich, 1999), the construct has been the subject to empirical studies in various fields of studies, including language teaching and learning. Several scholars have elaborated on the use of self-regulated learning strategies in language learning of students in a wide range of educational levels (Apridayani & Teo, 2021; Sun & Wang, 2020), such as at a secondary level (Soruç et al., 2022; Tran & Phan Tran, 2021) and at an undergraduate level (Suhandoko & Hsu, 2020). In addition, self-regulated learning strategies have been examined in terms of their association with a wide range of language mastery, ranging from students' language achievements (Abdullah & Ali, 2017; Deng et al., 2022) to their language proficiency (Sun & Wang, 2020). However, at university levels of many countries, including Thailand, very little is known about the relationship between students' self-regulated learning strategies and their abilities revealed from English exit exams. English exit exams have been recently implemented in Thailand before the graduation of final-year undergraduate students.

In the Thai educational context, Thailand's policy about educational reform enforced in 2017 has been aimed at enhancing the English language proficiency of undergraduate students. Hence, English exit exams have been being administered among the final-year undergraduate students before their graduation to reflect their English language abilities aligned to the Common European Framework of Reference for Languages (CEFR) or other standards (Office of the Higher Education Commission, 2016). Due to the enforcement of the policy, nationwide English exit exams have been organized in Thailand at the undergraduate level.

Despite the role of English exit exams as a key to reveal English language skills and knowledge of Thai undergraduate students, few studies have been conducted to investigate in what ways psychological factors in a cognitive process, particularly self-regulated learning, play a part on such skills and knowledge. The present study was thus conducted to fulfill such a gap. The objective of the present study was to examine the association between self-regulated learning strategies and English language abilities and knowledge of undergraduate students. The findings have shed some light on some practical implications on English course and curriculum design with the integration of self-regulated learning strategies to promote Thai undergraduate students' success in English language skills.

Literature Review

The literature review of this study is discussed in the following three sub-topics: concepts of self-regulated learning, self-regulated learning strategies in relation to English language abilities and knowledge, and measurement of self-regulated learning strategies.

Concept of Self-regulated Learning

The concept of self-regulated learning arose in the 1980s, and it evolved around the social cognitive theory which portrays how a learning process occurs in a particular social context with an interaction of the person, environment, and behavior (Bandura, 1986). To be specific, the theory emphasizes the way in which a person acquires and maintains his or her behavior on the influence of internal as well as external social factors. Based on the notion, self-regulated learning highlights a learner's attempts to control social factors to achieve an academic goal. This can be seen from research studies examining roles of several main factors of learners' process in attaining goals (Deng et al., 2022). As Broadbent & Poon (2015) have stated in a meta-analysis of self-regulated learning, self-regulated learning has been explored through the triadic interaction of the three aspects: self-observation,

self-judgment, and self-reaction. That is, a learning process involves how the learner monitors as well as evaluates the learning performance and responds to the performance outcomes. The interplay among the three factors, then, has led to the self-regulated learning model created by (Zimmerman, 2002). The model has aimed to analyze the interaction of the three factors and to explain how learners use specific learning strategies to acquire knowledge and achieve an academic goal. According to Zimmerman, learners who succeed in controlling their learning via self-regulatory strategies can eventually succeed in transforming their mental abilities into academic achievements.

Self-regulated learning plays a significant part in various fields of studies, including language learning and teaching. This could be seen from the revised version of the renowned taxonomy of language learning strategies proposed by Oxford in 2011 (Oxford, 2011). In the revised version of the taxonomy, three core strategy categories are comprised of 'cognitive', 'affective', and 'sociocultural-interactive' strategies. In particular, 'cognitive strategies' help the learners construct, transform, and apply language knowledge; 'affective strategies' offer the learners assistance in creating positive feelings and motivation toward learning a second or foreign language; and 'sociocultural-interactive strategies assist the learners to be able to interact and collaborate with others when there are knowledge gaps. Then, the three types of metastrategies, namely, metacognitive, meta-affective, and meta-sociocultural-interactive strategies are included in the three core strategy categories. These metastrategies which help learners control the use of cognitive, meta-affective, and meta-sociocultural-interactive strategies reflect how the principles of self-regulation have been integrated into learning strategies (Dörnyei & Ryan, 2015).

To conclude, self-regulated learning, which is based on the social cognitive theory, draws on the beliefs that as a learning process occurs through the interplay among the person, environment, and behavior, learners can control social factors in order to reach a goal in an academic setting. The concept of self-regulated learning has been addressed in a wide range of fields of study, including English language learning and teaching. Hence, there have been attempts by several scholars to probe self-regulated learning. This includes the development of the taxonomy of language learning strategies proposed by Oxford in 2011 (Oxford, 2011), which encompasses the three types of metastrategies, namely, metacognitive, meta-affective, and meta-sociocultural-interactive strategies. The three strategies help learners facilitate the use of cognitive, meta-affective, and meta-sociocultural-interactive strategies, and this can be considered as the pioneering attempts to incorporate the notion of self-regulated learning in the realm of English language teaching.

Self-regulated Learning Strategies in Relation to English Language Abilities and Knowledge

Due to the crucial role played in language learning, self-regulated learning strategies have been investigated in terms of their relationship with learners' academic success in various educational settings. In higher education, several research studies have reported on the role of self-regulated learning strategies as a key to accomplishments in both English language proficiency and sub-skills of English language, such as reading and writing.

In terms of English language proficiency, a few studies revealed the association between self-regulated learning strategies and English language proficiency of EFL university students. For instance, a study conducted by Apridayani & Teo (2021) displayed a direct influence of students' use of self-regulated learning strategies on their English proficiency. Several SRL strategies, namely, self-evaluation, organizing and transforming, rehearsing and memorizing, keeping records and monitoring, and seeking assistance, were found as significant predictors of English language proficiency. Similarly, Seker (2016) found significant correlations between self-regulated learning strategies and language achievements of 222 undergraduate foreign language learners. Such findings correspond with the results of a research study conducted by Abbasian & Hartoonian (2014) which aimed to explore the relationship between self-regulated learning strategies and language proficiency among 115 Iranian EFL university. The results revealed a significant relationship between the students' use of self-regulated learning strategies and their language proficiency. To be specific, it was found that language proficiency had the highest correlation with the seeking information strategy and the lowest correlation with the self-evaluation strategy.

The relationship between self-regulated learning strategies and sub-skills of English language among EFL university students was also found in several research studies. Abbasian & Hartoonian (2014) reported that, apart from the correlation between self-regulated learning strategies and English language proficiency, the correlation between self-regulated learning strategies and reading comprehension could be discovered. In this study, reading comprehension had the highest correlation with the seeking information strategy and the lowest correlation with the self-evaluation strategy. Similarly, a research study conducted by Sun & Wang (2020), which aimed at exploring how writing self-regulated learning (SRL) strategies were associated with writing proficiency among EFL college students, reported that writing SRL strategies contributed significantly to the prediction of students' writing proficiency. That is, writing performance had a moderately positive correlation with writing SRL strategy, and Seeking Opportunity

Strategies had the highest coefficient correlation among all the subcategories of SRL strategies.

All in all, self-regulated learning plays an important part in learners' accomplishments for academic tasks, and thus there have been research studies that have explored the relationship between self-regulated learning strategies and success in English language of ESL / EFL students in various educational levels. At a tertiary level, a number of research studies were conducted to examine the association between the use of self-regulated learning strategies and both English language proficiency and English language achievements of undergraduate students. Based on the findings of such research studies, many self-regulated learning strategies were reported having the high use, and they included self-evaluation, organizing and transforming, rehearsing and memorizing, keeping records, monitoring, and seeking assistance, and seeking information. Also, the relationship between self-regulated learning strategies and English language proficiency as well as English language achievements of students were found. Apart from the relationship between self-regulated learning strategies and overall English language proficiency or achievements, the relationship between self-regulated learning strategies and sub-skills of English language: listening, speaking, reading, and writing were investigated in several studies. To illustrate, it was found that self-regulated learning strategies were associated with students' reading and writing abilities. This proves the role of self-regulation on students' English language proficiency as well as their sub-skills of English language.

Measurement of Self-regulated Learning Strategies

The attempts to measure non-linguistic variables in research studies could be seen from the existing research instruments such as Metacognitive Awareness Inventory (Schraw & Dennison, 1994) and Learning Strategies Questionnaire (Warr & Downing, 2000). Yet, in the field of English language learning, such instruments do not include a wide range of all self-regulated learning properties. Besides, they have not been specially designed to measure the strategies in the realm of second or foreign language learning.

Oxford 's (1990) Strategy Inventory for Language Learning, which encompassed six main learning strategies: memory, cognitive, compensation, metacognitive, affective, and social factors, can be considered a starting point in measuring non-linguistic variables such as self-regulated learning strategies. Nonetheless, it was not developed from the self-regulation theory. As mentioned, in the revised version of Oxford's Strategy Inventory for Language Learning (Oxford, 2011), metacognitive, meta-affective, and meta-sociocultural-interactive strategies were included into the three types of

strategy categories: cognitive, affective, and meta-sociocultural-interactive. Despite the revision, this was not specially based on the self-regulation theory, and, thus, it does not reflect the feedback loop with three aspects of self-regulation, regarding self-observation, self-judgment, and self-reaction (Wang & Bai, 2017). Then, in 2017, Wang & Bai (2017) have created the Questionnaire of English Self-Regulated Learning Strategies (QESRLS), based on the cyclical loop of self-regulation. The questionnaire contained 65 items, in 11 categories, which are, self-evaluation, organization and transformation, rehearsal and memorization, seeking social assistance, persistence when faced with challenges, seek opportunities to practice English, record keeping and monitoring, self-consequences, goal-setting and planning, review of records, and interpretation guessing.

In this study, in order to investigate the relationship between self-regulated learning strategies and English language abilities and knowledge of undergraduate students, the 65-item Questionnaire of English Self-Regulated Learning Strategies (QESRLS) developed by Wang & Bai (2017) was used. This was because the questionnaire was created on the basis of the self-regulation theory, and it included the items that aim to explore learners' self-regulated learning strategies in all four skills of English language, namely, listening, speaking, reading, and writing. Moreover, based on the statistical findings of the research study, the QESRLS had good internal consistency (Cronbach's alpha) as 0.92 for the two assessments implemented. This shows that the questionnaire was of a highly reliable scale and prompted to be implemented.

Methodology

Study Design

The current study was a descriptive research study targeted to examine the association between self-regulated learning strategies and English language abilities and knowledge of undergraduate students. The research questions (RQ) of the study were as follows:

RQ 1. Among 11 categories of self-regulated learning strategies, which strategies do undergraduate students use mostly?

RQ 2. What is the relationship between self-regulated learning strategies and English language abilities and knowledge of undergraduate students?

Participants

The context of the study was King Mongkut's Institute of Technology Ladkrabang (KMITL), a public university in Bangkok, Thailand, where the final-year undergraduate students were required to take the English Exit Exam (EEE) which was administered monthly to reflect their English language abilities and knowledge aligned to the Common European Framework of Reference for Languages (CEFR). The purposive sampling was used to obtain the participant sample comprising a group of 421 final-year KMITL undergraduate students who took the English exit exam in the Academic Year 2022 with the October batch. The participants were mostly from the Faculty of Science (37.70%) and the College of Business Administration (15.60%). The rest of the participants were from the Faculty of Engineering (11.40 %), the Faculty of Architecture, Art and Design (11.30 %), the Faculty of Information Technology (6.50 %), the Faculty of Food Technology (5.90 %), the Faculty of Agricultural Technology (5.85 %), and the Faculty of Industrial Education and Technology (5.75 %), respectively. Their ages mostly ranged from 21 years (44.40%) to 22 years (42.80%), and the average age of the rest of the participants was 23 years (12.80%). There were both females (64.40%) and males (35.60%). Most of the participants' grade point average (GPA) was between 3.01 and 3.50 (43.30%), followed by the GPA between 2.51 and 3.00 (36.70%), the GPA between 3.51 and 4.00 (12.20%), and the GPA between 2.01 and 2.50 (7.80%), respectively.

Instrumentation

The instruments used in the present study included the Questionnaire of English Self-Regulated Learning Strategies (QESRLS) and the English Exit Exam (EEE).

The first instrument was the Questionnaire of English Self-Regulated Learning Strategies (QESRLS), which was adopted from the 65-item questionnaire developed by Wang & Bai (2017). It consisted of 11 categories of self-regulated learning strategies, namely, Category 1: Self-evaluation (4 items), Category 2: Organization and transformation (18 items), Category 3: Rehearsal and memorization (6 items), Category 4: Seeking social assistance (3 items), Category 5: Persistence when faced with challenges (4 items), Category 6: Seeking opportunities to practice English (8 items), Category 7: Record keeping and monitoring (2 items), Category 8: Self-consequences (2 items), Category 9: Goal setting and planning (4 items), Category 10: Review of records (2 items), and Category 11: Interpretation guessing (12 items). The questionnaire was translated into Thai language to avoid the language barrier

among the participants. Both English and Thai versions of the questionnaire were examined by a panel of experts in English language instruction and English language assessment and evaluation to ensure their content validity and language appropriateness before it was implemented to the study subjects.

The second instrument was the English Exit Exam (EEE), an in-house English language exam developed by the Faculty of Liberal Arts of KMITL, to measure the undergraduate final year students' English language proficiency before their graduation. The exam was created on the B1 (Threshold - Independent User Level) scale by using the Common European Framework of Reference for Languages (CEFR) descriptors (Council of Europe, 2020) as a framework. It comprised 80 multiple-choice items: 20 items for the grammar part, 20 items for the reading part, 20 items for the writing part, and 20 items for the language function (speaking) part. The exam was examined by a panel of experts in English language assessment and evaluation to ensure their content validity and language appropriateness before it was administered to the study subjects.

Data Collection and Data Analysis

The Thai versions of the Questionnaire of English Self-Regulated Learning Strategies (QESRLS) and the English Exit Exam (EEE), both in hard-copy format, were administered to the sample who participated in the October batch of the EEE in Academic Year 2022 with the informed consent process approved by KMITL's Institutional Review Board (IRB). In the process of collecting the data, the participants had an opportunity to study the proposal of this research study, which included the review of the concept of self-regulated learning and self-regulated learning strategies enclosed in the literature review section as well as the instrument section. Hence, it can be said that the participants had familiarity with self-regulated learning strategies to a certain extent before completing the questionnaire. In terms of data analysis, descriptive statistics of frequency, percentage, mean, and standard deviation as well as inferential statistics of Pearson Correlation Coefficient and Multiple Indicators Multiple Causes (MIMIC) Model (by means of LISREL) were used to analyze the obtained data.

Findings

Table 1

Mean, standard deviation (SD) and Pearson's correlation among variables

Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.
1. Self-evaluation	1.00											
2. Organization and transformation	0.74*	1.00										
3. Rehearsal and memorization	0.50*	0.72*	1.00									
4. Seeking social assistance	0.52*	0.63*	0.61*	1.00								
5. Persistence when faced with challenges	0.59*	0.65*	0.62*	0.61*	1.00							
6. Seeking opportunities to practice English	0.48*	0.54*	0.64*	0.47*	0.55*	1.00						
7. Record keeping and monitoring	0.47*	0.57*	0.55*	0.44*	0.40*	0.59*	1.00					
8. Self-consequences	0.40*	0.49*	0.50*	0.51*	0.44*	0.44*	0.45*	1.00				
9. Goal setting and planning	0.57*	0.61*	0.57*	0.57*	0.59*	0.53*	0.48*	0.55*	1.00			
10. Review of records	0.57*	0.61*	0.60*	0.51*	0.49*	0.58*	0.58*	0.52*	0.70*	1.00		
11. Interpretation guessing	0.63*	0.69*	0.59*	0.58*	0.70*	0.60*	0.44*	0.44*	0.59*	0.58*	1.00	
12. Students' abilities and knowledge from the English Exit Exam	0.33*	0.24*	0.12*	0.13*	0.30*	0.22*	0.06	0.07	0.18*	0.22*	0.39*	1.00
Mean	4.84	4.59	4.58	4.96	5.07	4.36	4.11	4.75	4.96	4.71	4.95	35.37
SD.	1.08	0.86	1.09	1.03	1.07	1.05	1.28	1.24	1.06	1.21	0.97	12.21
Possible Range	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	1-7	0-120

As seen in Table 1, the average mean of the participants' use of self-regulated learning strategies was between 4.11 and 5.07. Among all 11 categories, the persistence when faced with challenges strategies were reported to be used the most (M=5.07), followed by the seeking social assistance strategies, (M=4.96), and the interpretation guessing strategies,

(M=4.95), respectively. Regarding the students' abilities and knowledge from the English Exit Exam (EEE), the average score of the participants was 35.37 (SD.=12.21). Also, a correlation between the participants' use of self-regulated learning strategies and the students' English language abilities and knowledge were found, with the statistical value between 0.06 and 0.39. Furthermore, the study findings showed the correlation at a significant level of 0.05 between the students' English language abilities and knowledge and almost all categories of self-regulated learning strategies except the record keeping and monitoring strategies, the rehearsal and memorization strategies, and the self-consequences strategies. Specifically, the highest correlation could be seen between the students' English language abilities and knowledge and the interpretation guessing strategies, the self-evaluation strategies, and the persistence when faced with challenges strategies, were seen with the statistical value of 0.39, 0.33, and 0.30, respectively.

Table 2

Multiple Indicator Multiple Causes (MIMIC) Model showing effect of self-regulated learning strategies on students' English language abilities and knowledge

Measurement part of MIMIC Model	L	SE	t	λ	R²
Grammar	2.96	--	--	0.85	0.72
Reading	2.50*	0.14	17.26	0.78	0.60
Writing	2.06*	0.16	12.92	0.61	0.38
Language function (Speaking)	3.74*	0.21	17.90	0.80	0.65
Structural part of the MIMIC Model	B	SE	t	β	R²
Self-evaluation	0.20*	0.07	3.01	0.22	0.27
Organization and transformation	0.03	0.11	0.25	0.02	
Rehearsal and memorization	-0.16*	0.07	-2.27	-0.18	
Seeking social assistance	-0.12	0.07	-1.82	-0.12	
Persistence when faced with challenges	0.13	0.07	1.95	0.14	
Seeking opportunities to practice English	0.11	0.07	1.70	0.12	
Record keeping and monitoring	-0.14*	0.05	-2.77	-0.18	
Self-consequences	-0.08	0.05	-1.57	-0.09	
Goal setting and planning	-0.09	0.07	-1.34	-0.10	
Review of records	0.11	0.06	1.74	0.13	
Interpretation guessing	0.39*	0.08	4.89	0.38	
χ^2=31.61, df=35, p-value=0.63, χ^2/df ratio=0.90, CFI=1.00, RMSEA<0.01, SRMR=0.05					

According to Table 2, the Multiple Indicator Multiple Causes (MIMIC) Model fit the data well. The fit indices of the model were X^2=31.61, df=35, X^2/df= 0.90, CFI=1.00, RMSEA <0.01 and SRMR= 0.05. Thus, the MIMIC Model was accepted. The measurement part of the model also shows an association between the latent abilities and knowledge from the English Exit Exam of the students and its observed variables, including four aspects of abilities and knowledge (grammatical knowledge, reading abilities, writing abilities, and language function (speaking) abilities). For identification purposes, the factor loading for grammatical knowledge was set to 2.96 to form the scale of the latent variable. The estimated factor loadings (L) for indicators of reading abilities, writing abilities, and language function (speaking) abilities were statistically significant at the 0.05 level, ranging from 2.06 to 3.74, and the standardized factor loading (X^2) varied from 0.61 to 0.85, which confirmed the existence of underlying latent students' abilities and knowledge from the English Exit Exam represented by each of the aspects of indicators.

Figure 1

Path diagram of MIMIC Model showing the association between self-regulated learning strategies and students' abilities and knowledge from English Exit Exam with standardized structural coefficients
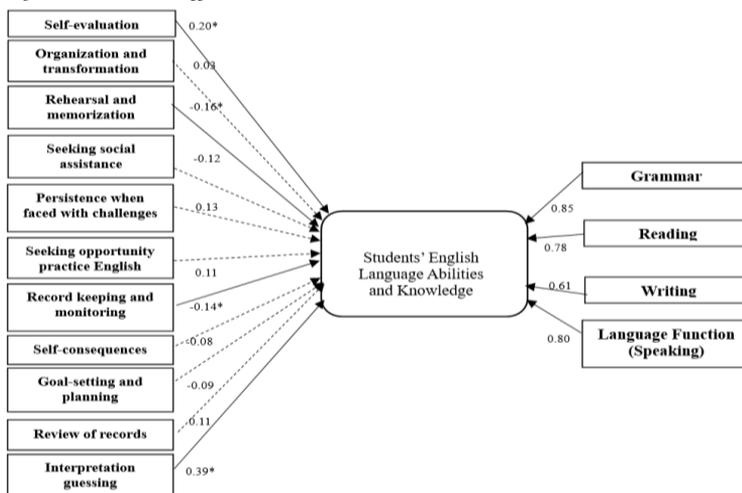

Figure 1 reports the results of the structural part of MIMIC Model that display the association between each of the self-regulated learning strategies and the latent abilities and knowledge of students from the English Exit Exam. The results show that the interpretation guessing strategies and the self-evaluation strategies were found to be positively associated with the

students' abilities and knowledge with statistical significance (X^2=0.20 and 0.39, respectively). This implies that the more the interpretation guessing strategies and the self-evaluation strategies were used, the higher the students' abilities and knowledge were. However, the rehearsal and memorization strategies as well as the record keeping and monitoring strategies were negatively associated with the students' abilities and knowledge (X^2=-0.16 and -0.14, respectively). This shows that these two strategies, the rehearsal and memorization strategies and the record keeping and monitoring strategies, were unlikely to help improve the students' English language abilities and knowledge in this context. It was also found that self-regulated learning strategies could explain the variation of the students' English language abilities and knowledge (R^2) as 27%. Based on such findings, the interpretation guessing strategies and the self-evaluation strategies could be highly considered as effective categories of self-regulated learning strategies.

Discussion

The present study was conducted to examine the relationship between the use of self-regulated learning strategies and the English language abilities and knowledge of final-year undergraduate students studying at a public university in Thailand. The findings displayed four main issues which would be discussed as follows:

First, among all 11 categories of the SRLS, the three categories which were practiced the most were the persistence when faced with challenges strategies, the seeking social assistance strategies, and the interpretation guessing strategies, respectively. The findings concerning the students' most use of the persistence strategies when faced with challenges strategies can be explained by what Kim & Kim (2017) mentioned. According to Kim & Kim (2017), 'persistence' is associated with how language learners maintain their attempts to achieve their academic goals despite the difficulties they face. Thus, it can be considered as the most significant factor that could be used to predict success as well as motivation of foreign or second language learners. This helps portray why the students participated in this study reported their most frequent use of the SRLS category which included 'Keep reading when I encounter difficulties in English reading.', 'Read an English article several times if I don't understand it the first time.', and 'Search related documents when I have difficulties in studying English.'.

As for the seeking social assistance strategies, which was reported with the second most use among all the SRLS categories, the findings disclosed in the present study are in line with those revealed in research conducted by Apridayani & Teo (2021). Based on what Apridayani & Teo (2021) found in their study, the seeking social assistance strategies were

reported with the most use among the university students of the A1 (Breakthrough) level of the Common European Framework of Reference for Languages (CEFR), which can be stated as an elementary level of a range of English language proficiency (Council of Europe, 2020). This highlights the significance of the seeking social assistance strategies, a process of seeking help from other persons to assist learners to achieve their academic goals (Karabenick & Berger, 2013), which is part of learners' cognitive awareness (Zimmerman, 2001) that helps them succeed in their academic studies (Zimmerman & Schunk, 2011). In the current study, so as to facilitate their academic accomplishments, it was reported that they frequently used the sub-strategies of the seeking social assistance strategies, which covered 'Consult teachers when I encounter difficulties in the process of studying English.', 'If I cannot follow someone's English, I let him/her speak slowly.', and 'Ask classmates when I have questions in my English study.'.

Besides, the interpretation guessing strategies were reported with the third most use, and the category involved the 12 items such as 'When somebody speaks English, I guess what he/she will say according to what he/she has said.' and 'Guess the meaning of new words by considering their contexts.'. From the illustrated items, it can be seen that the category is connected with how language learners guess a meaning by interpreting the context clues, predicting what will happen, and seeking the approval of their prediction. According to scholars in the EFL and ESL field of study, interpretation guessing strategies are beneficial for language learners when they are performing both listening and reading tasks. Specifically, when learners are listening to a news report or a university lecture, making a prediction by using words and style the speaker using enables learners to anticipate and understand what the speaker is saying (Ahmed, 2015). Likewise, when learners are performing a reading task, interpretation guessing is important and practical strategies that help them understand what the writer is trying to convey in a particular academic context since it creates their comprehension as well as the sense of the passage to the readers (Siregar, 2019).

Second, the correlation between the participants' use of self-regulated learning strategies and the students' abilities and knowledge from the English Exit Exam were found, and the highest correlation could be seen between the students' English language abilities and knowledge and the interpretation guessing strategies (0.39), followed by the self-evaluation strategies (0.33) and the persistence when faced with challenges strategies (0.30), respectively. The findings concerning the relationship between the use of self-regulated learning strategies and the students' abilities and knowledge support the belief that self-regulated learning strategies are associated with English language abilities. The results are in line with those disclosed in several studies

conducted in higher educational settings. For instance, Apridayani & Teo (2021) revealed the association between university students' use of self-regulated learning strategies and their English proficiency in a Thai context. This corresponds with the results of a study conducted by Seker (2016) which shows significant correlations between self-regulated learning strategies and language achievements of undergraduate foreign language learners. Abbasian & Hartoonian (2014) also reported on the relationship between self-regulated learning strategies and language proficiency among Iranian university students.

In terms of the finding about the highest correlation which could be seen between the students' abilities and knowledge and the interpretation guessing strategies, such a finding is not in line with those revealed in the previous studies. That is to say, the rehearsing and memorizing strategy was reported by Apridayani & Teo (2021) as the category which had the highest correlation with English language proficiency, while the seeking information strategy was stated by Abbasian & Hartoonian (2014) as the variable with the highest correlation with English language proficiency. The findings of the present study can be explained through the significance of 'contextual guessing strategies' which can be applied based on a variety of clues, namely, linguistic and non-linguistic ones (Oxford, 1990). Hence, the sub-strategies of the category, such as 'guess the meaning of new words by considering their contexts' and 'guess what people mean by reading their expressions and movements when watching an English movie', as included in the category, could help language learners overcome their difficulties when reading as well as listening in a particular context, including when taking an English Exit Exam. Therefore, several scholars place an emphasis on contextual guessing strategies, which can be referred to as the use of background knowledge as well as linguistics cues to guess the meaning of unknown words in a context (Kaivanpanah & Alavi, 2008).

Third, the Multiple Indicator Multiple Causes (MIMIC) model shows the association between the latent abilities and knowledge of the students and its observed variables, including four aspects of abilities and knowledge (grammatical knowledge, reading abilities, writing abilities, and language function (speaking) abilities). The findings about the relationship between self-regulated learning strategies and sub-skills of English, such as speaking, reading, and writing, could be affirmed by the results gained from several empirical studies. To illustrate, in a research study conducted by Mahjoob (2015), the relationship between 60 Iranian EFL learners' use of self-regulated strategies and their speaking proficiency was discovered. Besides, Abbasian & Hartoonian (2014) reported on the correlation between self-regulated learning strategies and reading comprehension of EFL university students. Likewise, Sun & Wang (2020) disclosed the association between self-regulated

learning strategies and writing proficiency among EFL college students. The findings of the present study were also in line with those revealed by Ekhlas & Shangarffam (2013). That is, behavioral self-regulation strategies had positive relationships with speaking, reading, and writing proficiency in English.

Lastly, when it came to sub-strategies of self-regulated learning strategies, it was found that the interpretation guessing strategies and the self-evaluation strategies were positively associated with the students' English language abilities and knowledge. Such findings reveal the positive relationship between the students' abilities and knowledge from English Exit Exam and their use of the interpretation guessing strategies. This, once again, portrays the importance of 'contextual guessing strategies' which, as mentioned earlier, involves the use of linguistic and non-linguistic clues (Oxford, 1990) so that students could effectively encounter reading as well as listening in a particular context. Apart from the interpretation guessing strategies, the finding highlights the role of the self-evaluation strategies on students' English language proficiency as documented in a study conducted by Apridayani & Teo (2021) as well as research carried out by Abbasian & Hartoonian (2014).

Nevertheless, in the present study, the findings show that the rehearsal and memorization strategies as well as the record keeping and monitoring strategies were negatively associated with the abilities and knowledge from English Exit Exam. The findings do not correspond with the results concerning the relationship between self-regulated strategies and English language proficiency, as shown in several studies, such as those conducted by Seker (2016) and Abbasian & Hartoonian (2014). The findings gained from the two studies can be explained that students in an intermediate level (B1 and B2 levels of the CEFR framework) were likely to use the two categories of the self-regulated learning strategies: the rehearsal and memorization strategies and the record keeping and monitoring strategies. As a result, since the research instrument employed in this study aimed to measure students' English language abilities and knowledge at the B1 level (an intermediate level), the students who had low abilities and knowledge of English language, as evident from the results obtained from the English Exit Exam, might have tried to improve their English skills but were eventually unsuccessful when they took the test. Consequently, the two strategies, the rehearsal and memorization strategies and the record keeping and monitoring strategies, were unlikely to help improve the students' English language abilities and knowledge.

Implications of the Study

According to the findings of the research study, the pedagogical implications can be proposed as follows:

First, the present study yields the relationship between the use of self-regulated learning strategies by Thai undergraduate students in terms of both of their overall English language abilities and knowledge and the four main aspects of the abilities and knowledge, namely, grammatical knowledge, reading abilities, writing abilities, and language function (speaking) abilities. This shows the significant role of self-regulated learning strategies on the success of students' English language learning. This provides a ground to suggest that a language course or curriculum developer should integrate the 11 categories of the strategies, which range from self-evaluation, organization and transformation, rehearsal and memorization, seeking social assistance, persistence when faced with challenges, seek opportunities to practice English, record keeping and monitoring, self-consequences, goal-setting and planning, review of records, to interpretation guessing, into a particular course or curriculum. To illustrate, students should be exposed to the strategies by means of class activities, tasks, or even formative assessments so that they become familiar with and can use them as a common practice. This helps students get well-equipped with good proficiency of English for a labor market in an internationalized era.

Second, the study observed the positive relationship between the interpretation guessing strategies as well as the self-evaluation strategies and the students' English language abilities and knowledge. The results suggest that, among all the 11 self-regulated learning strategies, the sub-strategies under the two categories, the interpretation guessing strategies as well as the self-evaluation strategies, should be considered as first priorities when developing an English language course or curriculum with the integration of self-regulated learning strategies. That is, with regard to the interpretation guessing strategies, contextual guessing strategies, such as 'Use the title of an English article to help understand that article.' and 'Guess the meaning of new words by considering their contexts.' ought to be emphasized when students practice their reading. Also, 'Guess what people mean by reading their expressions and movements.' and 'Pay attention to English speakers' tones.' should be focused when students attend their listening and speaking activities. In terms of the self-evaluation strategies, 'Adjust my reading speed according to the difficulty of the article.' should be highlighted when they read passages with a variety of difficulties, and 'Proofread my English composition after I complete writing.' should be integrated as an important part of students' writing process.

Conclusion

To summarize, among all 11 categories of SRLS, the category which was reported to be used the most was the persistence when faced with challenges, followed by the seeking social assistance strategies and the interpretation guessing strategies. Besides, the relationship between the students' use of self-regulated learning strategies and their abilities and knowledge from the English Exit Exam were found, and the highest correlation could be seen between the students' English language abilities and knowledge and the interpretation guessing strategies, followed by the self-evaluation strategies and the persistence when faced with challenges strategies. Furthermore, the association between the latent abilities and knowledge of the students and the four aspects of abilities and knowledge: grammatical knowledge, reading abilities, writing abilities, and language function (speaking) abilities could be seen. As for sub-strategies of self-regulated learning strategies, the interpretation guessing strategies and the self-evaluation strategies were found positively related with the students' English language abilities and knowledge. The findings help to confirm the significance of all the categories of SRLS, particularly the persistence when faced with challenges strategies, the interpretation guessing strategies, which were reported as the categories used the most (the highest and the third highest) as well as those which had the strongest correlation with the students' English language abilities and knowledge. Thus, the SRLS should be integrated into English language courses or curricula by translating them into the instructional activities and tasks.

Nevertheless, to best generalize the findings obtained, the limitations of the study should be taken into account. That is, the participants of the study were a single batch of the students who took the English Exit Exam in the Academic Year 2022. Participants of the study were from some random faculties and colleges of the university, not from every faculty or college of the university. Hence, if the research study is replicated in other contexts, students from each faculty or college of a university have to be ensured to be recruited into the study. In doing so, if the data on students' English language abilities and knowledge is collected from an English Exit Exam, students from more than one batch of the exam should be involved in the study. This is to bridge the gap as can be seen from the limitations found in the current study.

About the Authors

Charinee Chansri: A lecturer at Department of Languages, Faculty of Liberal Arts, King Mongkut's Institute of Technology Ladkrabang, Thailand. Her profession interests include Content and Language Integrated Learning (CLIL), teaching English as a second/foreign language, and reading and writing.

Akadet Kedcham: A lecturer at Educational Research and Evaluation Programme, Faculty of Education, Bansomdejchaopraya Rajabhat University. His research interests include educational research, positive psychology, structural equation modeling, and psychometrics.

Montha Polrak: A lecturer at Department of Languages, Faculty of Liberal Arts, King Mongkut's Institute of Technology Ladkrabang, Thailand. Her area of research expertise includes teaching English as a second/foreign language, oral communication, and teaching supervision.

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