Self-Efficacy Sources, Reading Self-Efficacy, Metacognitive Reading Strategies and Reading Comprehension Performance: A Correlational Study in Saudi EFL Context

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Abstract

The intended aim of this research was to identify the connection of Self-Efficacy Sources (SES) and Metacognitive Reading Strategies (MCRS) with Reading Comprehension (RC) by deploying reading Self-Efficacy Beliefs (SEB) as a mediating construct. A correlational design was utilized. Proportionate stratified random sampling was deployed to select a sample of 383 Saudi EFL university learners. Questionnaires and a reading comprehension test were employed to gather the data. Structural equation modelling was used to test the relationships. Results indicated that SES were substantially associated with SEB except physiological state. Moreover, all the three MCRS showed significant and positive association with SEB. Also, SEB were substantially associated with RC. Regarding mediation, it was discovered that SEB mediated the relationship among SES and RC except one source, i.e., physiological state. Moreover, SEB mediated the association between all the three MCRS and RC. This study provides several implications for learners, teachers, and policymakers.

Keywords: *Metacognitive Reading Strategies, Self-efficacy Sources, Reading Self-efficacy Beliefs, Reading Comprehension, Saudi EFL Learners*

1. Introduction

As the English reading skill contributes significantly in the academic accomplishments of the students, thus, it is deemed the most crucial as compared to the other three skills (Cambria & Guthrie, 2010). Moreover, in the context of higher education, reading comprehension is regarded as a crucial skill as it allows

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them to understand the content they read to be able to deal with the challenging courses offered at universities (Meniado, 2016). The government of Kingdom of Saudi Arabia (KSA) is spending billions of dollars for English teachers' training, curriculum development, language labs and recruitment of native English-speaking teachers (Rahman & Alhaisoni, 2013). Moreover, one of the main aims of the ministry of education of Saudi Arabia is to increase the capability of the students so that they can learn the four essential English language skills including reading (Rahman & Alhaisoni, 2013). Deplorably, the report provided by International English Language Testing System (IELTS) (2017) disclosed exceptionally low reading bands of Saudi students. More particularly, in the academic reading category, the average score of Saudi students was the third lowest in the world, i.e., 5.05 out of 9. The condition was even worse in the general reading category in which the average reading score was 3.90 out of 9, i.e., the lowest in the world. The IELTS scores indicate that the Ministry of Education has probably not fulfilled the very first objective, i.e., to make students capable of acquiring four essential skills of English including reading skills. Moreover, from a global viewpoint, the past literature has shown that EFL learners faced difficulties in reading comprehension (Kasim & Raisha, 2017; Qrqez & Ab Rashid, 2017). Correspondingly, in the context of KSA, past studies disclosed that Saudi EFL learners reading comprehension is below the par when they reach university level (Meniado, 2016). This appalling situation provided an impetus for conducting study on Saudi university students to determine the association of a few psychological constructs including Self-Efficacy Sources (SES), Reading Self-Efficacy Beliefs (SEB) and Metacognitive Reading Strategies (MCRS) with Reading Comprehension (RC). This study fills a significant literature gap, as there is a dearth of studies involving all of the aforementioned variables in a single framework.

1.1   Research Questions

After the review of the literature, following research questions were formulated:

1) To what degree are self-efficacy sources correlated to reading self-efficacy beliefs among Saudi EFL learners?
2) To what degree are metacognitive reading strategies correlated to reading self-efficacy beliefs?
3) To what degree are reading self-efficacy beliefs correlated to reading comprehension?
4) To what degree do reading self-efficacy beliefs mediate the correlation between four self-efficacy sources and reading comprehension?

5) To what degree do reading self-efficacy beliefs mediate the correlation between metacognitive reading strategies and reading comprehension?

1.2   Significance of the Study

It is expected that this research would provide cognizance regarding the usage of metacognitive reading strategies to the Saudi EFL learners. It would prove advantageous for the Saudi EFL university learners precisely because evaluation of previous studies revealed that Saudi students are hesitant in using strategies while reading English at schools (Al-Seghayer, 2014). Thus, they would get themselves acquainted with metacognitive reading strategies that could prove crucial for a better reading comprehension. Additionally, it might aid the English language instructors of KSA as well as those in other countries where English language is taught as a foreign language. The findings might drive the EFL instructors to adopt these strategies in their reading instruction and utilise the effective ones to improve the performance of the learners' reading comprehension.

In addition, it is anticipated that the findings could prove to be advantageous in augmenting EFL instructors' mindfulness of their students' mental attributes and requisites during the language learning phase. Therefore, suitable assistance could be provided by language instructors to the students that could assist them in improving their RC by inculcating SEB in them.

2.   Literature Review

"Social Cognitive Theory" (SCT) presented by Bandura (1986) posits that individuals' perceptions regarding their competencies to succeed in any particular task play a crucial part in their attainments or failures. Regarding reading comprehension, the variable, i.e., self-efficacy requires attention in KSA. In KSA, a scarce amount of studies can be found which examined the connection between specified varieties of self-efficacy beliefs (i.e., general self-efficacy, foreign language self-efficacy, and English self-efficacy) and several types of performance (i.e., academic performance, language performance, oral accomplishment) (Saleem, Ali & Ab Rashid, 2018; Humaida, 2017). However, scant research was conducted related to "reading self-efficacy". Additionally, Sahril and Weda (2018) recommended that future researchers should consider conducting research concerning the connection between self-efficacy and four language skills in EFL settings. Thus, aforementioned gap has been filled.

Moreover, there are four sources from which self-efficacy is generated, i.e., physiological state (PS), mastery experience (ME), verbal persuasion (VP), and vicarious experience (VE) (Bandura, 1986). Consequently, self-efficacy beliefs impact the individuals' performance (Bandura, 1986). Past studies determined the connections between SES and numerous kinds of performance

including mathematics (Usher, 2009), science (Webb-Williams, 2018), English proficiency (Zheng et al., 2017), L2 writing (Lee & Evans, 2019) etc.; however, , limited studies have determined the connection between SES and RC by deploying SEB as a mediating construct.

Other than 'self-efficacy', 'metacognition' also plays a significant role in Reading Comprehension (Flavell, 1979). In general, the term 'metacognition' indicates reflecting upon one's own thinking and regulating one's own learning. It is one of the approaches that have been offered and being researched for the effective comprehension of reading. Flavell (1979) presented 'Theory of Metacognition' (TOM) in 1979. According to TOM, metacognition comprises two components, i.e., metacognitive knowledge and metacognitive regulation (Flavell, 1979). Firstly, metacognitive knowledge means attained knowledge about cognitive procedures. In other words, knowledge used to regulate the processes of cognition is called metacognitive knowledge. Secondly, metacognitive regulation refers to self-cognizance of strategies that regulate learning (e.g., scrutinising difficulty level, a feeling of knowing something). MCRS are deliberate, prudently schemed techniques through which readers scrutinise or control their reading (Sheorey & Mokhtari, 2001). The MCRS taxonomy used in this research consists of three sorts of strategies including 'Problem-Solving' (PSS), 'Support' (SP), and 'Global' (GL) strategies (Mokhtari & Sheorey, 2002). Readers employ GL strategies to scrutinise their reading (e.g., guessing the meaning of text, having a purpose in mind, using tables and figures while reading etc). Moreover, readers deploy PSS strategies when they encounter problems while reading a text (e.g., reading slowly, getting back on track after losing concentration, visualising during reading etc). Lastly, SP strategies are employed to assist reading (e.g., taking notes, highlighting content, using a dictionary etc.) (Mokhtari & Sheorey, 2002). Previous research affirmed that MCRS enhance RC of the readers (Tavakoli, 2014). However, there is dearth of empirical evidence regarding the role of MCRS in RC via SEB as a mediating variable. For this reason, the researcher tested their relationship by introducing SEB as a mediating construct to fulfil this literature gap.

3. Research Methodology

3.1   Research Design

In view of the aims of this research, a quantitative research approach and correlational research design was employed. Creswell (2005) asserted that correlation design requires the researcher to assess the extent of relationship among variables by employing statistical method of correlation analysis. Figure 3.1 depicts the conceptual framework of the present research.
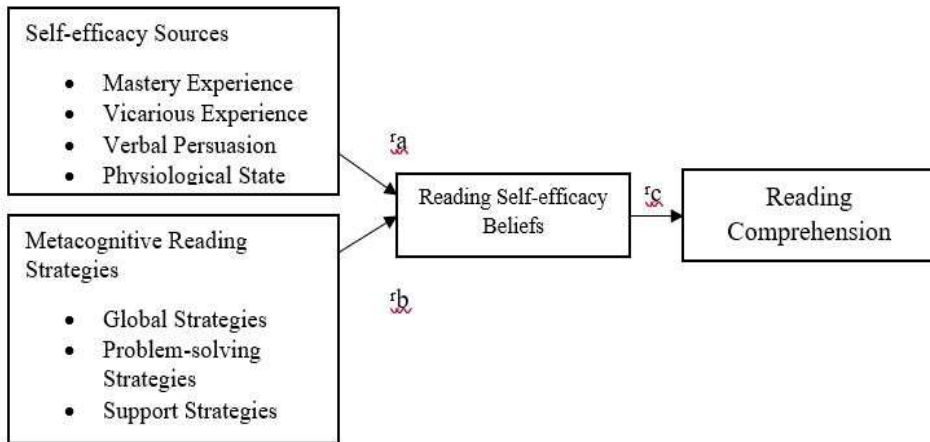
Figure 3.1 Conceptual Framework

3.2   Population and Sample

The population was 4,466 Saudi EFL learners. Consequently, sample consisted of 383 Saudi EFL learners by using a sampling determination table (Bartlet, Kortlik, & Higgins, 2001). On the average, the participants were 18 years old. The required number of participants was selected from eight Saudi public sector universities. Moreover, proportionate stratified random sampling technique was applied to determine the sample for data collection.

3.3   Instruments

Three questionnaires and a reading comprehension test was deployed to gather the data. Firstly, 'questionnaire for sources of reading self-efficacy' was adapted from Usher (2009) to gather the data related to first independent variable (i.e., SES). It consists of 18 statements. Secondly, 'reading self-efficacy beliefs questionnaire' was adapted from Shehzad et al. (2019a) to gather data regarding the mediating variable, (i.e., SEB). It consists of 10 statements. Thirdly, 'survey of reading strategies' was employed to gather data regarding MCRS. It was adopted from Mokhtari and Sheorey (2002). It consists of 30 statements. Lastly, in order to gather data regarding RC, an IELTS (academic) reading comprehension test consisting of four reading comprehension passages was adopted from McCarter and Ash (2001). Moreover, each passage consists of five Multiple Choice Questions (MCQs).

3.4   Validity & Reliability

All of the aforementioned instruments can be considered reliable as the Cronbach's alpha value of the aforementioned instruments is above 0.60 as mentioned in Table 4.1. Hair et al. (2010) affirmed that an instrument is

considered reliable if the Cronbach's alpha value exceeds 0.60. Moreover, in order to determine the content validity of the instruments, three EFL professors having an experience of more than 10 years were consulted.

3.5   Data Collection

Data collection officially started in September, 2019. More precisely, the process of data collection was conducted within a time frame of 44 days, i.e., 15th September, 2019 to 29th October, 2019. Quantitative data were collected by administering questionnaires and a reading comprehension test.

The researchers administered the questionnaires personally. Respondents were allowed to fill in the questionnaire within 30 minutes. Furthermore, their privacy and confidentiality were addressed to make them willing and comfortable to take part in the survey. The questionnaire was filled by the respondents individually. Subsequently, the researchers managed to administer a reading comprehension test personally. The students were given a time of one hour to complete the test. The reading comprehension test was attempted by the respondents individually.

4.   Data Analysis and Interpretation

With the aim of reporting PLS-SEM results, this research used a two-stage method offered by Henseler et al. (2009). The primary stage is known as 'measurement model'. The secondary stage is called 'structural model' (Henseler et al., 2009).

4.1   Measurement Model

To assess the measurement model, numerous entities were inspected comprising Cronbach's alpha, average variance extracted (AVE), factor loadings, discriminant validity and composite reliability (CR). The outcomes of the measurement model are illustrated in Appendix A and Table 4.1.

Appendix A depicts the factor loadings of the constructs. Factor loadings' value must be greater than 0.5 to establish convergent validity (Hair et al., 2010). Factor loadings' value of all the constructs fulfil the aforementioned benchmark as evident from Appendix A. Thus, the convergent validity is established.

Table 4.1
Cronbach's Alpha, Composite Reliability and AVE

	Cronbach's Alpha	CR	(AVE)
ME	0.81	0.89	0.73
VE	0.64	0.81	0.59
VP	0.88	0.93	0.81
PS	0.61	0.79	0.56
GL	0.90	0.92	0.52
PSS	0.80	0.86	0.50
SP	0.80	0.84	0.52
SEB	0.83	0.88	0.52

Table 4.1 shows the values of Cronbach's alpha, composite reliability and AVE. The lowest Cronbach's alpha value that is considered acceptable is 0.60 to 0.70 (Hair et al., 2010). In this research, the Cronbach's alpha value lies within the assigned benchmark. Moreover, CR must be equal to or greater than 0.7 and the AVE's value must be equal to or larger than 0.5 (Fornell & Larcker, 1981). In this research, AVE and CR's values are above the assigned criteria. Additionally, Table 4.2 shows the values of discriminant validity obtained from Heterotrait-Monotrait Ratio (HTMT) method.

Table 4.2
Heterotrait-Monotrait (HTMT)

	GL	ME	PS	PSS	RC	SEB	SP	VE	VP
GL									
ME	0.679								
PS	0.645	0.599							
PSS	0.616	0.549	0.675						
RC	0.414	0.421	0.418	0.555					
SEB	0.753	0.882	0.716	0.833	0.501				
SP	0.612	0.63	0.49	0.494	0.414	0.602			
VE	0.195	0.238	0.367	0.42	0.268	0.402	0.145		
VP	0.547	0.575	0.328	0.371	0.274	0.462	0.674	0.191	

4.2 Structural Model

To assess the direct influence of ME, VE, VP, PS, GL, PSS, and SP on SEB, structural model was evaluated. It further determined the influence of SEB on RC. Additionally, mediation analysis was deployed to assess the indirect influence of independent constructs on the dependent construct. With the purpose of determining the association among variables, path coefficients and t-values were considered. In addition, R-Square (R^2) and predictive relevance (Q^2) were also evaluated. This study comprises eight direct associations as encapsulated in Table 4.3. Besides, it comprises seven indirect associations as depicted in Table 4.4. A substantial association was found between SES and reading SEB apart from PS. Additionally, a substantial and positive connection was found between all the three metacognitive reading strategies and SEB. Additionally, SEB was substantially associated with RC. Last of all, mediation analysis revealed that SEB successfully acted as a mediating construct between SES and RC apart from PS. In addition, SEB successfully mediated the association among all the three MCRS and RC.

Table 4.3

Results of Direct Relationships

Relationships	Coefficient	SD	T Statistics	P Values	f^2 values
ME -> SEB	0.498	0.036	13.969	0.000	0.689
VE -> SEB	0.077	0.038	2.043	0.042	0.023
VP -> SEB	-0.107	0.028	3.761	0.000	0.024
PS -> SEB	0.046	0.036	1.284	0.200	0.009
GL -> SEB	0.152	0.036	4.227	0.000	0.065
PSS -> SEB	0.301	0.035	8.632	0.000	0.293
SP -> SEB	0.120	0.036	3.365	0.001	0.032
SEB -> RC	0.470	0.055	8.596	0.000	0.284

Table 4.3 shows effect size (f^2) values. Cohen (1988) affirmed that the effect size value of 0.02 is small, 0.15 is medium, and 0.35 is strong. The values of f^2 depict that majority of the exogenous variables possess small effect size on their corresponding endogenous variable. It is worth noting that the effect size of one of the self-efficacy sources (i.e., physiological state) is 0.009 which is quite low as compared to other constructs due to the reason that it showed an insignificant relationship with SEB in the measurement model. In other words, PS is not affecting the SEB significantly.

Table 4.4
Results of Indirect Relationships

Relationships	Coefficient	SD	T Statistics	P Values
ME -> SEB -> RC	0.234	0.027	8.649	0.000
VE -> SEB -> RC	0.036	0.017	2.084	0.038
VP -> SEB -> RC	-0.050	0.014	3.625	0.000
PS -> SEB -> RC	0.021	0.016	1.307	0.192
GL -> SEB -> RC	0.071	0.020	3.615	0.000
PSS -> SEB -> RC	0.142	0.027	5.256	0.000
SP -> SEB -> RC	0.056	0.020	2.851	0.005

Table 4.5
Coefficient of Determination (r^2)

Endogenous Variables	R Square
RC	0.522
SEB	0.801

Table 4.5 indicates the R^2 values. R^2 values of both variables, i.e., reading comprehension (0.52) and self-efficacy beliefs (0.80) are significant. In other words, all the independent variables (ME, VE, VP, PS, GL, PSS, SP) simultaneously explain 80% variance in the mediator (SEB). In the same way, R^2 value indicates that all the eight exogenous constructs (ME, VE, VP, PS, GL, PSS, SP, SEB) explain 52% variance in the dependent variable (RC).

Table 4.6
Predictive Relevance (q^2)

	SSO	SSE	Q² (=1-SSE/SSO)
RC	383	300.818	0.215
SEB	2,681.00	1,645.01	0.386

Table 4.6 shows the Q^2 values. Henseler et al. (2009) asserted that Q^2 value must not be less than zero. Q^2 value for RC and SEB were 0.21 and 0.38 correspondingly.

The study ascertained the association of the SES (i.e., ME, VE, VP, PS) and MCRS (i.e., GL, PSS, SP) with RC by using SEB as a mediating construct. The findings indicated that there was a positive impact of ME on SEB (β 0.498; t=13.969). Similarly, there was a positive impact of VE on SEB (β 0.077; t=2.043). In addition, the results depicted that there existed a negative influence of VP on SEB (β -0.107; t=3.761). However, the findings demonstrated no substantial effect of PS on SEB (β 0.046; t=1.284). Moreover, GL had a positive

influence on SEB (β 0.152; t=4.227). In the same way, there was a positive impact of PSS on SEB (β 0.301; t=8.632). Similarly, SP had a positive influence on SEB (β 0.120; t=3.365). Lastly, the findings indicated that the mediating variable, SEB positively influenced the dependent variable, RC (β 0.470; t=8.596).

Regarding indirect associations, it was revealed that SEB mediated the positive connection between ME and RC (β 0.234; t=8.649; p<.05); VE and RC (β 0.036; t=2.084; p<.05); VP and RC (β -0.050; t=3.625; p<.05); GL and RC (β 0.071; t=3.615; p<.05); PSS and RC (β 0.142; t=5.256; p<.05); and SP and RC (β 0.056; t=2.851; p<.05). However, SEB did not mediate the association between PS and RC (β 0.021; t=1.307; p>0.05).

5. Discussion and Conclusion

The first research question's results indicated that three sources, except PS were substantially correlated with SEB. More particularly, ME depicted a significant and positive connection with SEB (β 0.498; t=13.969). SCT affirms that positive ME augments the SEB, while the negative ME lowers the individuals' SEB (Bandura, 1986). This result is in accordance with past studies' findings (Chen & Usher, 2013; Shehzad et al., 2019a). Similarly, VE depicted a positive and significant connection with SEB (β 0.077; t=2.043). This result is in line with other researches (Phan & Ngu, 2016; Shehzad et al., 2019a). Moreover, SCT asserted that individuals' self-efficacy augments after watching their peers gain success in any particular task (Bandura, 1986). VP was substantially associated with SEB (β -0.107; t=3.761). This result harmonises with past researches (Shehzad et al., 2019a). However, the direction of the relationship was negative. Lastly, PS was not substantially connected with SEB (β 0.046; t=1.284). In other words, this finding indicated that students' nervousness did not affect their reading self-efficacy beliefs. In the previous literature, very few studies found this result (Phan & Ngu, 2016). The possible speculation of an insignificant association between PS and SEB could be lack of interest of Saudi students in studies. It is a general conception that majority of the Saudis are wealthy. So, it could be speculated that they do not get anxious related to activities regarding studies.

The results of the second research question revealed that all the three MCRS (i.e., GL, PSS, SP) were substantially associated with SEB. These results are consistent with numerous past researches (Ahmadian & Pasand, 2017; Li & Wang, 2010; Shehzad et al., 2018; Shehzad et al., 2019b). Self-efficacy beliefs play an important part in learners' selection of learning activities (Bandura, 1986).

The third research question's results revealed that SEB and RC were substantially associated with each other (β 0.470; t=8.596). The probable reason for this finding might be the employment of the reading strategies. Previous researches (Li & Wang, 2010; Tuncer & Dogan, 2016) resolved that learners who have high reading self-efficacy inclined to use various strategies while reading.

The results of the fourth research question designated that SEB successfully acted as a mediating construct between SES and RC except one self-efficacy source, i.e., PS. SEB was used as a mediating construct as there is an ample support from the past studies indicating a substantial association between SES and SEB (Phan & Ngu, 2016; Shehzad et al., 2019a). Also, it is evident from the findings of number of studies that there exists a significant connection between SEB and RC (Guthrie et al., 2013; Shehzad et al., 2019).

Finally, the results of the fifth research questions indicated that SEB successfully acted as a mediator between MCRS and RC. This finding is a theoretical contribution in the body of literature as there is dearth of studies involving MCRS, SEB and RC in a single research framework.

This study answered five research questions. The findings related to first research question showed a positive and significant association of self-efficacy sources except PS with SEB. Secondly, it was found that MCRS showed a positive and significant association with SEB. The findings of the third research question showed that SEB was positively and significantly related to RC. The fourth research question's findings indicated that SEB mediated the association between SES and RC. Lastly, the findings of the fifth research question depicted that SEB mediated the association between MCRS and RC. These findings could have substantial implications for stakeholders as well as future researchers.

6. Recommendations

The findings of the study offer numerous feasible recommendations for EFL learners, teachers, and policymakers. The findings revealed a significant positive relationship of three SES with SEB, and SEB in turn showed a significant positive relationship with RC. These findings designated that SEB and SES played a vital part in improving Saudi EFL learners' RC. Thus, EFL teachers ought to focus on developing SEB by incorporating SES in students to improve their RC. This finding could be applicable to other Arab countries' EFL teachers and learners as well due to the same cultural and educational background. Furthermore, EFL teachers ought to deliver MCRS instruction to the students to make them more self-efficacious in reading and subsequently, their reading comprehension would improve. These strategies if taught properly to EFL students could potentially raise their SEB level and improve their reading

comprehension. Teachers may be given training, workshops, and talks regarding the ways of inculcating self-efficacy sources and metacognitive strategies into the students' minds. Also, policy makers and syllabus designers should incorporate metacognitive reading strategies in reading curriculum to make the process of reading comprehension smooth for EFL readers. For example, text bubbles can be incorporated into the reading material such as 'read again', 'read slowly, and for complex material it could suggest the readers 'to consult a dictionary' etc.

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Appendix A

Factor Loadings

	GL	ME	PS	PSS	RC	SEB	SP	VE	VP
GL1	0.838								
GL10	0.874								
GL11	0.577								
GL12	0.848								
GL13	0.668								
GL3	0.532								
GL4	0.877								
GL5	0.554								
GL6	0.582								
GL7	0.869								
GL8	0.676								
GL9	0.839								
ME2		0.859							
ME3		0.786							
ME1		0.921							
PS1			0.856						
PS2			0.592				.		
PS4			0.778						
PSS2				0.807					
PSS3				0.834					
PSS4				0.730					
PSS5				0.515					
PSS6				0.746					
PSS7				0.810					
PSS8				0.650					
RC1					1				
SEB1						0.754			
SEB2						0.763			
SEB3						0.791			
SEB4						0.811			

SEB5	0.748		
SEB6	0.771		
SEB9	0.596		
SP1		0.932	
SP2		0.824	
SP3		0.595	
SP4		0.829	
SP5		0.930	
SP6		0.591	
VE1			0.515
VE2			0.518
VE4			0.582
VE5			0.862
VE6			0.854
VP1				0.860
VP2				0.932
VP3				0.920