Impact of Cognitive and Metacognitive Strategies Practices on EFL Achievements among Saudi EFL Learner in Public Sector University, Abha, Kingdom of Saudi Arabia

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Abstract--- Language learning strategies have played pivotal role in students' language learning in the context of English as a foreign language. This study determines the impact of Cognitive and metacognitive learning strategies practices on EFL achievements among Saudi EFL learners. Cross sectional study has been conducted among Saudi Arabian students in public sector university, Abha, from Oct'2018 to March 2019. Random sampling technique used to target 323 students. Data were collected via self administered questionnaire, which includes; Demographic variables, six dimensions of cognitive and metacognitive strategies, and Students EFL scores. SPSS-23 Version used to analyze data. Qualitative and Quantitative variables explored via frequency & percentage and mean±SD respectively. Pearson correlation used to assess relationship between cognitive and metacognitive strategies and EFL achievements. Multiple regression has used to assess the effects of cognitive and metacognitive strategies on EFL Achievements. Response rate was 80.5%. Out of 323, 260 duly filled questionnaires were received. Most of the students were females (58.8 %), age group between 15-19 years (58.5%), and belong to sophomore class (45.8%). Findings of the study revealed, cognitive and metacognitive strategies positively correlated with EFL Achievements at P-Value < 0.05 & < 0.01 and use of cognitive and metacognitive strategies explained significant amount of variance in Grammar, vocabulary, Reading, Listening, Writing and EFL final exam scores. This study provides insight to include language learning strategies in university pedagogy and train teachers to facilitate students to utilized language learning strategies. Keywords— Cognitive, EFL Learner, Language Learning Strategies, Metacognitive, Saudi Context.

I. INTRODUCTION

The goal of Effective language learning can be accomplished by practicing language learning strategies

(LLS). In 1970, LLS have been introduced in the area of second language learning; in the late 1980s, researchers' are more curious and attempt to investigate what language learner do to assist their learning in the language learning process. Currently numerous studies have given more focused on language learning strategies, while early researches in this domain provided list of strategies and relevant features that were recognized to be fundamental for good language learner. (Hsiao & oxford, 2002; Cohen, 1998; Green & Oxford, 1995; Oxford, 1990; O'Malley & Chamot, 1987; Chamot, 1987) Number of researches defined leaning strategies as any thought, plan, choice, behavior and techniques used by learner to help their leaning process. (Weinstein & Mayer, 1986; Oxford, 1990; Chamot, 1987)

Vol-4, Issue-3, May - Jun, 2019

In the current ere, one of the fundamental objectives of academia is to facilitate students to become autonomous, independent and efficient learners, consequently numbers of contemporary psychologist as well as educators more focusing on studying learning strategies as a path to accomplish this end. (Bin, 2008) Past studies have been reported various well established taxonomies of LLS, from which O'Malley and Chamot (1994), oxford (1990), and Rubin (1987) proposed model continually attracted and given more attention by numerous studies. These all models are provided two proper subset of learning strategies which are cognitive and metacognitive learning strategies.

Cognitive strategies help to select, obtain and merge new knowledge with the existing one by learner. They comprises of fundamentals and complex strategies for information processing such as rehearsal, organization, elaboration as well as critical thinking. (Dowson & McInemey, 1998) On the other side, meatcognitive strategies are advance processing strategies which includes; planning, regulation and monitoring that facilitate learners in the control of cognition in addition to regulation. (Pintrich, Smith, Gracia & McKeachie, 1993)

Vol-4, Issue-3, May - Jun, 2019 ISSN: 2456-7620

Literature have been reported many studies that examine the practices of cognitive and metacognitive strategies in regard to some characteristics of students e.g., gender, socioeconomic status (SES), Prior knowledge, and academic achievement. (Pintrich & Groot, 1990; Zimmerman, 1990) The related literature revealed that relationship between usage of cognitive and metacognitive strategies and academic achievement fluctuate with respect to subject area, culture and grade level. In this study Arabian students studying in Saudi Arabia have been targeted to assess the effect of cognitive and metacognitive strategies practices on English language achievements in the context of English as a foreign language.

1.1. The Problem

Past studies found that Saudi EFL learner generally have low achievements in English as a foreign language. (Alrashidi & Phan, 2015; Alrabai, 2014; Al-Khairy, 2013; Alrahaili, 2013; Rahman & Alhaisoni, 2013; Elyas & Picard, 2010) Although vast efforts have been taken by government of Saudi Arabia to improve English learning and teaching in the country, still Saudi students' English achievement and proficiency far below expectations and remain unsatisfactory. (Alhawsawi, 2013; Khan, 2011; Al-Johani, 2009)

Studies have found variety of multidimensional factors that can lead to low EFL achievements among Saudi students. Study conducted by Lightbown & Spada on leaner individual variables found that low proficiency in the foreign language learning is the end result of complex interaction of external as well as internal factors, For instance, aggressive teacher behavior, and controlling are some of the external factor that eventually produce negative effects on learners' motivation, whereas anxiety that teachers instill in their students by giving different task is an internal factor that attribute students learning outcomes.(2013) Recent research stated that students come to schools/institutes with enthusiasm and motivation, but once they come across certain external practices, for instance completing assignment, responding teacher questions, taking test along with monitoring their performance, graded and reported to the parents, student may begin to find school environment psychologically threatening and anxiety provoking. (Brophy, 2004) These negative outcomes in academic achievements can be mitigated through encouraging students to utilize various learning strategies.

1.2. Gaps and Contribution

Numerous studies have been conducted in education sectors have described how learning strategies can facilitate learning motivation and promote learner achievements. There are number of studies conducted among Saudi Arabian students to assess students

EFL/academic achievements and impact of various factor such as teaching strategies, role of peer and self assessments, demographic factors and socioeconomic status on students EFL/Academic achievement. (Alrabai, 2014; Al-Khairy, 2013; Alrahaili, 2013; Alhawsawi, 2013; Khan, 2011) However there is absence of studies to assess the effect of cognitive and metacognitive strategies on students' EFL achievements particularly in the Saudi Arabian context. This study would fulfill the gap in the existing body of knowledge via exploring cognitive and metacognitive strategies used by Arabian students and its effect on Saudi Students' EFL achievements.

1.3. Purpose of the study

The aim of the study is to determine the relationship between cognitive and metacognitive strategies and EFL achievements and the impact of cognitive and metacognitive strategies practices on EFL achievements among Saudi EFL learners.

1.4. Significance of the Study

The findings of the current study will play positive role and facilitate teachers as well as academic institutes to improve quality of education; encourage academicians to guide and instruct students to utilize cognitive and metacognitive learning strategies that produce effective academic outcomes. Moreover, this study findings will helps learners to learn language learning strategies and applied that strategies on their respective domain to improve academic performance. Findings of the study would open avenues for researchers to conduct further studies in different cultural context, with different subject area as well as different class level.

1.5. Research Questions:

This study provides the answers of following research questions:

- What is the relationship between cognitive and metacognitive strategies and EFL achievements among Saudi Arabian EFI Learner?
- What is the impact of cognitive and metacognitive strategies practices on EFL achievements among Saudi Arabian EFL learner?

II. LITERATURE REVIEW

2.1. Cognitive and Metacognitive Learning Strategies

Learning strategies are defines as: ways, approaches or actions taken deliberately by students to simplify the process of learning and evoke content area and linguistic information, (Chamot, 1987) Processes that facilitate the performance, when they are matched with the task requirements, (Michael Pressley, Goodchild, Fleet, Zajchowski, & Evans, 1989) Strategies that is particularly imperative for learning language, as these are the tools for self directed and active involvement and necessary for the

development of communicative competence. (Oxford, 1990; Nunan, 1990)

Past studies have been demonstrated that learning strategies are positively correlated with students' academic performance. (Alexander, Graham, & Harris, 1998; Claire Ellen Weinstein, Jenefer Husman, & Douglas R. Dierking, 2011; Hattie, Biggs, & Purdie, 1996; Michael Pressley et al., 1989) Relevant literature has described various learning strategies, ranging from very basic to more complex approaches, to synthesize knowledge or developing conceptual framework. (Mayer & Alexander, n.d.; M Pressley, 2002) Studies have found that students use various types of learning strategies to improve their academic performance. This study focused on cognitive and metacognitive strategies practices by Arabian students.

Students use cognitive strategies to enhance their understanding on particular domains. They refer as task or domain specific. Rehearsal, elaboration and organization are three major subcategories of cognitive strategies. Rehearsal are used to choose and encode information, the focus is on repeating contents in order to smooth the progress of remembering or learning, for instance, vocabulary and idioms learning. Elaboration strategies are used by students' to store information in long term memory via developing internal link between learned items and existing knowledge, such as summarizing and paraphrasing. Organization strategies are used to generate meaningful units of information by choosing proper information through drawing picture or graphs and creating connections between various elements. (Pintrich & Groot, n.d.; Weinstein, Acee, & Jung, 2011) On the other hand, metacognitive strategies used to regulate students' cognition via stimulating related cognitive techniques. Metacognitive strategies can be judged as higher level strategies and linked to cognitive domains. Three subcategories of metacognitive strategies (planning, monitoring and evaluation) are related to the sequence of learning processes. Planning strategies are positioned at the beginning of a learning event and includes sub stages for instance resource allocation and goal settings. Monitoring strategies are employed to assess one's comprehension and also considered as continuous assessments of own learning as well as strategy used. Lastly evaluation strategies used to analyze one's performance, along with effectiveness of learning methods. (Schraw & Dennison, 1994)

2.2. Learner Roles in Practicing Cognitive and Metacognitive Learning Strategies

Pintrich and De Groot suggested that students' should gain essential knowledge and skills to select and properly utilize cognitive and metacognitive learning strategies. Teachers should use approaches to make students aware regarding vital learning strategies in various types of learning environments and facilitate students to utilize suitable learning strategies in further learning situation. (Pintrich & Groot, n.d.) Since learning strategies provide students a sense of control and promote students to give more attention to their learning methods, teacher can instruct and train students how to learn through using various learning strategies. (Zimmerman, Bonner & Kovach, 1996)

Zimmerman (1990) reported that learners, who applied learning strategies in their learning process, are differentiated by their systematic utilization of cognitive, metacognitive and behavioral strategies; by their ways to give feedback responses about the effectiveness of learning in addition to self perception of their academic achievements. (Flavell, 1976) Past studies reported that those learners who were taught learning strategies were more likely to perform better and achieve higher performance on their academic measure as compared to those who hadn't received any formal instruction on leaning strategies; the likelihood of success in their professional in addition to their academic career is high. (Lubuhn, Zimmerman, & Hasselhom, 2010; Ruban & Reis, 2006))

2.3. EFL Learner and EFL Achievements

Literature has been reported that involvement of EFL learners in setting g goals, assessment criteria and self evaluation of one's work provides a sense of control over learning and assessment outcomes that boost their motivation to try tasks that were challenging for instance, learning a foreign language. Furthermore, this sort of involvement may prompt metacognitive and strategic action because in this phase learner needs to judge qualities of leaning process and products and promote behavioral adjustments that augment learning and goal attainment. Winne & Perry, 2000' Oxford, 2001)

2.4. Effective use of Cognitive and metacognitive Strategies on EFL Achievements

Pinch and De Groot (1990) examined relationship among cognitive strategies, such as Rehearsal, elaboration and organization; metacognitive strategies in addition to motivation for learning as well as performing well in the class among students in English via using MSLQ (motivational strategies for learning questionnaire); they found that significant positive correlation between rehearsal, organization and elaboration (cognitive strategies), self regulation (metacognitve strategies) and English achievements. Moreover cognitive metacognitive strategies have significant effect on students' English achievement. Another study explored the relationship between use of self regulated learning (SRL) skills and achievements findings of the study revealed that students understanding of subject area along

with efficiency of learning will enhance if students learning skill developed and applied. (Turan & Demirel, 2010)

Hedge (2000) study finding shows that EFL learners utilize cognitive strategies to gain new knowledge in a number of ways. numerous researchers have focused on processes of metacognitive that support knowledge construction in a variety of way that boost students ability to learn language with greater understanding. Wenden (1998) study established that metacogniotion is necessary in various phases of language learning for instance, oral, writing, reading and language acquisition. Similar study conducted in 2012 among students; depict strong positive relationship between SRL Strategies use and academic achievements of students. They also found significant mean differences between male and female students with regard to usage of SRL strategies; females reported better in both the use of SRL strategies and academic achievements as compare to males.(Saad & Boroomand, 2012)

On the basis of the findings of previous studies, following hypothesis proposed:

- There is a significant relationship between Cognitive and metacognitive strategies and EFL achievements among Saudi EFL Learner.
- There is a significant impact of Cognitive and metacognitive strategies practices on EFL achievements among Saudi EFL learner

III. METHODOLOGY

3.1. Study Design and Participants

Observational Analytical cross sectional study has been conducted among undergraduate native Saudi Arabian students in public sector university, Abha, kingdom of Saudi Arabia from Oct'2018 to March 2019 to assess the effects of cognitive and metacognitive strategies practices in their EFL achievements. Sample size was calculated via using survey monkey sample size calculator at 95% CI with the precision level 0.05 and total number of students, enrolled in undergraduates program, was 2000. Calculated sample size is 323; Random sampling technique used to target respondents. Native Arabic male and female students with the age ranging from 16 to 24 years old, willing to participate were included in this study. Students other then Arabian with the age below 18 or above 24, disabled students, and who are not willing to participate were excluded from the study.

3.2. Data Collection Instrument

Data were collected via self administered questionnaire. comprises of three sections. Section one includes demographic variables, section two consist of 31 item of cognitive and metacognitive strategies, and section three consist of EFL course scores. Demographic variables includes; students Age, Gender, Class Level. Items of cognitive and metacognitive strategies obtained from motivated strategies learning questionnaire (MSLQ) proposed by pintrich and Degroot in 1990, which are comprises of six domains; Rehearsal (4items), Elaboration (6 items), Organization (4 Items), Critical Thinking (5itmes) and Self Regulation (12 Items). First five construct depict cognitive strategies and self regulation assess metacognitive strategies utilized by students. Participants reported their responses on seven point likert scale ranging from 1 "Very untrue of me" to 7 "Very true of me". Mean of the each construct has been taken to find average score. Each construct has been reported strong internal consistency and Cronbach's Alpha for constructs, ranges from 0.70 to 0.85. Students EFL scores in Grammar, Vocabulary, Reading, Listening and writing find out via assessment technique proposed by Saudi education system along with final exam score

3.3. Data Analysis Procedure

SPSS version 23 software was used to analyze data. MS-word and MS-excel were used to design table. Qualitative and Quantitative variables were explored via frequency & percentage and mean±SD respectively. Reliability of each construct assess via Cronbach's Alpha. Pearson correlation has been used to assess relationship between six dimensions of cognitive and metacognitive strategies and EFL achievements. Multiple regressions used to assess effects of cognitive and metacognitive strategies on EFL Achievements. P-Value < 0.05 consider significant.

IV. RESULT

In this study, 323 Arabian students have been targeted as a sample. Response rate was 80.5%. Out of 323, 260 duly filled questionnaires were received. 58.8% (153) respondents were females. Most of the students, 58.5% (152) were in age group between 15-19years old and 45.8% (119) were belong to sophomore class. Reason for taking EFL classes reported by majority of students includes EFl course is mandatory (86.5%, n=225) improve academic skills (74.6%, n= 194) Required for major program (71.9%, n= 187), Interesting contents (49.2%, n=128), and recommended by friends/counselors (46.9%, n= 122) as show in Table 01.

Table.1: Demographic Profile of the Respondents

Variables	Category	% (n)		
Gender	Male	107 (41.2)		
	Female	153 (58.8)		
Age	15-19years	152 (58.5)		
	20-24years	108 (41.5)		
Class Level	Freshman	34 (13.1)		
	Sophomore	119 (45.8)		
	Junior	54 (20.8)		
	Senior	53 (20.4)		
Reasons For Taking EFL Classes				
1. Contents seem interesting	Yes	128 (49.2)		
	No	132 (50.8)		
2. Course Required of All Students	Yes	225 (86.5)		
	No	35 (13.5)		
3. Will help improve my academic Skills	Yes	194 (74.6)		
	No	66 (25.4)		
4. Is require for major program	Yes	187 (71.9)		
	No	73 (28.1)		
5. Was recommended by friends and Counselor	Yes	122 (46.9)		
•	No	138 (53.1)		

The mean age of the respondents was 1.42±0.49. Descriptive statistics (mean±SD) of No. of EFL classes taken per semester, Study hours per week, cognitive and metacognitive strategies average score in six domains; Rehearsal, Elaboration, Organization, Critical thinking

and Metacognitive Self Regulation along with EFL achievements in terms of grammar, vocabulary, Reading, Listening, Writing and EFL final exam score have been reported in Table 02.

Table.2: Descriptive Statistics (mean±SD)

Variables	Mean	SD	
Age of the respondents	1.41	0.49	
No. of EFL Classes in a semester	11.8	1.09	
Study hours for EFL course per week	11.7	1.55	
Rehearsal Score	3.69	1.45	
Elaboration Score	4.25	1.19	
Organization Score	3.67	1.25	
Critical Thinking	4.15	1.41	
Metacognitive Self Regulation	3.77	1.02	
Grammar Score	3.54	1.16	
Vocabulary Score	3.50	1.02	
Reading Score	3.56	1.09	
Listening Score	3.53	0.97	
Writing Score	3.56	1.03	
EFL Final Exam Score	3.68	0.77	

The reliability of each construct and the significant relationship between cognitive and metacognitive strategies and EFL achievements were assed via Cronbach's alpha and Pearson correlation respectively. The value of the cronbach's alpha of each construct such as Rehearsal, Elaboration, Organization, Critical thinking and Metacognitive Self Regulation scales were found above 0.70 which depict strong reliability. The findings of the study revealed significant strong positive relationship

between critical thinking and EFL final exam score (r2 =0.59, P-value = 0.000), Metacognitive self regulation score and EFL final exam score (r2 = 0.79, P-value= 0.000); most of the cognitive and metacognitive strategies shown significant moderate positive relation with Grammar, vocabulary, Reading, Listening, Writing and EFL final exam scores at p-values 0.01 & 0.05 as shown in Table 03.

Table 3: Cronbach's Alpha and Pearson correlations b/w six dimensions of Cognitive and metacognitive strategies and EFL Achievements

	Alph	RS	ES	os	CTS	MSR	Gramm	Vocabula	Readi	Listeni	Writi	EFL
	a					S	ar	ry	ng	ng	ng	Fina l Scor e
RS	0.85	1										
ES	0.81	0.62*	1									
OS	0.72	0.65*	0.53*	1								
CTS	0.79	0.56*	0.67* *	0.69*	1							
MSRS	0.82	0.69* *	0.44*	0.83*	0.59* *	1						
Gramma r	-	0.41*	0.38*	0.43*	0.43*	0.44*	1					
Vocabula ry	-	0.49*	0.49*	0.63*	0.57*	0.57*	0.37*	1				
Reading	-	0.50*	0.38*	0.63*	0.64*	0.64*	0.21	0.65**	1			
Listening	-	0.47*	0.40*	0.76*	0.67* *	0.67*	0.38*	0.72**	0.65**	1		
Writing	-	0.44*	0.38*	0.67*	0.59*	0.59*	0.33**	0.57*	0.62*	0.70**	1	
EFL Final	-	0.57*	0.32*	0.65*	0.79*	0.79*	0.37**	0.44**	0.56**	0.58**	0.54**	1
Score	<u> </u>	• • • •			(2 : 1							

^{**.} Correlation is significant at the 0.01 Level (2-tailed)

RS, Rehearsal Score; ES, Elaboration Score; OS, Organization Score; CTS, Critical Thinking Score; MSRS, Metacognitive Self Regulation Score

The findings of the multiple regression reveal that there is a significant effects of Cognitive and metacognitive strategies on students Grammer score [F (5,254) = 16.8, P-value = 0.001], Vocabulary score [F (5,254) = 40.22, P-value = 0.000], Reading score [F (5,254) = 40.97, P-value = 0.000], Listening score [F (5,254) = 72.76, P-value = 0.000], Listening score [F (5,2

value = 0.000], Writing score [F (5,254) = 42.51, P-value = 0.001], and final exam score [F (5,254) = 90.40, P-value = 0.000]. High variances, 64% and 59%, explained by cognitive and metacognitive strategies on EFL final exam score and Listening score of students respectively. (Table 4)

^{*.} Correlation is significant at the 0.05 Level (2-tailed)

Table.4: Effects of Cognitive and Metacognitive Strategies on Students EFL Achievements

	\mathbb{R}^2	F	df	P-Value					
Grammar Score									
Cognitive and									
Metacognitive strategies	0.24	16.80	5, 254	0.001					
Vocabulary Score									
Cognitive and									
Metacognitive strategies	0.44	40.22	5, 254	0.000					
Reading Score									
Cognitive and									
Metacognitive strategies	0.44	40.97	5, 254	0.000					
Listening Score									
Cognitive and									
Metacognitive strategies	0.59	72.76	5, 254	0.000					
Writing Score									
Cognitive and									
Metacognitive strategies	0.46	42.51	5, 254	0.001					
EFL Final Exam Score									
Cognitive and	0.64	90.40	5, 254	0.000					
Metacognitive strategies									

V. DISCUSSION & CONCLUSION

Current study has been conducted among Arabian students studying in Public Sector University in Saudi Arabia to assess impact of cognitive and metacognitive strategies practices on EFL achievements. According to the result, majority of the students were females (58.8%), age group between 15-19years (58.5%) and belong to sophomore class (45.8%). Hypotheses have been proposed to find out the significant relationship between cognitive and metacognitive strategies and EFI achievements in addition to the effects of strategies use on EFI achievement.

Findings of the study reveal significant positive strong to moderate relationship between most of domain such as Rehearsal, Elaboration, Organization, Critical thinking, Metacognitive Self Regulation, Grammer, vocabulary, Reading, Listening, Writing and EFL final exam scores at P-value < 0.01 & P-Value < 0.05. These findings are consistent with the previous studies findings conducted by Yang (2009) and Wafa (2003) to find out the relationship between cognitive and metacognitive strategies practices and English as foreign language achievements. Authors of the studies agreed that use of learning strategies positively correlated with English achievements. Findings of the currents study are in line with the study findings conducted in 2012 by Saad and Boroomand among students, to find out the relationship between utilization of SRL strategies and academic achievement of students, result of their study depicted

strong positive relationship between SRL Strategies use and academic achievements of students. (Saad & Boroomand, 2012).

Multiple regression has used to test Next hypothesis, According to result, there are highly significant effects of cognitive and metacognitive strategies on students EFL achievements. Cognitive and metacognitive Strategies explained significant amount of variances, 64% on EFI final exam score and 59%, 49%, 44%, 44% & 24% on Listening, writing, vocabulary, reading and grammar scores respectively. Findings of the current study are agreement with the previous studies findings. A study conducted among students, who enrolled in specialized English course at An-Najah university, Palestine, revealed that students use more cognitive and metacognitve strategies as compared with other related learning strategies; higher achievements found among students who practicing cognitive and metacognitive strategies more frequently as compared to students with low achievement. Higher awareness of their need and searching opportunities to practice English as a foreign language are reported among higher achievers. (Wafa, 2003) Another study finding also in support current study findings and significant differences have reveled among English listeners in regard to practicing cognitive and metacognitive strategies. Author of the study found that students use more cognitive and metacognitve strategies have higher achievements in English language as compared to those

who hadn't focused to use cognitive and metacognitive strategies frequently such as directed attention, self management and functional planning strategies. (Yang, 2009). Vainty (2007) conducted study among students in Bahasa Indonesia also found that students more offently use cognitive and metacognitive strategies while they reading their academic materials and scores higher in English. Chamot (2005) explored the importance of learning strategies considering the fact that strategies that utilized by EFL learners, facilitate academicians to get insight into cognitive, metacognitive, social and affective processes that needed in language learning. Moreover, strategies facilitate teachers to understand EFL learner knowledge and guide students who are less successful to gain insight and to learn new strategies.

Based on the current study findings, it is confirmed that there is a significant positive relationship between the use of cognitive and metacognitive strategies and EFL achievements. The current study also revealed, use of cognitive and metacognitive strategies explained significant amount of variance in Grammar, Vocabulary, Reading, Listening, Writing and EFL final exam scores of Saudi Arabian students studying at Public Sector University. Further research is needed to conduct among students at private sector institutes as well as schools. Current study provide insight to includes language learning strategies in university pedagogy and train teachers to facilitate and instruct students to utilized language learning strategies to enhance their English achievement in the context of second language.

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