

Using the Cognitive Learning- Centered Approach Versus Reflective Reading Strategy to Develop EFL Prospective Teachers' Comprehension Performance, Cognitive Academic Language Proficiency and Cognitive Motivation

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Abstract

The present study aimed at investigating the effect of a modified cognitive learning centered approach (MCLA) and a suggested reflective reading strategy (SRRS) in developing prospective teachers' Reading Comprehension Performance, Cognitive Academic Language proficiency and Cognitive motivation. The study adopted the quasi- experimental design (two experimental groups and one control group). Seventy eight prospective teachers in the fourth year-English department from the faculty of Education, Zagazig University were chosen to participate in the study. Each group comprises (n=26) students. The administration was conducted during the academic year 2018-2019 to collect data. The researcher designed a reading comprehension performance test, a cognitive academic language proficiency test and a cognitive motivation scale which were approved by the jury members. In addition, the researcher designed the course material and instructor's guide. The 1st experimental group was taught with the suggested reflective reading strategy (SRRS) while the 2nd experimental group was taught by the modified cognitive learning- centered approach (MCLA). The students of the control group received regular instruction. The results showed that the 1st experimental group (taught through the suggested reflective reading strategy (SRRS) had a significant improvement in their performance in the post results of developing reading comprehension performance and cognitive academic language proficiency while the modified cognitive learning - centred approach (MCLA) had a significant improvement in their performance in the post results in developing reading comprehension performance and cognitive academic language proficiency. Comparatively, according to MacGuigan gain ratio, it was concluded that the modified cognitive learning -centred approach (MCLA) was

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effective than the suggested reflective reading strategy (SRRS) in developing prospective teachers' reading comprehension performance and cognitive academic language proficiency, however, the two groups didn't achieve any improvement nor effectiveness in developing prospective teachers' cognitive motivation.

Key words: *Cognitive learning centered approach (CLA), suggested Reflective Reading Strategy (RRS), Reading Comprehension Performance (RCP), Cognitive Academic Language proficiency (CALP), Cognitive motivation (CM).*

I. Introduction

Reading is by far an essential study skill in higher education. It is a complex- cognitive process which helps students draw upon and enhance many skills. It represents a meaning- making process that requires student-readers to contextualize their schemata with the writer's background. This leads to a high level of comprehension which; therefore, orients their thinking process during reading to cognitively optimal outputs especially in narrative and expository text comprehension. (Yussof et al. 2013). In addition, Ekola (2016) clarified language proficiency according to what could be considered as the most influential concept of Noam Chomsky's introduction of transformational grammar and the constitutive components of language: competence and performance (Llurda 2000: 85). Chomsky viewed competence as the main monolingual speaker-listener's knowledge of language and performance as the actual use of the language in real situations. (Bacarić, V. & Mihaljević Djigunović, J. 2007: 95). Cognitive motivation depends on information currently available as well as previous experiences in order to determine the course of action while implementing or undertaking the learning tasks. Furthermore, it is assumed that behaviour is guided as a result of the active interpretation of information.

II. Literature review

Comprehension is a creative, multifaceted process" dependent upon four language skills: phonology, syntax, semantics, and pragmatics. It mainly depends on the ability to recognize the meaning quickly and effortlessly. It is also determined by an individual's cognitive development, which is "the construction of thought processes. From this point, comprehension performance is important toward competent reading. It is based on Kirby's theory of reading (1988). According to Amer, & Khoussam (1993), Kirby identifies three distinct reading styles of performance; analytic, global and synthetic. Analytic reading adopts a bottom-up (text-based) approach to reading in which the focus is on the words rather than the extraction of meaning. Global reading, in contrast, adopts a top-down (concept-driven) approach to reading which relies too much upon prior knowledge. Synthetic reading, on the other hand adopts an interactive approach to reading in which it integrates the more appropriate aspects of the two former styles in which it has become more flexible and is able to be shifted from one to the other during the task performance.

For the purpose of conceptualization, comprehension performance can be categorized into four levels of understanding; literal, implicit, critical and creative comprehension which are important in the study of language comprehension and students' performance during the learning process. The first level is literal comprehension which

entails reading to recognize or recall information that is explicitly stated. The second level implicit comprehension means to take the literal level of understandings and combine them to make interpretations beyond what is explicitly stated. The third level is critical comprehension which combines the literal and implicit thinking to make more subjective judgments. The last level is creative comprehension which entails using thinking at all three previous levels to evoke emotional or affective responses. (Miller, 1977).

According to Al Madi, (2014), the cognitive theory of comprehension is based on three main principles: dual channels, limited capacity, and active processing. Dual channels mean that the human brain possesses multiple separate channels for processing visual and auditory information while limited capacity describes the human limitation for processing information in each channel at a time. Last, active processing describes the human ability to organize relevant information into coherent mental representations or integrate them with previous knowledge. In the same line, Capellini (2015) identified the reading process as it involves several cognitive skills such as decoding words, vocabulary acquisition, perception, memory and comprehension of text ideas to create mental models and reading comprehension based on context and the point of view of the reader.

Consequently, cognitive academic language proficiency is a formal academic learning which includes boosting listening, speaking, writing and reading. according to Grigorenko (2005), it refers to the specific literary language that is required in academic settings. Cummins (1979) has developed both linguistic and socio-political theory concerning the education of bilingual students. He begins with an established understanding that language plays a central role in a child's educational development and seeks to uncover ways that language can be developed to allow educational success. After synthesizing a large number of bilingual research studies, Cummins has recognized that multiple language proficiencies are required for various needs within various contexts.

Grigorenko (2005) ascertained that cognitive academic language proficiency (CALP) is knowledge of the less frequent vocabulary of English as well as the ability to interpret and produce increasingly complex written and oral language, complex syntax, and abstract expressions which are virtually never heard in everyday conversation. It occurs in context reduced academic situations where higher order thinking skills (e.g. analysis, synthesis, evaluation) are required in the curriculum. CALP is discussed as a part of a causal chain, it is never discussed as an isolated causal factor but rather as one of a number of individual learner attributes that are determined by social influences and which interact with educational treatment factors in affecting academic progress.

Motivation is another important factor that affects on students' engagement in the learning process. It plays an important role in enhancing their English learning performance. According to Barrett, et al., (2005), motivation can both energize and direct behavior. The structure of motivation includes both the cognitive architecture utilized for information processing as well as the overt activity (Pittman, 1998). Conceptualized in this way, motivation has both an epistemic component (development of understanding) and a behavioral-directive one (providing goals, in part derived from understanding that guide behavior).

On one hand, reflective reading is an important strategy that helps student- readers read with a questioning mind; identify, argue and analyze what is written and other concepts and arguments. So, Gibson (2010) ascertained that student- readers are required to develop a reader's portrait through which they set parameters of performance in reading. Within reflective essay, they are also expected to ponder in depth their thoughts and feelings on reading, their growth as readers, and the impact that they see themselves having on the

attitudes toward reading. Wilhelm (2005) stated that reflectively student- readers learn to visualize scenes, characters, ideas, and textual information as they read. According to theoretical research, creating images and mental models of what one reads is essential to comprehension. These reading scenes can be emblazoned in the memories for a lifetime. Such images make reading intense and engaging.

On the other hand, cognitive learning- centered approach is an action or process of acquiring knowledge and understanding through thoughts, experiences, and the senses. It encompasses processes such as knowledge, attention, memory and working memory, judgment and evaluation, reasoning and "computation", problem solving and decision making, comprehension and production of language. Cognitive processes use existing knowledge and generate new knowledge. According to Davidko (2011), cognitive scientists hypothesized that language knowledge is not different from any other type of knowledge, so it is acquired, stored and retrieved according to the same structural cognitive principles that operate in other areas. Knowledge in the human mind is reflected in mental or cognitive representations — the basic units of human knowledge stored in the mind. Mental representations are information-bearing structures with which operations can be performed in order to build recognition patterns conducive to more complex knowledge (Paivio, 1990) which vary in the degree of abstractness and relate to words, concepts and situations. These mental representations are divided into two perspectives; verbal and conceptual. A reader first develops a verbal representational system in his native language whereas bilingual readers have two verbal representational systems which are functionally connected to a common cognitive or conceptual system. So, such a reader must develop new mental representations and develop facility at accessing those representations in a variety of circumstances and it is essentially important to learn the second language in a direct association with appropriate referents.

So, the present study has been an attempt to develop EFL prospective teachers' comprehension performance, cognitive academic language proficiency and cognitive motivation through two different strategies; (the cognitive-learning centered approach versus reflective reading). The researcher conducted a pilot study and administered an English academic proficiency test for (20) EFL students at faculty of Education , Zagazig University. The results of the pilot study showed that the EFL prospective teachers lack the basic skills of English proficiency skills.

Statement of the problem:

The problem of the present study was summarized in the following main question:

“What is the effectiveness of using two different strategies; (the Cognitive-Learning Centered Approach Versus Reflective Reading) in developing EFL Prospective Teachers' Comprehension Performance, Cognitive Academic Language proficiency and Cognitive motivation?”

This major question can be sub-divided into the following sub-questions:

1. What is the effectiveness of using a cognitive learning -centered approach and a reflective reading strategy in developing EFL prospective teachers' reading comprehension Performance?
2. What is the effectiveness of using a cognitive learning -centered approach and reflective reading strategy in developing EFL prospective teachers' cognitive academic language proficiency skills?
3. What is the effectiveness of using A cognitive learning -centered approach and reflective reading strategy in developing EFL prospective teachers' Cognitive Motivation?

The aims of the study:

- 1- Identifying comprehension performance skills necessary for the EFL prospective teachers at faculty of education.
- 2- Identifying cognitive academic language proficiency skills necessary for EFL prospective teachers at faculty of education.
- 3- Identifying the effectiveness of the cognitive learning- centered approach and reflective reading in developing prospective teachers' comprehension performance skills.
- 4- Identifying the effectiveness of the cognitive learning- centered Approach and reflective reading in developing prospective teachers' cognitive academic language proficiency skills.
- 5- Identifying the effectiveness of using the cognitive learning- centered approach and reflective reading in developing prospective teachers' cognitive motivation.

Instruments of the study:

- 1- A comprehension performance test.
- 2- A cognitive academic language proficiency test.
- 3- A cognitive motivation scale

Design of the study

The present study was a quasi-treatment of the three groups pre-posttest; two treatment groups and one non-treatment group. The instruments were administered to the study groups of the research before and after implementing the programs.

Participants of the study

The participants of the study were seventy-eight (n=78) EFL prospective teachers in the fourth year in the department of English in the faculty of Education, Zagazig university. Each group comprises (n=26) students. They were selected then divided into two treatment groups and one non-treatment group. The participants of the first treatment group were administered with the modified reflective reading model strategy (MRRS) while those of the second treatment group were administered a cognitive learning centered approach (MCLA). The non-treatment group received regular instruction.

III. Data analysis and Study Results

In the light of pre-administration, conducting the experiment and the results of administering the suggested reflective reading strategy (SRRS) (the 1st treatment group), the modified cognitive learning -centered approach (MCLA) (the 2nd treatment group)- study sample- and the non- treatment group (the regular method) in their performance in reading comprehension performance (RCP) and Cognitive Academic Language Proficiency tests (CALP) and Cognitive Motivation scale (CM), the researcher conducted the following steps:

Hypothesis (1)

It was hypothesized that “there are no statistically significant differences among the three study groups (the two treatment groups and the non-treatment one) in the means of scores in the post administration of the reading comprehension performance test, cognitive academic language proficiency test and cognitive motivation scale.”.

Concerning Reading comprehension performance test (RCP), this hypothesis was verified using one one-way analysis of variance (ANOVA). The results are shown in table (1).

Table (1) Comparing the post results of the three study groups in the RCP test

Group	Non-treatment	1 st treatment	2 nd treatment
Number	26	26	26
Mean	33.73	35.11	42.55
Mean square	Between groups= 585.95		within groups= 47.34
Std. Deviation	7.72	8.23	3.81
Df	Between groups= 2		within groups= 75
Sum square	Between groups= 1171.90		within groups= 3550.93
(F) value	12.376		
Significance	0.00		

From table (1), it is clear that there are statistically significant differences among the three study groups (the two treatment groups and the non-treatment one) in the means of scores of the post-administration of the reading comprehension performance test as the significant value was(0.00) that was less than the typical value of significance (0.05).

Regarding cognitive academic language proficiency test (CALP), this hypothesis was verified utilizing the one-way analysis of variance (ANOVA). The results are shown in table (2).

Table (2) Comparing the post results of the three study groups in the CALP test

Group	Non-treatment	1 st treatment	2 nd treatment
Number	26	26	26
Mean	23.69	36.84	39.96
Mean square	Between groups= 1938.8		within groups= 54.47
Std. Deviation	8.52	6.57	6.89
Df	Between groups= 2		within groups= 75
Sum square	Between groups= 3877.61		within groups= 4085.88
(F) value	35.58		
Significance	0.00		

From table (2), it is clear that there are statistically significant differences among the three study groups (the two treatment groups and the non-treatment one) in the means of scores of the post-administration of the cognitive academic language proficiency test as the significant value was (0.00) that was less than the typical value of significance (0.05).

For cognitive motivation (CM), this hypothesis was verified utilizing the one-way analysis of variance (ANOVA). The results are shown in table (3).

Table (3) Comparing the post results of the three study groups in the CM scale

Group	Non-treatment	1 st treatment	2 nd treatment
Number	26	26	26
Mean	146.34	153.65	144.80
Mean square	Between groups= 580.76		within groups= 350.237
Std. Deviation	18.84	20.81	16.19
Df	Between groups= 2		within groups= 75
Sum square	Between groups= 1161.53		within groups= 26267.80
(F) value	1.658		
Significance	0.197		

From table (3), it is clear that there are no statistically significant differences among the three study groups (the two treatment groups and the non-treatment one) in the mean scores of the post-administration of the cognitive motivation scale as the significant value was (0.197) which was higher than the typical value of significance (0.05).

Therefore, this hypothesis was accepted regarding cognitive motivation, however, it was rejected for reading comprehension performance and cognitive academic language proficiency.

Hypothesis (2)

It was hypothesized that “there are no statistically significant differences between the means of scores of the 1st treatment group (Reflective reading strategy) and the non-treatment one in the post administration of the reading comprehension performance test, cognitive academic language proficiency test and cognitive motivation scale.”.

To verify this hypothesis, Independent-samples t-Test was used. The results are shown in table (4).

Table (4) Comparing the post results of the 1st treatment and non-treatment groups in the three dependent variables

Variable	Group	No.	Mean	Std. Deviation	Df	t-value	Significance
RCP	Non-treatment	26	33.73	7.72	50	0.49	0.535
	1 st treatment	26	35.11	8.23			

CALP	Non-treatment	26	23.69	8.52	50	0.18	0.000
	1 st treatment	26	36.84	6.57			
CM	Non-treatment	26	146.34	18.84	50	0.95	0.191
	1 st treatment	26	153.65	20.81			

Concerning reading comprehension performance, table (4) clarifies that there are no statistically significant differences between the 1st treatment group and the non-treatment one in the means of scores of the post- administration of the reading comprehension performance test results as the significant value was (0.53) which was higher than the typical value of significance (0.05).

For cognitive academic language proficiency test, table (4) reveals that there are statistically significant differences between the 1st treatment group and the non-treatment one in the mean scores of the post- administration of the cognitive academic language proficiency test favouring the the 1st treatment group. The significant value was (0.000) which was less than the typical value of significance (0.05).

Regarding cognitive motivation, the results from table (4) demonstrated that there are no statistically significant differences between the 1st treatment group and the non-treatment one in the mean scores of the post- administration of cognitive motivation scale as the significant value was (0.19) which was higher than the typical value of significance (0.05).

Therefore, this hypothesis was accepted regarding reading comprehension performance and cognitive motivation, however, it was rejected for cognitive academic language proficiency.

Hypothesis (3):

It was hypothesized that “there are no statistically significant differences between the means of scores of the 2nd treatment group (Cognitive learning- centered approach) and the non-treatment one in the post administration of the reading comprehension performance test, cognitive academic language proficiency test and cognitive motivation scale”.

To verify this hypothesis, Independent-samples t-test was used. The results are shown in table (5).

Table (5) Comparing the post results of the 2nd treatment and non-treatment groups in the three dependent variables

Variable	Group	No.	Mean	Std. Deviation	Df	t-value	Significance
RCP	Non-treatment	26	33.73	7.72	50	5.22	0.00
	2 nd treatment	26	42.55	3.81			
CALP	Non-treatment	26	23.69	8.52	50	7.56	0.00
	2 nd treatment	26	39.96	6.89			

CM	Non-treatment	26	146.34	18.84	50	0.316	0.75
	2 nd treatment	26	144.80	16.19			

Concerning reading comprehension performance, table (5) clarifies that there were statistically significant differences between the 2nd treatment group and the non-treatment one in the means of scores of the post- administration of the reading comprehension performance test favouring the 2nd treatment group. The significant value was (0.00) which was less than the typical value of significance (0.05).

For cognitive academic language proficiency test, table (5) reveals that there were statistically significant differences between the 2nd treatment group and the non-treatment one in the means of scores of the post- administration of cognitive academic language proficiency test favouring the 2nd treatment group. The significant value was (0.00) which was less than the typical value of significance (0.05).

Regarding cognitive motivation, the results from table (5) demonstrates that there were no statistically significant differences between the 2nd treatment group and the non-treatment one in the mean scores in the performance of the post- administration of cognitive motivation scale as the significant value was (0.75) which was higher than the typical value of significance (0.05).

Therefore, this hypothesis was rejected regarding reading comprehension performance and cognitive academic language proficiency, however, it was accepted for cognitive motivation.

Hypothesis (4)

It was hypothesized that “there are no statistically significant differences between the means of scores of the 1st treatment group (Reflective reading strategy) and the 2nd treatment group (Cognitive learning- centered approach) in the post administration of the reading comprehension performance test, cognitive academic language proficiency test results and cognitive motivation scale results.

To verify this hypothesis, Independent-samples t-test was used. The results are shown in table (6).

Table (6) Comparing the post results of the 1st treatment and the 2nd treatment groups in the three dependent variables

Variable	Group	No.	Mean	Std. Deviation	Df	t-value	Significance
RCP	1 st treatment	26	35.11	8.23	50	4.18	0.00
	2 nd treatment	26	42.55	3.81			
CALP	1 st treatment	26	36.84	6.57	50	1.67	0.10
	2 nd treatment	26	39.96	6.89			

CM	1 st treatment	26	153.65	20.81	50	1.71	0.09
	2 nd treatment	26	144.80	16.19			

Concerning reading comprehension performance, table (6) clarifies that there were statistically significant differences between the 1st treatment group and the 2nd treatment one in the means of scores of the post- administration of the reading comprehension performance test results favouring the 2nd treatment group. The significant value was (0.00) which was less than the typical value of significance (0.05).

For cognitive academic language proficiency, table (6) reveals that there were no statistically significant differences between the 1st treatment group and the 2nd treatment one in the means of scores of the post- administration of cognitive academic language proficiency test. The significant value was (0.102) which was higher than the typical value of significance (0.05).

Concerning cognitive motivation, the results from table (6) demonstrates that there were no statistically significant differences between the 1st treatment group and the 2nd treatment one in the mean of scores of the post- administration of cognitive motivation scale as the significant value was(0.09) which was higher than the typical value of significance (0.05).

Therefore, this hypothesis was accepted regarding cognitive academic language proficiency and cognitive motivation, however, it was rejected for reading comprehension performance.

Hypothesis (5)

It was hypothesized that “there are no statistically significant differences between the means of scores of the 1st treatment group (Reflective reading strategy) in the pre and post administrations of the reading comprehension performance test results, the cognitive academic language proficiency test results and the cognitive motivation scale”.

To verify this hypothesis, Independent-samples t-test was used. The results were shown in table (7).

Table (7) Comparing the pre and post results of the 1st treatment group in the three dependent variables

Variable	1st treatment group	No.	Mean	Std. Deviation	Df	t-value	Significance
RCP	Pre	26	20.19	4.44	25	7.82	0.00
	Post		35.11	8.23			
CALP	Pre	26	17.55	5.71	25	12.94	0.00
	Post		36.84	6.57			

CM	Pre	26	140.73	18.75	25	2.04	0.052
	Post		153.65	20.81			

Concerning reading comprehension performance, table (7) clarifies that there were statistically significant differences between the mean scores of the 1st treatment group in the pre and post-administrations of the reading comprehension performance test, favouring the post one. The significant value was (0.00) which was less than the typical value of significance (0.05).

For cognitive academic language proficiency, table (7) reveals that there were statistically significant differences between the means of scores of the 1st treatment group in the pre and post-administrations of cognitive academic language proficiency test favouring the post one. The significant value was (0.00) which was less than the typical value of significance (0.05).

Regarding cognitive motivation, table (7) demonstrated that there were no statistically significant differences between the means of scores of the 1st treatment group in the pre and post-administrations of cognitive motivation scale. The significant value was (0.052) which was higher than the typical value of significance (0.05).

Therefore, this hypothesis was rejected regarding reading comprehension performance and cognitive academic language proficiency, however, it was accepted for cognitive motivation.

To test the effectiveness of using reflective reading strategy in developing participants` reading comprehension performance, cognitive academic language proficiency and cognitive motivation of the 1st treatment group, MacGuigan gain ratio was utilized to statistically analyze the pre and post results of the RCP and CALP tests and the CM scale (Table 8).

Table (8) The 1st treatment group gain ratio in the RCP and CALP tests and CM scale

N	Item	RCP	CALP	CM
1	Total score	50	60	220
2	Pre- mean score	20.19	17.55	140.73
3	Post mean score	35.11	36.84	153.65
4	Gain ratio	0.50	0.44	0.16

Concerning reading comprehension performance, table (8) clarifies that the gain Ratio was (0.50) which is less than the statistical value (0.60) of MacGuigan gain ratio. Therefore, it is apparent that the reflective reading strategy wasn't effective in developing reading comprehension performance of 1st treatment group.

For cognitive academic language proficiency, table (8) clarifies that the gain Ratio was (0.44) which is less than the statistical value (0.60) of Mac Guigan gain ratio. Therefore, it is apparent that that reflective reading strategy wasn't effective in developing cognitive academic language proficiency of 1st treatment group.

Regarding cognitive motivation, table (8) clarified that the gain Ratio was (0.16) which is less than the statistical value (0.60) of McGuigan gain ratio. Therefore, it is clear that reflective reading strategy wasn't effective in developing cognitive motivation of 1st treatment group.

Hypothesis (6)

It was hypothesized that “there are no statistically significant differences between the means of scores of the 2nd treatment group (Cognitive learning- centered approach) in the pre and post administrations of the reading comprehension performance test, cognitive academic language proficiency test and cognitive motivation scale.

To verify this hypothesis, Independent-samples t-test was used. The results are shown in table (9).

Table (9) The pre and post results of the 2nd treatment group in the three dependent variables

Variable	2 nd treatment group	No	Mean	Std. Deviation	Df	t-value	Significance
RCP	Pre	26	22.90	6.23	25	14.15	0.00
	Post		42.55	3.81			
CALP	Pre	26	17.19	6.92	25	11.37	0.00
	Post		39.96	6.89			
CM	Pre	26	148.46	13.75	25	0.914	0.37
	Post		144.80	16.19			

Concerning reading comprehension performance, table (9) clarifies that there were statistically significant differences between the means of scores of the 2nd treatment group in the pre and post-administrations of the reading comprehension performance test, favouring the post one. The significant value was (0.00) which was less than the typical value of significance (0.05).

For cognitive academic language proficiency, table (9) reveals that there were statistically significant differences between the mean scores of the 2nd treatment group in the mean scores in the pre and post- administrations of cognitive academic language proficiency test, favouring the post one. The significant value was (0.00) which was less than the typical value of significance (0.05).

Regarding cognitive motivation, table (9)demonstrates that there were no statistically significant differences between the means of scores of the 1st treatment group in the pre and post- administrations of

cognitive motivation scale. The significant value was (0.37) which was higher than the typical value of significance (0.05).

Therefore, this hypothesis was rejected regarding comprehension performance and cognitive academic language proficiency, however, it was accepted for cognitive motivation.

To test the effectiveness of using the modified cognitive learning -centered approach in developing participants` reading comprehension performance, cognitive academic language proficiency and cognitive motivation of the 2nd treatment group, MacGuigan gain Ratio was utilized to statistically analyze the pre and post reading comprehension performance test results .

Table (10) The 2nd treatment group gain ratio in the RCP and CALP tests and CM scale

N	Item	RCP	CALP	CM
1	Total score	50	60	220
2	Pre- mean score	22.90	17.19	148.46
3	Post mean score	42.55	39.96	144.80
4	Gain ratio	0.71	0.53	Post less than pre

Concerning reading comprehension performance, table (10) clarifies that the gain Ratio was (0.71) which is higher than the statistical value (0.60) of MacGuigan gain ratio. Therefore, it is clear that the modified cognitive learning -centered approach was effective in developing reading comprehension performance of 2nd treatment group and it provides enough evidence to support this hypothesis.

For cognitive academic language proficiency, the gain Ratio was (0.53) which is nearer enough to the statistical value (0.60) of MacGuigan gain ratio and might achieve an effectiveness in developing cognitive academic language proficiency of the 2nd treatment group. Therefore, it is clear that the cognitive learning-centered approach had a slight effectiveness in developing cognitive academic language proficiency of the 2nd treatment group and which would provide, to some extent, an evidence to support this hypothesis.

Regarding cognitive motivation, the means of scores of the pre administration of cognitive motivation scale was higher than the post one. Therefore, it is clear that cognitive learning approach didn't have an effectiveness in developing cognitive motivation of the 2nd treatment group.

Discussion of results:

The researcher found that reflective practice through reading helped participants to be reflective readers in such away that they can interpret meaning, signify experiences and observations, develop understanding, conclude inferences, analyze reflective ideas and assumptions. Moreover, participants developed their reflective reading by utilizing reflective reading strategies as making predictions, making descriptions, asking questions, evaluating deductions, analyzing reflections and making connections and conclusions. These strategies were designed to

encourage them to develop their literary reading skills of short stories in which they reflect more deeply on the content of reading, to make their own personal judgements from the meaning and finally to develop innovative ideas on the content of reading. The results were consistent with some studies conducted by many previous researchers that ascertained the importance of using reflective reading practices in developing literacy teaching (Pankiewicz, 2019), teaching writing (Apsari, 2018), Teaching Practices (Al-Haq & Alimoush, 2016; Ashraf et al., 2016). In addition, Nourdad (2017) identified the importance of reflective reading in developing reading comprehension skills as he valued reflection in its ability to help student-readers clarify their thoughts, gain insights and deepen their understanding of information they received.

For cognitive academic language proficiency, implementing reflective activities during reading helped students to be reflective -proficient learners in a way that they can understand the text appropriately, develop written texts coherently, comprehend spoken language quickly and produce speech perceivably. So, teaching reflection practices widens participants' knowledge, enhance critical thinking, demonstrate their understanding and glean and communicate ideas effectively. The results were supported by other previous studies that indicated the importance of utilizing reflection in enhancing prospective teachers' general language proficiency as a main construct in teaching English language. Reflection during reading represents episodes of thinking, reflecting then responding intellectually and reinforces their general language proficiency. Madani (2017) and Yamashita (2002) asserted this point as he mentioned that reading provokes reflection, introspection, and imaginative thinking and allows student-readers to formulate and explore new ideas which maintains students to enrich their general knowledge and identify the constituents of language proficiency. In addition, Burić & Kim, (2020), Kosar (2018), Habók & Magyar (2018), Eslit (2017) ascertained significant factors of using reflective teaching strategies and brain based reflective learning activities on developing students' academic proficiency.

However, it was apparent that reflective reading strategy didn't affect cognitive motivation. Wheatley (2002), Babaei and Abednia (2016) and Geijssel (2011) ascertained the weak correlation could be attributed to adopting a reflective practice to teaching and; therefore, interrogating student's own teaching approach which entailed weak motivational factors. In addition, Korpershoek (2016) identified no positive effect through administering in-depth reflection which mediated the relation between motivation and achievement. This weak correlation between reflective reading and cognitive motivation might serve as an empirical evidence in support of Wheatley 'conceptual argument.

For modified cognitive learning -centred approach, performance of students during reading was characterized as our human brain used to take in comprehending, organizing, manipulating, storing, retrieving and using information appropriately and cognitively. This range of memory processes is essential to determine and identify the type of the treatment group participants' performance during reading. Therefore, these sequential processes of cognition maintained them to sustain their attention during reading which had a significant impact on developing their performance and fluency leading to good practice. Furthermore, applying various cognitive learning strategies of this program as predicting, remembering, understanding, guessing inferences, applying, analyzing and evaluating affected the intellectual process of the treatment group participants and enhance their thinking levels involvement during reading the text. The study was in line with other previous studies (Albashtawi (2019), Suyitno, et al. (2017); Moghaddam (2013); Davidko (2011)); Khezrlou, (2012); Elhilali & Omer (2012), Lashari (2013) who ascertained that applying cognitive strategies are crucial in enhancing student-readers' language learning and worked as

predictors in identifying their level of reading performance as well as their behavioural engagement. Nejad et al. (2015) asserted that using a wide range of cognitive strategies-maintained student-readers' to perform better on reading comprehension tasks. This synchronized with the study results which pertained that cognitive learning is an obvious bridge to enhance student- readers' behaviour during reading. Furthermore, Palasan (2007) and Albashtawi (2019) who affirmed that inference, deduction, elaboration and evaluation are among the most crucial strategies that are effective in improving student- readers' components of language learning.

As for cognitive academic language proficiency, using cognitive learning processes helped treatment group participants find and trace new methods to develop their cognitive and learning proficiency. In other words, they can actively predict, effectively understand, logically infer, determinately analyze and accurately evaluate cognitive inferences produced during cognitive processes. These processes helped them build schematic reading knowledge cognitively, write simple paragraphs coherently, understand the pronounced language distinctly and phrase speech properly. This study was in line with other previous studies. According to Burić & Kim (2020), Habók& Magyar (2018) and Mutar (2018), cognitive learning was recognized as increasing student- readers' academic proficiency and most proficient ones were frequently engaged in cognitive learning strategies and employed a broader range of memory strategies as well. It was also clear that cognitive processes are required for acquiring linguistic competence and language proficiency in which they pertained student-readers to apply skills as summarizing, analyzing, extracting, interpreting meaning and evaluating inferences. Kuhn (2017), Ferlazzo (2014), Zarafshan, Ardeshiri (2012) Diaz-rico and Weed (2002) asserted this point as they clarified that using cognitive learning tasks helps student- readers develop higher order thinking skills and is considered a logical indicator towards deeper learning and to a great extent, enhances their accuracy, fluency and competence. In addition, Diaz-rico and Weed (2002), Dutro and Mouran (2003) and ,Kosar (2018) ascertained that academic language is a “ toolbox of cognitive skills” as well as a set of thinking and abilities coded and decoded as complex thoughts and ideas inside students' brain-imaged schemata which encouraged student- readers to give interpretations and inferences from oral and written language, discriminate accurately intended meaning, connect ideas and information.

However, it was worth noticing that modified cognitive learning approach didn't influence cognitive motivation that was because treatment group participants appeared to pay less effort and time in using cognitive learning strategies to enhance their cognitive motivation during learning sessions. Chang (2005), Ziahosseini &Salehi (2007) and Nikoopour et al., (2012) evidenced the lack of association to that the more tendency they had towards learning English language in order to avoid feeling of anxiety and fear of not achieving their personal goals and the less cognitive strategies they would use. In addition, Dornyei and Otto (1998) ascertained this point and referred to how motivation develops with time, whereby wishes lead to goals of intentions and the realization of those intentions.

IV. Conclusions:

1- The activities of the suggested reflective reading model enhanced EFL student- teachers' reading performance, critical thinking and creativity.

2- The reflective reading strategy (RRS) encouraged EFL student- teachers' independent thinking because each student made predictions as well as reflections then tested them throughout reading.

3- Utilizing reflection during reading developed EFL student- teachers' comprehension in which they could provide a network of understanding to clarify their thoughts, gain insights and deepen their schemata.

4- The critical role of reflective reading strategy was to engage EFL student- teachers actively when talking, writing or communicating during language learning process.

5- Cognitive learning approach helped student- teachers in integrating their abilities, schemata to achieve their goals and develop their performance and proficiency.

6- Using visuals, data show and listening records of native speakers enhanced student- teachers listening and speaking proficiency skills in English during the sessions.

7- Using multiple activities based on reading and writing tasks increased student- teachers' involvement to be aware of their language proficiency level and enhanced their schematic knowledge.

8- Cognitive learning activities enhanced student- teachers' deductive and inductive inferences which are considered mental representations based on analyzing beyond the provided information.

Suggestions for further research

1- Designing similar EFL learning models that would consist of multi-strategy model which may be effective than depending on one strategy.

2- Using an inferential reading strategy in relation to reading comprehension performance of schoolers.

3- A metacognitive learning strategy in relation to reading comprehension performance and cognitive academic language proficiency among university students.

4- Using a reflective reading strategy in relation to critical/ creative reading writing skills among university students.

5- Further research will be needed to investigate the relation of reflective writing strategies in relation to academic writing proficiency among university students.

6- Using a discourse analysis in relation to changing students' attitudes towards language proficiency.

7- More research may be conducted using different techniques to develop reading performance, cognitive academic language proficiency and cognitive motivation such as cognitive reading, reflective thinking and meta-comprehension strategies.

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