

Students' Metacognitive Awareness of Reading Strategies and Cognitive Engagement as Mediated by Beliefs about Language Learning

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Abstract— This study was conducted to determine the mediating effect of beliefs about language learning on the relationship between students' metacognitive awareness of reading strategies and cognitive engagement. The study utilized descriptive-correlational research design, with 300 public secondary schools senior high school students chosen through simple random sampling. The tools used in analyzing data were Mean, Pearson product moment correlation, Regression and Medgraph using Sobel z-test. Results show that senior high school students perceived a high level of metacognitive awareness of reading strategies, beliefs about language learning, and cognitive engagement. Findings also revealed that there was a significant relationship between students' metacognitive awareness of reading strategies and cognitive engagement. In the same manner, metacognitive awareness of reading strategies and beliefs about language learning have a positive and strong relationship. Also, beliefs about language learning and cognitive engagement have a positive and strong relationship. Furthermore, the result of the Medgraph using Sobel z – test of beliefs about language on the relationship between metacognitive awareness of the reading strategies and the cognitive engagement of senior high school students was significant but partial. Nevertheless, beliefs about language learning helped senior high school students being more aware of metacognitive reading strategies and being more engaged in meaningful cognition.

Keywords— cognitive engagement, metacognitive awareness of reading strategies, beliefs about language learning, Philippines.

I. INTRODUCTION

Ensuring students' cognitive engagement has been a perennial problem in the academe. Teachers exert so much effort in providing classroom teaching and learning environment which aims at activating learners' interest, introducing rich learning opportunities, and applying effective teaching and learning practices in order to ensure cognitive engagement, yet cognitive engagement seems to persist as a problem. Students with poor cognitive engagement generally slowdown in the learning process, become uninterested and inactive during teaching-learning opportunities, weaken their sustained attention and mental effort in attaining cognitive engagement and task performance, which results in failure to achieve the target knowledge and skills (Ali Sulaiman and Singh Thakur 4).

Nevertheless, it is important to study cognitive engagement among students since it is an investment in learning. Investment appears to refer to metacognitive effort, such as trying to be strategic and self-regulatory by reflecting on how best to learn, such as preferring to solve harder or more challenging problems. Investment does not seem to refer to cognitive efforts, such as spending time resolving misunderstandings about a

problem, and so on. Overall, defining cognitive engagement from a seemingly metacognitive perspective conflates it with motivational constructs, such as adopting learning rather than performance goals, or persisting on challenging tasks (Chi et al. 1777; & Greene 8).

Meanwhile, several studies have already correlated students' metacognitive awareness of reading strategies and cognitive engagement. One of which is that of Deliany and Cahyono (421-437); & Rastegar et al. (177) who revealed that metacognitive reading strategies awareness represents the perceived use of the strategies. Their study validated a significant positive relationship between overall metacognitive reading strategies and cognitive engagement. Another study of Saricoban and Behjoo (125) indicated that the metacognitive awareness of reading strategies affected cognitive engagement of Turkish EFL students. Successful reading students were more likely to use metacognitive reading strategies so that they could become skilled readers. They used problem solving strategies the most, followed by global and support reading strategies.

In addition, several studies have already been conducted about cognitive engagement among students. According

to Chi et al. (1777-1832), this theory of cognitive engagement has been translated into practice. Moreover, Huang, et al., (327) investigated the effects of gamification-enhanced flipped learning on undergraduate students' behavioural and cognitive engagement. Also, Pohl (4) conducted a study about strategies and interventions for promoting cognitive engagement. However, there is no study conducted yet that focused on students' metacognitive awareness of reading strategies and cognitive engagement as mediated by beliefs about language learning especially in the locale of New Corella District, Davao del Norte Division, hence the research gap.

To fill this gap, the researcher conducted this quantitative descriptive correlational research to explore the relationships between the aforementioned variables. Apparently, the present situation has led the researcher to determine the factors that can lead to help the students heighten and foster cognitive engagement in school and academic-related activities which, eventually, enhance students' performance outcomes. Consequently, the results of this study will be significant in the academe as it can provide bases in formulating more programs and activities that can cater to the needs of students and teachers in enhancing cognitive engagement in the class.

II. METHOD

This chapter deals with the discussion of research methods and procedures employed by the researcher in this study. These included the research design, locale, population and sample, research instruments, data collection procedures, statistical tools, and ethical considerations.

Research Design

This study used the descriptive-correlational research design. Descriptive research entails identifying characteristics of a phenomenon based on observation or investigating the relationship between two or more variables (Creswell as cited by Davis).

A fact-finding study allows the researcher to examine participants' characteristics, behaviors, and experiences (Conner and Roberts). Additionally, correlational research is a quantitative non-experimental design in which the researcher uses correlational statistics to assess and characterize the degree of relationship between variables or sets of scores (Creswell as cited by Asenahabi 18).

Furthermore, Creswell addressed the areas in prior research that Chih-Pei and Yan-Yi mentioned were lacking (pp. 206-207).

The study's data collection methods, including debates regarding their accuracy and statistical methodologies, were fully explained.

As a result, this study investigates how language learning beliefs act as a mediator in the relationship between students' metacognitive awareness of their reading strategies and cognitive engagement.

Research Locale

A total of four public secondary schools in New Corella District, Division of Davao del Norte were chosen for the study after much thought and deliberation.

The study focuses on senior high school students 18 years old and above, where learning English remains difficult, hence these public secondary schools in New Corella, Davao del Norte were chosen.

Knowing the outcome would be advantageous to the research institutions, all language teachers who teach in the area where the research was done, and any institution that offers language instruction. It would greatly help language teachers in developing appropriate goals and learning methods for their students.

Population and Sample

The research respondents were the senior high school students who were 18 years old and above since the students' encountered class on strategies for reading academic texts, how to read texts in a specific academic discipline that often requires a particular type of reading and other similar activities in English for academic and professional purposes and reading and writing subjects.

Respondents for the study were planned and considered before they were chosen.

After a thorough evaluation and selection process, a group of respondents was chosen from four public secondary schools in New Corella District, Division of Davao del Norte.

The study involved a total of 300 respondents utilizing simple random sampling from the population size of 1,193 using the Slovin's formula.



Fig 1. Geographic location of the study.

Research Instrument

Three sets of instruments were used in the study. The first was used to measure the level of students' metacognitive awareness of reading strategies; the second was utilized to measure the cognitive engagement; and the third was employed to measure the beliefs about language learning.

The three questionnaires were subjected to content validity and reliability analysis by expert validators to ensure the accuracy of measurements. External validator validated the survey instruments with expertise in social research and statistics. The validators' rating of the questionnaires resulted in a mean of 4.25. Minor revisions were done following the recommendations and suggestions to improve some contents and statements in contextualizing the instruments. After revisions, pilot

testing was conducted for a preliminary survey with 30 respondents. Next, the researcher presented the result to the statistician, where the reliability and validity of the content were confirmed. The results from the three sets of questionnaires using Cronbach Alpha revealed that the independent variable, students' metacognitive awareness of reading strategies, obtained the result of 0.911, cognitive engagement, the dependent variable, 0.839, and the mediating variable, beliefs about language learning 0.951, respectively. The actual survey was then conducted through face-to-face distributions of the hardcopy of survey questionnaires to the chosen public secondary schools in New Corella District, Division of Davao del Norte.

To measure the level of students' metacognitive awareness of reading strategies as the independent variable, the researcher used the adapted standardized survey with the following indicators: Global reading strategies, Problem solving strategies, Support reading strategies (Deliany and Cahyono (421-437). The questionnaire was the 5-point Likert Scale from 5, equivalent to Always to 1, equivalent to Never.

Furthermore, to measure the level of cognitive engagement as the dependent variable, the researcher made use of standardized questionnaire developed by Barlow, Allyson, et al. (1-20) with the following indicators: interactive (dialoguing), constructive (generating), active (manipulating) and passive (receiving). The questionnaire utilized the 5-point Likert Scale from 5, equivalent to Always, to 1, equivalent to Never. Lastly, to measure the level of beliefs about language learning as the mediating variable, the survey questionnaire of Horwitz, (119-129) was used, covering 5 indicators: foreign language attitude, the difficulty of language learning, the nature of language learning, learning and communication strategies, and motivation and expectation. The questionnaire was the 5-point Likert Scale from 5, equivalent to Always to 1, equivalent to Never.

Range of Means	Descriptive Equivalent	Interpretation
4.20-5.00	Very High	This means that the students' metacognitive awareness of reading strategies is very much observed.
3.40-4.19	High	This means that the students' metacognitive awareness of reading strategies is much observed.
2.60-3.39	Moderate	This means that the students' metacognitive awareness of reading strategies is moderately observed.

1.80-2.59	Low	This means that the students' metacognitive awareness of reading strategies is seldom observed.
1.00-1.79	Very Low	This means that the students' metacognitive awareness of reading strategies is never observed at all.

While in describing the cognitive engagement, the five orderable gradations with their respective range of means and description were considered:

Range of Means	Descriptive Equivalent	Interpretation
4.20-5.00	Very High	This means that the students' metacognitive awareness of reading strategies is very much observed.
3.40-4.19	High	This means that the students' metacognitive awareness of reading strategies is much observed.
2.60-3.39	Moderate	This means that the students' metacognitive awareness of reading strategies is moderately observed.
1.80-2.59	Low	This means that the students' metacognitive awareness of reading strategies is seldom observed.
1.00-1.79	Very Low	This means that the students' metacognitive awareness of reading strategies is never observed at all.

Lastly, in describing the level of beliefs about language learning, the five orderable gradations with their respective range of means and description were considered:

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Data Collection

Before the data collection, the researcher asked permission to change the research title due to the difficulty of finding a good published/standardized questionnaire to be adapted. Due to this, the researcher decided to write a letter to change the title and was immediately approved by the dean of the professional school.

The next step was to undergo several processes like searching and downloading three appropriate standardized questionnaires that match the variables of the new study. After appropriate sets of standardized

questionnaires were carefully selected and considered, the researcher then presented the questionnaires to the research adviser and was advised to validate the questionnaires. Subsequently, the questionnaires were then validated by experts who recommended some revisions to contextualize each item. After that, three sets of questionnaires were validated.

The researcher then asked permission from the Schools Division Superintendent of the selected division where the targeted schools were located to conduct the study by securing a letter of approval from the division office. Upon the approval, the letter of endorsement sought to

accommodate the researcher to administer the survey questionnaire through distribution of hardcopies to the respondents.

Likewise, the researcher asked for approval from the school-heads/principals and teachers/advisers to distribute first the informed consent to their respective students. The researcher discussed the purpose of the study, its benefits, the potential risks, and the confidentiality of the information obtained from the research. After that, the researcher let the respondents sign the informed consent provided. The researcher personally handed in the survey questionnaires and explained the research tool and its purpose.

Furthermore, the researcher retrieved the survey questionnaires after the respondents answered all the items. Then, the researcher randomly selected from the population size the 300 respondents selected to be the samples. Finally, the researcher tallied and tabulated all the data gathered from the respondents, subject to statistical analyses and with the guidance of a qualified statistician recommended by the university. The statistical results have been analyzed and interpreted. With the data, conclusions have been drawn and recommendations have been formulated based on the findings of the study.

Statistical Tool

The statistical tools used for data analysis and interpretations are the following:

- **Mean.** It was used to determine the level of students' metacognitive awareness of reading strategies, cognitive engagement, and beliefs about language learning.
- **Pearson Product Moment Correlation.** It was utilized to determine the relationships of cognitive engagement, students' metacognitive awareness of reading strategies, and beliefs about language learning.
- **Multiple Regression Analysis.** This statistical tool was used to determine the influence of students'

metacognitive awareness of reading strategies towards cognitive engagement with the beliefs about language learning.

- **Medgraph using Sobel z – test.** This statistical tool was used to determine the mediating effect of beliefs about language learning on the relationship between students' metacognitive awareness of reading strategies and cognitive engagement.

III. RESULTS

The data and interpretation of the findings related to students' metacognitive awareness of reading methods, cognitive engagement, and beliefs about language learning in New Corella District, Division of Davao del Norte are presented in this chapter. Level of students' metacognitive awareness of reading strategies, level of cognitive engagement, level of beliefs about language learning, significance of the relationship between students' metacognitive awareness of reading strategies, cognitive engagement, and beliefs about language learning, and test of the mediating effect of beliefs about language learning on the relationship between students' metacognitive awareness are the subheadings used to organize the tables.

Level of Students' Metacognitive Awareness of Reading Strategies

Shown in Table 1 are the descriptive statistics results on assessing the level of students' metacognitive awareness of reading strategies which has an overall mean of 3.91 and SD of 1.11 described as high. This means that the students' metacognitive awareness of reading strategies is much observed among the respondents. Among the three indicators, problem solving strategies got the highest mean score of 4.07 and SD of 0.93 described as high. Next to it is the global reading strategies with the mean score of 3.93 and SD of 1.25 described also as high. Then, support reading strategies got the lowest mean score of 3.73 with an SD of 1.00 but still described as high. This means that all three indicators are much observed among the respondents.

Table 1. Level of Students' Metacognitive Awareness of Reading Strategies

Indicators	Mean	Standard Deviation	Descriptive Equivalent
Global Reading Strategies	3.93	1.25	High
Problem Solving Strategies	4.07	0.93	High
Support Reading Strategies	3.73	1.00	High
Over-all Result	3.91	1.11	High

The results imply that the senior high school students of New Corella District in the Division of Davao del Norte are highly aware of the helpful strategies in reading. With the level of metacognition that they exemplify, these students can employ self-improvised methods of comprehending any sort of reading materials they are into. Apparently, problem solving strategies being the indicator with the highest mean score does imply that these students are able to fix conflicts whenever faced with confusions along their reading activities. On the other hand, these students need further improvement in

support reading strategies by constantly practicing it in their reading activities which includes taking notes, underlining important points, and translating from English into their own languages.

Level of Cognitive Engagement

Shown in Table 2 is the descriptive statistics results on assessing the level of cognitive engagement which has an overall mean of 3.48 and SD of 1.01 described as high. This means that cognitive engagement is much observed among the respondents.

Table 2. Level of Cognitive Engagement

Indicators	Mean	Standard Deviation	Descriptive Equivalent
Interactive (dialoguing)	3.62	1.02	High
Constructive (generating)	3.58	1.01	Very High
Active (manipulating)	3.67	1.00	Very High
Passive (receiving)	3.07	1.20	Moderate
Over-all Result	3.48	1.01	High

Among the four indicators, active (manipulating) got the highest mean score with 3.67 and SD of 1.00 described as very high. It is followed by constructive (generating) with a mean score of 3.58 and SD of 1.01 also described as very high. Next to it is the interactive (dialoguing) with a mean score of 3.62 and SD of 1.02 described as high. Meanwhile, the indicator with the lowest mean score is the passive (receiving) with 3.07 and SD of 1.20 described only as moderate.

described as high. This means that beliefs about language learning are much observed among the respondents.

The results imply that the respondents are highly engaged in their cognitive undertakings whenever they involve themselves in language skills activities such as reading. This means that when they read, they engage themselves as much as they can for the sake of understanding and appreciating the reading material at hand. Apparently, active (manipulating) as the indicator with the highest mean score implies that the students-respondents are not taking their readings for granted. They do their best to let their minds go working while reading by using their imaginations, predictions, and others. On the other hand, passive (receiving) as the indicators with the lowest mean score further supports the results as to why these students-respondents are rather being so active or manipulative in their cognitive engagements in reading.

Among the five indicators, motivation and expectations got the highest mean score of 4.21 and SD of 0.93 described as very high. It is followed by learning and communication strategies with the mean score of 3.86 and SD of 1.00 described as high. Next are the nature of language learning and foreign language aptitude with mean scores of 3.81 and SD of 0.95 and 3.68 and SD of 1.04 respectively, both described as high. Last in the list is the difficulty of language learning with the mean score of 3.61 and SD of 0.99 but still described as high.

Level of Beliefs about Language Learning

Shown in Table 3 are the descriptive statistics results on assessing the level of beliefs about language learning which has an overall mean of 3.84 and SD of 1.01

The results imply that the senior high school student-respondents have high confidence or efficacy in their language learning specifically the English language. This means that despite the doubts and struggles they face in developing their English language skills especially in reading, they are still able to believe in themselves that they can slowly but surely learn the language. These learning attempts are geared towards acquiring a holistic development of the macro skills in language learning including reading, writing, listening, and speaking. Moreover, motivation and expectations as the indicator with the highest score further implies that the most important contributing factor in the students' beliefs about language learning is their motivation to be good at it and their hopes to achieve native-like proficiency in the use of the said language. On the other

hand, difficulty of language learning being the indicator with the lowest mean score implies that the students-respondents are still challenged by the complexity of English language mechanisms despite their strong

motivation to learn. English, being one of the most complicated languages in the world, is expected to give difficulties to whoever desire to learn it in depth.

Table 3. Level of Beliefs about Language Learning

Indicators	Mean	Standard Deviation	Descriptive Equivalent
Foreign Language Aptitude	3.68	1.04	High
Difficulty of Language Learning	3.61	0.99	High
Nature of Language Learning	3.81	0.95	High
Learning and Communication Strategies	3.86	1.00	High
Motivation and Expectations	4.21	0.93	Very High
Over-all Result	3.84	1.01	High

Correlation between Students' Metacognitive Awareness of Reading Strategies, Cognitive Engagement, and Beliefs about Language Learning

Displayed in Table 4 are the results of the relationship between the independent (metacognitive awareness of reading strategies), dependent (cognitive engagement), and mediator (beliefs about language learning) variables. Bivariate correlation analysis using Pearson product moment correlation was employed to determine the relationship between the variables mentioned.

The first zero-ordered correlation analysis between metacognitive awareness of reading strategies and cognitive engagement revealed a computed r-value of 0.716 with a probability value of $p < 0.000$ which is

significant at the 0.05 level of significance. This indicates that there exists a positive and strong association between the two variables. Thus, the null hypothesis of no significant relationship is therefore rejected.

Similar to the first bivariate correlation analysis, the second bivariate correlation analysis involving metacognitive awareness of reading strategies and beliefs about language learning resulted in an r-value of 0.714 with a probability value of $p < 0.000$, which is significant at the 0.05 level of significance. This suggests that the two variables are positively and strongly associated. The null hypothesis that there is no significant relationship is therefore rejected.

Table 4. Correlation Analysis of the Variables

Pair	Variables	Correlation Coefficient	p-value	Decision
IV and DV	Metacognitive Awareness of Reading Strategies and Cognitive Engagement	.716**	0.000	Reject
IV and MV	Metacognitive Awareness of Reading Strategies and Beliefs about Language Learning	.714**	0.000	Reject
MV and DV	Beliefs about Language Learning and Cognitive Engagement	.625**	0.000	Reject

The third correlational analysis between beliefs about language learning and cognitive engagement yielded an r-value of 0.625 with a probability value of $p < 0.000$ which is significant at the 0.05 level of significance.

This indicates that there exists a positive and strong association between the two variables. Thus, the null hypothesis of no significant relationship is therefore rejected.

Mediation Analysis of the Three Variables

Data was analyzed with linear regression method as input to the medgraph. Mediation analysis developed by Baron and Kenny (1986) as cited by Bananuka, Juma et al. (91) is the mediating effect of a third variable in the relationship between two variables. There are four steps to be met for a third variable to be acting as a mediator. In Table 5, these are categorized as steps 1 to 4. In step 1, metacognitive awareness of the reading strategies as the independent variable (IV) significantly predicts cognitive engagement which is the dependent variable

(DV) of the study. In step 2, metacognitive awareness of the reading strategies significantly predicts beliefs about language learning, the mediator (M). In step 3, beliefs

about language learning significantly predict cognitive engagement.

Table 5. Regression Results of the Variables in the Four Criteria of the Presence of Mediating Effect

Step	Path	Beta (Unstandardized)	Standard Error	Beta (Standardized)
Step 1	c	.559	.032	.714
Step 2	a	.765	.043	.716
Step 3	b	.171	.041	.234
Step 4	c'	.428	.044	.547

Since the three steps (paths a, b, and c) are significant, further mediation analysis through medgraph is warranted, involving the Sobel z test to assess the significance of mediation effect. If the effect of the independent variable on the dependent variable becomes non-significant at the final step of the analysis, full mediation will be achieved. It means all the effects are mediated by the mediator variable. In addition, if the regression coefficient is substantially reduced at the final step but remains significant, only partial mediation is obtained, which implies that part of the independent variable (metacognitive awareness of the reading strategies) is mediated by the mediator (beliefs about language learning) but other parts are either direct or mediated by other variables that are not included in the model. In this case, as gleaned in step 4 (denoted as c'), the effect of metacognitive awareness of the reading strategies on cognitive engagement was even found to increase after mediated by beliefs about language learning. With this, partial mediation took place since the effect was found to be significant at $p < 0.05$ level.

Furthermore, the result of the computation of mediating effects is shown in Figure 3. The Sobel test yielded a z-value of 4.0606 with a p-value of 0.00004894, which is significant at 0.05 level. This means that mediating effect is partial, such that the original direct effect of metacognitive awareness of the reading strategies on cognitive engagement improved upon the addition of beliefs about language learning. The positive value of Sobel z indicates that the addition of beliefs about language learning does reduce, and rather decreases the effect of metacognitive awareness of the reading strategies on cognitive engagement.

The figure also shows the results of the computation of the effect size in the mediation test conducted between the three variables. The effect size measures how much of the effect of metacognitive awareness of the reading strategies on cognitive engagement can be attributed to

the indirect path. The total effect value of 0.559 is the beta of metacognitive awareness of the reading strategies towards cognitive engagement. The direct effect value of 0.428 is the beta of metacognitive awareness of the reading strategies towards cognitive engagement with beliefs in language learning included in the regression. The indirect effect value of 0.131 is the amount of the original beta between the metacognitive awareness of the reading strategies and cognitive engagement that now goes through beliefs in language learning to cognitive engagement ($a * b$, where "a" refers to the path between IV and DV and "b" refers to the path between MV and DV).

The ratio index is computed by dividing the indirect effect by the total effect; in this case, 0.131 by 0.559 equals 0.234. It seems that about 23.4 percent of the total effect of metacognitive awareness of the reading strategies on cognitive engagement through the beliefs in language learning, and about 76.6 percent of the total effect is either direct or mediated by other variables not included in the model

IV. DISCUSSION

Presented in this chapter are the discussions of the data on the mediating effect of beliefs about language learning on the relationship between metacognitive awareness of the reading strategies and cognitive engagement among senior high school students.

Level of Metacognitive Awareness of Reading Strategies among Senior High School Students

The senior high school students in New Corella District, Division of Davao del Norte, were shown to have a high level of metacognitive awareness of reading strategies. Information was acquired using the respondents' responses to questions about support reading methods, global reading strategies, and problem-solving strategies.

This finding is indicative of how the students-respondents are wise enough in employing their own ways or strategies of achieving meaningful reading activities regardless of the reading material at hand. Letting themselves become active key players in a highly cognitive activity such as reading provides them with more learning opportunities. By continuously practicing these strategies, these learners have the potential to develop both their creative and critical thinking skills. Their awareness of these strategies is a good sign of reading behavior among students like them. It all starts with a certain level of awareness before everything becomes a habit, skill, or more.

Apparently, this finding can be further explained by the ideas of Ganji, Yarahmadzahi and Sasani (91-119); & Abu-Snoubar (186) who clarified that the concept of metacognitive reading strategies means that the readers are mentally active in regulating and monitoring their reading comprehension process. Readers regulate their reading through global reading strategies in the first stage of reading which can be assumed in pre-reading activities. Meanwhile, whilst reading, the readers implemented problem-solving strategies if they faced any difficulties or distractions. Support reading strategies are done in the post-reading activities to enhance comprehension. However, it cannot be said that the implementation of the metacognitive reading strategy is restricted to the reading stage. These strategies may be used in any stage of reading.

Moreover, the results resonate with those of Sutiayatno's who also found that readers with higher language proficiency were aware of applying appropriate and effective reading strategies to deal with the problems throughout the reading process.

They were more likely to become proficient readers because they comprehended what they read better than readers who could not use the reading strategies and failed to understand the text.

Furthermore, the results are also in parallel with the ideas of (Muhid et al. 847-862; & Chamot) who stated that learners who become aware of metacognitive strategies can monitor, regulate their learning processes, find solutions to achieve their reading tasks and evaluate themselves after the task completion. Readers who use their proper and specific strategies can metacognitively comprehend better than those who do not.

Meanwhile, these results can take inspiration from the findings of Rajasagaran and Ismail who studied Thai university EFL students and revealed that those who often use metacognitive strategies gained significantly better reading performance. They further conducted a study about metacognitive reading strategies with 41 EFL non-English major students and found that the reading strategy use help readers solve their reading difficulties and increase their reading ability.

In addition, Boyraz and Altinsoy (150) carried out a study investigating university student teachers' use of metacognitive reading strategies. The study revealed that the student teachers used reading strategies differently depending on their levels. The students who were in senior and prep levels used metacognitive reading strategies at higher level. Based on the three subscales of MARS, problem solving reading strategies were commonly used among student teachers in all levels; however, the difference in the strategy use compared in terms of the student teachers' levels was not statistically significant.

On the other hand, the findings are in contradiction with the reports of Sheikh, et al., saying that students' metacognitive awareness of reading strategies (MARS) is a rising concern at all levels of education in almost all parts of the world. Students' reading habits are either insufficient or they are not paying attention to what is being read; resulting in their inadequate skills to deduce information from the manuscripts, lack of critical thinking and ability to use contextual clues for understanding of the meaning. Educational institutions give very little attention on developing the reading practices and MARS of their students.

Apparently, this particular result of the study implies that in order to enhance the students' capability in reading, they should be taught reading strategies at schools. Metacognitive awareness is an individuals' understanding or knowledge regarding their own mental procedures as well as the related outcomes, thus, MARS deals with readers' own understanding of their reading strategies that they employ during reading (Sheikh et al. 126-137; Channa, et al.).

Level of Cognitive Engagement among Senior High School Students

The level of cognitive engagement among senior high school students in New Corella District, Division of Davao del Norte was found to be at a high level. It was

obtained based on the responses of the respondents in the areas of interactive (dialoguing), constructive (generating), active (manipulating) and passive (receiving).

This finding implies that the students-respondents are apparently interested in learning. It further means that they have the ability to undertake difficult mental challenges, and the use of self-regulatory techniques to monitor the processes of thought. Consequently, their high level of cognitive engagement can play a key role in predicting successful academic performance for them as they can use directly the use of learning strategies, which means that students understand and track cognitive learning patterns, and the use of multiple learning strategies can lead to varying levels of thought.

Moreover, this finding can be further explained by the ideas of Mehdiyev (83) who suggested that cognitive engagement involves thoughtfulness and the ability to try to learn subject matter and master skills. This involves the level of academic challenge, constructive and collaborative learning, student-faculty interaction, and enriching educational experience. It is a superordinate construct and that the basic strategies for thinking about what one was learning, the reflections about how best to learn, and the exertion of mental effort to facilitate strategies and reflections have been components of cognitive engagement that differ depending on the experience of the learner and the demands of the learner. In fact, Yundayani et al. (17-33); & Greene (16) added that this connects all facets of the learning process that involve the learner's willingness to apply the ability to understand and monitor the learning environment based on a personal learning objective.

Furthermore, Zeng and Goh also provided more enlightenment about cognitive engagement as they conceptualized it broadly as a student's investment in learning. Investment appears to refer to metacognitive effort, such as trying to be strategic and self-regulatory by reflecting on how best to learn, such as preferring to solve harder or more challenging problems. Investment does not seem to refer to cognitive efforts, such as spending time resolving misunderstandings about a problem, and so on.

In the meantime, Ali Sulaiman and Singh Thakur's study (71) discovered that cognitive engagement also shows how much a learner believes that learning is necessary in regard to future objectives and targets, which is

demonstrated by the students' participation in the learning process. They investigate the elements that support students' cognitive engagement while completing activities in order to pursue and attain the intended information and skills because they recognize the critical role that cognitive engagement plays in the learning process. Finally, they emphasized the significance of looking into students' cognitive involvement because the results of such research may reveal and offer improved ways and means of enhancing teaching and learning circumstances and achieving the desired outputs and results.

Meanwhile, this particular finding of the study can be further supported by the findings of Yundayani, et al., (441) who considered cognitive engagement as an "investment" which involves willingness and thoughtfulness to apply necessary efforts in understanding complex ideas in order to gain the mastery of difficult skills. Also, it is based on the concept of memory, which developed the idea of shallow or surface versus deep engagement in the context of textual proceeding of the literature. Cognitively motivated students tend to be more committed to and invested in learning.

Level of Beliefs about Language Learning among Senior High School Students

The level of beliefs about language learning among senior high school students in New Corella District, Division of Davao del Norte was found to be at a high level. It was obtained based on the responses of the respondents in the areas of foreign language aptitude, difficulty of language learning, nature of language learning, and motivation and expectations.

This particular finding of the study implies that the students-respondents have high faith that they would be able to learn the English language despite the many challenges it may bring.

This language may have very complicated grammar rules but with the students' beliefs that they can still learn them, everything will be possible. With the variety of motivation that they possess, these language learners are willing to get through the learning process regardless of the difficulties they may face.

Seemingly, language learning starts with the belief that one can do it. Without trust and confidence in oneself, the language learning process will never be possible.

This particular finding of the study resonates with the ideas of Ergen who postulated that beliefs about language learning establish learner differences that affect the process. Beliefs influence the learners' thoughts or behaviors consciously or unconsciously. Beliefs are preconceptions while learning the language. These ideas have an impact on people's understanding of many issues; hence, the beliefs' importance cannot be ignored especially in the language learning process. Every learner comes to class with prior experiences and beliefs that influence learners' behaviors and approaches to the language learning process.

Moreover, the results also support the findings of Ergen (01-09) who underscored that the positive beliefs towards language learning shape the process effectively and productively. For example, if learners believe the importance of grammar to learn a new language, they will focus on linguistic competence to achieve their goal. When students have beliefs about the difficulty of learning a language, it will not be a good start for them.

This study's findings are also consistent with those of Alsamaani (640), who used a modified Arabic version of Horwitz's Beliefs about Language Learning Inventory (BALLI) to gather data for examining the beliefs of 250 students enrolled in the intensive English language program at a Saudi university. Alsamaani gained favorable opinions on learning a foreign language, communication techniques, motivation, and expectations for learning English as a foreign language.

The results also corroborate findings from prior studies in this area that have demonstrated that language learners' views have a significant impact on their learning process and even influence many other elements of language acquisition (Abdi and Asadi 2).

For instance, Tosuncuoğlu characterized beliefs about language acquisition as basic presumptions that students have about their own capabilities as learners, the variables that affect language learning, and the fundamental characteristics of language learning and teaching. Moreover, İnözü, (177-200); & Hayati (144) pointed out beliefs as the perspectives of language learners. They decide what the students do. Contrarily, beliefs are tendencies for behavior. Language learners can better understand themselves and recognize their own identity through their beliefs and activities (Chik 307-331; & Kalaja et al. 11).

Correlation between Metacognitive Awareness of Reading Strategies, Cognitive Engagement, and Beliefs about Language Learning among Students

The test of relationship using the bivariate correlation analysis using Pearson product moment correlation between independent (metacognitive awareness of reading strategies), dependent (cognitive engagement) and mediator (beliefs about language learning) variables reveals a varied relationship among the variables mentioned. Metacognitive awareness of reading strategies and cognitive engagement have a positive and strong relationship. Thus, the null hypothesis of no significant relationship is therefore rejected. In the same manner, metacognitive awareness of reading strategies and beliefs about language have a positive and strong relationship. Thus, the null hypothesis of no significant relationship is therefore rejected. Also, beliefs about language learning and cognitive engagement have a positive and strong relationship. Thus, the null hypothesis of no significant relationship is therefore rejected.

Firstly, metacognitive awareness of reading strategies positively and significantly relates with cognitive engagement. This implies that when students are conscious of the strategies to be done for a more effective reading activity, the more they let themselves become active thinkers. This positive relationship between the two variables makes so much sense as learners will never be able to employ reading strategies without making use of their cognitive faculty. This further means that employing reading strategies can be a good exercise for the brains of the learners. This can help them manifest their creative and critical thinking skills.

This specific result of the study is comparable to that of a study by Rastegar et al. (36) who found that knowledge of metacognitive reading methods represents the perceived use of the strategies. Their research verified the strong correlation between total metacognitive reading strategies and cognitive engagement. This is because recognizing reading challenges is likely to increase the strategy's success (Aktar and Ahmed 8).

Another study of Saricoban and Behjoo (227) indicated that the metacognitive awareness of reading strategies affected cognitive engagement of Turkish EFL students. Successful reading students were more likely to use metacognitive reading strategies so that they could become skilled readers. They used problem solving

strategies the most, followed by global and support reading strategies.

Panchu, Bahuleyan, and Seethalakshmi (53) also conducted a study to explore the metacognitive awareness of reading strategies among the first-year medical students in India. The findings revealed that all students used problem solving strategies the most compared to other subscales. As for the students with very good academic scores, they used support reading strategies more frequently than global reading strategies. Thus, the role of metacognitive awareness of reading strategies has an important role in the students' cognitive engagement.

In the same manner, metacognitive awareness of reading strategies positively and significantly relates with beliefs about language learning. This implies that when students are aware of their strategies in reading, the more they believe that they can learn the language used in their reading materials. With the variety of strategies that they can employ in achieving a meaningful reading activity, the learners tend to develop more self-efficacy so that they can actually become better in using the language targeted by their readings.

This particular study's finding is parallel to several studies into the connection between metacognitive awareness of reading strategies and attitudes toward language learning (Hong-Nam and Page 21). The vast majority of studies have found a connection between the two factors that are favorable. For instance, in Minh, Nguyen Thi Ngoc and Nguyen Thuy Nga's study, high school learners who were proficient readers reported utilizing more reading methods than their less proficient peers.

Moreover, studies conducted with college students report similar findings. L2 college students in both ESL and EFL contexts who rated themselves as good readers also reported a high degree of reading strategy use (Hong-Nam and Leavell 119). In sum, the censuses of research in this area indicates that the appropriate use of reading strategies relates to beliefs in language learning; readers who have a higher use of reading strategies do well on language tests and perceive themselves as high in their language ability.

Lastly, beliefs about language learning positively and significantly relates with cognitive engagement. This implies that when learners believe that they can learn the

language they are targeting, the more they involve themselves with highly cognitive activities. This means that when students exert effort in learning the complexity of a language like English, they are actually utilizing their cognitive faculty and engage themselves with thinking skills both lower and higher orders.

This particular finding of the study agrees with those findings from the studies conducted by Chong, et al., (114) who explored on student perceptions of self-efficacy and teacher support for learning in fostering youth competencies, roles of affective and cognitive engagement. It also resonates with the findings of a study conducted by Han (6) who investigated the learner beliefs and learner engagement with written corrective feedback. Lastly, the findings support those from the study conducted by Galikyan and Admiraal (284) who researched on the students' engagement in asynchronous online discussion focusing on the relationship between cognitive presence, learner prominence, and academic performance.

Mediating Effect of Beliefs about Language Learning on the Relationship between Metacognitive Awareness of Reading Strategies and Cognitive Engagement

For mediation analysis to be carried out, series of regression procedures were conducted. Based on the results, beliefs about language learning partially mediated the relationship between metacognitive awareness of reading strategies and cognitive engagement.

This finding is agreeable with the results of a study conducted by Arjaya et al. (455-468); & Bahri and Corebima (996) which show that the contribution of metacognitive awareness of reading strategies on cognitive engagement is very high. It proved that the metacognitive skill training raises the students' awareness to learn, plans their learning, controls the learning process, evaluates the self-efficacy as learners, and reflects the learning, as well as evaluates their own strengths and weaknesses.

This fact is in line with Tachie and Molepo (143-161) stating that metacognitive awareness activities such as planning of assignment solving, controlling comprehension, and evaluating progress might be able to actively control students' cognitive engagement. A study by Shih and Huang (755-784); & Amnah (61) reported that giving exercises by using an effective

metacognitive strategy might develop students' metacognitive control, hence it might also improve students' understanding and learning outcome.

In the same way, metacognitive awareness of reading strategies also significantly predicts beliefs about language learning. This particular finding of the study is parallel with most of the research studies which addressed the importance of learners' beliefs about language learning in relationship with other variables such as the metacognitive awareness of reading strategies.

For example, Yang (461), who studied 500 Taiwanese students, looked into how EFL students' attitudes toward language acquisition and their usage of metacognitive awareness of reading strategies related to one another. He discovered that the adoption of all reading strategies was closely related to the learners' self-efficacy ideas about learning English. 167 EFL students at one Taiwanese university participated in investigation into the connection between learners' views and language anxiety (Tian and Mahmud 149-170; & Cheng 217). The extent of learners' metacognitive knowledge of reading methods and their attitudes about language learning were found to be significantly and favorably correlated.

Meanwhile, Huang and Tsai (327) investigated the relationship between learners' beliefs about language learning and the proficiency level of the metacognitive awareness of reading strategies among 89 Taiwanese high school students. Their study revealed that high proficiency learners had more positive language learning beliefs than low proficiency learners. In another study, Li and Liang (219) examined the relationship between EFL learners' beliefs about language learning and proficiency in a Chinese context. They found that such a relationship existed between these two variables. Despite the host of findings regarding how to enhance learners' beliefs towards language learning, relatively little attention has been paid to the effect of emotion on learners' beliefs.

Consequently, beliefs about language learning significantly predict cognitive engagement. This particular finding of the study is similar to those results from other studies which revealed that beliefs about language learning are able to predict cognitive engagement. For example, Pintrich and De Groot (241) found that junior high students high in beliefs about language learning were more likely to report using

various cognitive and self-regulatory or metacognitive learning strategies. This same pattern was found in other studies of both junior high school and college students (Won et al, 112-124). These studies were correlational and used self-reports of self-efficacy, cognitive strategy use, and self-regulatory strategy use. However, some of the studies used longitudinal designs with measures taken at more than one time point. In these cases, initial measures of strategy use can be used as a control to see if self-efficacy accounts for increased strategy use at a later time point.

In all these studies, beliefs about language learning did account for additional variance in strategy use over time. In many cases, the change in the percentage of variance was increased by 57-10% by adding in self-efficacy (Pintrich 649). Accordingly, students who believed that they were capable of doing the task or their schoolwork were much more likely to be cognitively engaged than those who had lower self-efficacy beliefs. Moreover, high self-efficacy beliefs were related to an increase in the use of deeper processing strategies such as elaboration and organizational strategies as well as metacognitive strategies over time. Students who were confident in their skills were much more likely to try to understand their schoolwork and think deeply about it. They also were more metacognitive, that is, more likely to plan, monitor, and regulate themselves while working on their school tasks. In other words, they were more thoughtful and reflective while doing their schoolwork in comparison to students who did not believe they could do their schoolwork.

Lastly, it was found that beliefs about language learning mediate the original direct effect of metacognitive awareness of the reading strategies on cognitive engagement among senior high school students. This means that mediating effect is partial, such that the original direct effect of metacognitive awareness of the reading strategies on cognitive engagement improved upon the addition of beliefs about language learning. The positive value of Sobel z indicates that the addition of beliefs about language learning does reduce, and rather decreases the effect of metacognitive awareness of the reading strategies on cognitive engagement.

This finding is similar with those of the study conducted by Teng et al., which explored on the beliefs about language learning as mediator between the relationships between metacognitive awareness of the reading strategies on cognitive engagement during remote

learning using a structural equation modelling approach. This study supports the interconnection of the three variables. Most especially, it vouches the mediating effect of beliefs about language learning on the relationship between metacognitive awareness of the reading strategies on cognitive engagement.

V. CONCLUSION

With considerations on the findings of the study, conclusions were drawn in this section. The senior high school students in New Corella District, Division of Davao del Norte perceived high levels of metacognitive awareness of the reading strategies, cognitive engagement, and beliefs about language learning. The results also confirm that there is a significant relationship between metacognitive awareness of the reading strategies and cognitive engagement among the senior high school students in New Corella District, Division of Davao del Norte. In the same manner, there is a significant relationship between metacognitive awareness of the reading strategies and beliefs about language learning among the respondents. Eventually, the findings also showed that there is a significant relationship between beliefs about language learning and cognitive engagement among the said respondents. Moreover, the results of the study also suggest that beliefs about language learning partially mediate the relationship between metacognitive awareness of the reading strategies and cognitive engagement.

Lastly, the findings apparently support the anchored theories on Self-determination Theory (SDT) by Ryan and Deci (2000), Self – Efficacy Theory by Bandura (1977), Cognitive Evaluation Theory (CET) by Deci and Ryan (1980), and Goal Content Theory (GCT) by Sheldon and Kasser (1995). For this reason, beliefs about language learning significantly mediate the relationship between metacognitive awareness of the reading strategies and cognitive engagement. The propositions cited above discuss the association among the variables used in the study. Thus, these propositions are parallel in the present investigation since it deals with the mediating effect of beliefs about language learning on the relationship between metacognitive awareness of the reading strategies on cognitive engagement.

VI. RECOMMENDATIONS

The study found a significant relationship between metacognitive awareness of the reading strategies and cognitive engagement among the senior high school

students in New Corella District, Division of Davao del Norte. The researcher therefore recommends that students may maintain and enhance their awareness so that their cognitive faculties will always have the chance to be exercised which may lead to more development of other faculties. The study also reveals a significant relationship between metacognitive awareness of the reading strategies and beliefs about language learning among the respondents. Thus, the researcher recommends that they may keep up their metacognition habits in order to maintain their enthusiasm, self-assurance, and effectiveness in studying the English language. The study also revealed a strong correlation between respondents' cognitive engagement and their beliefs about language learning. The researcher recommends that students may maintain their drive and confidence in their ability to acquire the dynamics of the English language since it is an effective way for them to allow themselves to engage in purposeful cognition.

Since the study also revealed that beliefs about language learning partially mediate the relationship between metacognitive awareness of the reading strategies and cognitive engagement, it is recommended that teachers and school administrators implement programs and activities that can help students maintain or enhance their self-efficacy in language learning. Both curricular and non-curricular activities may be planned carefully and be implemented effectively so that students do not lose their enthusiasm in learning the complex English language. Consequently, this leads to them being more aware of more reading strategies and being more engaged in meaningful cognition.

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