

The Mediating Effect of Metacognitive in Reading Strategy in Listening Comprehension and Critical Thinking of SHS Students

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ABSTRACT

The study aims to check the mediating effect of metacognitive in the reading strategy of senior high school students concerning listening comprehension and critical thinking. The study used a quantitative-correlational research design to collect information on the statistical analysis of the sample population. Also, stratified random sampling was used to determine the number of respondents. Three hundred fifteen Grade 11 senior high school students from the three most prominent schools in Kidapawan City responded to this study. Google form was used to collect data, and the following statistical tools were used: Mean and Standard Deviation, Pearson Product Moment Correlation, and Sobel z test and mediation approach. Based on the retrieved data and study results, the respondents proved a high level of metacognitive in reading strategy, moderate level of listening comprehension, and critical thinking. This indicates a significant effect on the relationship between listening comprehension and metacognitive reading strategy of senior high school students. Therefore, this study found that the metacognitive reading strategy has an essential role in listening comprehensive and critical thinking of the students. This indicates that listening

comprehension and critical review of the students are connected to metacognitive reading strategy, and it affects their academic performances.

Keywords: correlation, critical thinking, comprehensive listening, Philippines, mediation, metacognitive strategy in reading

INTRODUCTION

Reading may have a different and negative result if the reader's critical thinking needs to be adequately refined; it will lead to difficulty in giving comments and sharing detailed conclusions. Ennis (44) defines critical thinking as 'the correct way of assessing statements,' and 'reasonable reflective thinking focused on deciding what to believe or do.'

Students who do not critically and reflectively use their thinking abilities in learning do not use their full knowledge. This only means that the true essence of comprehensive reading towards deep thinking can only be seen if their ability to think and understand is used (Marzban and Zhara 247).

Critical thinking, according to Añonuevo (18), is an individual's set of skills to give an interpretation, analyze and evaluate information, and create a new idea and perspective. Effective interconnection with others in formulating solutions to complicated problems. It is easier for students to do tasks because they use strategies to organize data and make skillful judgments.

On the other hand, comprehensive listening does not only mean listening to what is heard; it is the skill of understanding the words and connecting them to different purposeful ways. Additionally, skills in critical thinking are essential and

connected to effective listening and processing relative information. Therefore, listening is an active reception and perception of an idea. Comprehensive listening is the 'ability to apprehend the meaning of spoken words'; this is different from extensive reading, which is 'understanding the meaning of written words. In the study of Ulu (188), it was stated that there is a significant correlation between critical thinking and metacognitive strategy in reading; after that, reading bears a good result if an individual's way of thinking is directly enhanced.

The main goal of education is to enhance the skills of every learner, and it was proven through many studies and research that its effect on the learners still needs to be improved (David 62). One of the challenges that education is still facing is the implementation of the PISA (Programme for International Student Assessment) 2018, in which reading is the main subject of the assessment for students aged fifteen years old. The Philippines has an average score of 340 in reading, almost 200 points below China which has an average score of 555 and 100 points lower than the average score, which is 487. However, with the help of this research, it can be seen and analyzed that comprehensive listening and critical thinking are connected to metacognitive strategy in reading.

METHOD

The study was done in the Kidapawan City district public schools, Kidapawan City Division, based on the approval of UMERC-2020-063. Three hundred fifteen senior high school students responded to the survey questionnaire in the SY 2020-2021. The study used a quantitative descriptive research design to collect statistical information from the sample population. This research tool is used to collect and describe the characteristics of the demographic segment (Stone et al. 34).

Ergo, descriptive research refers to the type of research question, design, and data analysis that can be applied to the topic given.

Aside from this, the study also delineates the correlation between three variables - metacognitive in reading strategy, listening comprehension, and critical thinking of senior high school students. The study's objectives are (1) to examine the level of metacognitive strategy in reading; and (2) to examine the level of comprehensive listening and critical thinking. Therefore, the study is focused on the attitudinal aspect and thus excludes other factors that may happen in the conduct of the study.

The study's respondents are Grade 11 senior high school students in all disciplines. The total number of respondents is 315. In getting the sample size of every school, the Yamane (1967) formula was used because it is known to be the most suitable and effective tool in determining the adequate sample size needed. The solving formula was used to calculate the actual sample (n) given to a total number of population (N) and one margin of error (e). This is a random formula used to estimate the sampling size, one way of getting the total number of respondents; $n = N / (1 + Ne^2)$ (Arianti 10).

Moreover, stratified random sampling was used to determine the number of respondents in the study. Stratified random sampling is a method of sampling that involves the division of a population into smaller sub-groups known as strata. The strata are formed based on members' shared attributes or characteristics (Kadilir and Cingi 602).

RESULTS AND DISCUSSION

Table 1 shows the level of listening comprehension that was examined based on the indicators; process, input, listener, task, affect, and context, with a total mean of ($x=2.99$, $SD=0.63$), described in a moderate level.

Context has the highest mean with a score of ($x=3.31$, $SD=1.03$) at a moderate level, indicating that the respondents' answers are not far from each other. Input comes second in the set of indicators under the level of comprehensive listening with a mean of ($x=3.22$, $SD= 0.79$) or moderate.

Table 1
Listening Comprehension

Indicator	Mean	SD	Descriptive Level
Process	2.88	0.70	Moderate
Input	3.22	0.79	Moderate
Listener	2.85	0.69	Moderate
Task	2.82	0.79	Moderate
Affective	3.10	0.83	Moderate
Context	3.31	1.03	Moderate
Overall	2.99	0.63	Moderate

One of the indicators in the level of listening comprehension is the affective factor with a mean of ($x=3.10$, $SD=0.83$) or moderate. The process in the listening comprehension level has a mean of ($x=2.88$, $SD=0.70$) or moderate. Nevertheless, the listener as an indicator has a total mean of ($x=2.85$, $SD=0.69$) at a moderate level. A mean of ($x=2.82$, $SD=0.79$) was obtained from the task as an indicator described in the moderate level.

In Table 2, the level of critical thinking is shown. It was surveyed based on the indicators of systematic evaluation, thinking inside the box, and thinking outside the box with a total mean of ($x=2.82$, $SD=0.79$) described in a moderate level.

Table 2
Critical Thinking

Indicator	Mean	SD	Descriptive Level
Systematic analysis	3.27	0.77	Moderate
Thinking inside the box	2.66	0.68	Moderate
Thinking outside the box	3.70	0.95	High
Overall	3.12	0.56	Moderate

Thinking outside the box obtained the highest mean of ($x=3.70$, $SD=0.95$) in the level of critical thinking, which was described as high. This means that the learners have an intense desire and need for knowledge, enjoy perceiving and learning with others, and are curious about how things around them work. On the contrary, two of the given indicators were at a moderate level, the systematic evaluation with a score of ($x=3.27$, $SD=0.77$) and thinking inside the box with a score of ($x=2.66$, $SD=0.68$).

Table 3 depicts the level of metacognitive strategy in reading. It was examined based on the following indicators: global strategy in reading, strategy in solving a problem, and strategy in guided reading. Because each metacognitive strategy is unique, no mean score was obtained.

Table 3
Metacognitive in Reading Strategy

Indicator	Mean	SD	Descriptive Level
Global strategy in reading	3.59	0.90	High
Strategy for solving a problem	3.77	1.05	High
Strategy in guided reading	3.44	0.87	High

Note: Each metacognitive reading strategy is unique; the overall mean score was not calculated.

The indicator 'strategy in solving a problem' in the level of metacognitive strategy in reading has the highest score ($x=3.77$, $SD=1.05$). This only means that the students are careful in reading to ensure that they understand what has been read, and when texts have a high level of difficulty, they tend to reread to comprehend it more. The global strategy in reading comes second with a score of ($x=3.59$, $SD=0.90$). Moreover, the indicator 'strategy in guided reading' has a score of ($x=3.44$, $SD=0.87$). All the indicators in the level of metacognitive strategy in reading were described as high.

In the fourth table, the importance of the relationship between comprehensive listening and critical thinking was described, with a total calculated *r-value* of 0.327 with a possible *p-value* <0.000 , which is lower than the 0.05 value level, therefore, the two variables are coherent.

Table 4
Analysis of the Relationship among Variables

Pair	Variable	Relationship Coefficient	Significance of p	The decision of the Ho
IV and DV	listening comprehension and critical thinking	0.33	<0.000	Rejected
IV and MV	listening comprehension and global strategy in reading	0.27	<0.000	Rejected
	listening comprehension and strategy in solving a problem	0.32	<0.000	Rejected
	listening comprehension and strategy in guided reading	0.29	<0.000	Rejected
MV and DV	global strategy in reading and critical thinking	0.70	<0.000	Rejected
	strategy in solving a problem and critical thinking	0.62	<0.000	Rejected
	strategy in the guided reading and critical thinking	0.62	<0.000	Rejected

Conversely, the variables 'comprehensive listening' and 'global strategy in reading' show a significant correlation with an *r-value* of 0.27 with a possible *p-value* <0.000 , which is lower than the 0.05 value level. An important correlation was also shown in the variables 'comprehensive listening' and 'strategy of guided reading,' which obtained an *r-value* of 0.29 with a possible *p-value* <0.000 lower than 0.05 value level, therefore the variables are interrelated, which has a positive relationship in the metacognitive strategy in reading.

Furthermore, the variables 'global strategy in reading' and 'critical thinking' show a significant correlation with an *r-value* of 0.70 which states a possible *p-value* <0.000 , lower than the 0.05 value level. Lastly, a significant correlation between the variables 'guided reading' and 'critical thinking' has a calculated *r-value* of 0.62 with a possible *p-value* <0.000 lower than the 0.05 value level. Thus, the variables are interconnected and show a positive relationship in the metacognitive strategy in reading.

Consequently, the null hypothesis was declined in favor of the alternative hypothesis, which states a significant correlation between 'comprehensive listening' and 'critical thinking' of the students in senior high school: the mediation effect of metacognitive reading. According to the data obtained, the development of the total metacognitive reading significantly correlates with listening and thinking, with an individual *p-value* lower than 0.05.

Sobel z test was used in checking each mediation based on the combination of comprehensive listening and each metacognitive strategy in reading towards critical thinking. This explains why each metacognitive strategy in reading's unique; *the Sobel z test* was used three times to determine the

differences in the level of mediation effect between each of the metacognitive strategies in reading.

Table 5
 Results of the Statistics Contained in the Analysis of Mediation
 (Mediator Effect) Based on the Combination of Listening
 Comprehension and Metacognitive in Reading Strategy
 towards the Overall Critical Thinking

Combination of Variables	Sobel z	p-value	Percentage of the Mediating Effect	The decision of the <i>H₀</i>
Listening comprehension → Global strategy in reading → Critical thinking	5.23	<0.000*	53.93%	Rejected
Listening comprehension → Strategy in solving a problem → Critical thinking	5.87	<0.000*	54.86%	Rejected
Listening comprehension → Strategy in guided reading → Critical thinking	5.44	<0.000*	50.69%	Rejected

Table 5 shows the three styles of metacognitive strategy in reading with a total mediation effect in the relationship between comprehensive listening and critical thinking – global strategy in reading ($z= 5.23, p\text{-value}<0.5$), strategy in solving a problem ($z= 5.87, p\text{-value}<0.5$), and strategy in guided reading ($z= 5.44, p\text{-value}<0.05$). Thus, the null hypothesis is declined because each has a mediation effect. The result states that the strategy in solving a problem obtained the highest level of mediation effect in the relationship between comprehensive listening and critical thinking, with a percentage of 54.86%. Aside from this, the global strategy in reading has a significant mediation effect of 53.93%, the same as the strategy in guided reading with a percentage of 53.93%.

Table 6 shows the overall result of the study conducted on the mediation effect of each metacognitive strategy in reading concerning comprehensive listening and critical thinking.

Based on the combination of variables, all the indicators in the metacognitive strategy in reading have a mediation but with a slight mediation only.

Table 6
The Overall Analysis of the Mediating Effect of Metacognitive Reading Strategy in the Relation between Listening Comprehension and Critical Thinking

Combination of Variables	Mediation is presented	Type of Mediation
Listening comprehension → Global strategy in reading → Critical thinking	Presented	Partial
Listening comprehension → Strategy in solving a problem → Critical thinking	Presented	Partial
Listening comprehension → Strategy in guided reading → Critical thinking	Presented	Partial

The level of listening comprehension is measured through indicators such as process, input, listener, task, affect, and context. The context was the highest in the indicators under listening comprehension, described at a moderate level. This means that in listening comprehension, low-quality materials will cause disturbances like faint sounds, which affects the way students understand what they are listening to and is not conducive to learning.

Moreover, the data show that listening could be more effective if the materials, tools, and surroundings are conducive to learning. This supports the idea of Fedesco (106), in which a good learning environment is compelling and an important factor that improves the listener's concentration level.

Among the six indicators of listening comprehension, input comes second at a moderate level. This means that the students need help understanding the texts being listened to because of unfamiliar words and when the speaker or the teacher talks fast. The description was likened to the idea of Anwar (54), wherein listeners must concentrate on what is being listened to and be interested in listening while having an active connection with the other listeners.

The respondents' answers in connection to 'affect' as an indicator were described as moderate, in which students stop listening when they do not understand the text being listened to. This is highlighted in the concept of Rani (247), where students must feel at ease while listening and having fun learning. This can be shown when a story, poem, or music is fascinating.

Included in the listening comprehension level indicators is the 'process' in which the result shows a moderate level. The students need help to use what has been listened to if they heard the context unclear. According to Rani (251), for the concept to be deliberately significant, students must undergo a straightforward listening procedure closer to the speaker, if possible. Interactive listening, in which students feel enthusiastic and part of the context. They must know the main idea as well as the summary of the text at the end of the activity.

The indicator 'listener' also shows a moderate level in which students find it hard to understand the text being listened to because they need to know what specific listening strategy they will use. Whereas the listener needs to know why they need to listen, this idea, if learned as a whole, will be a steppingstone for them to prepare themselves for the listening process (Brunfaut et al.168).

‘Task’ as an indicator in the level of listening comprehension also obtained a moderate level, wherein students had difficulty in multi-tasking, listening while doing other tasks at the same time as evaluating information obtained, and making a summary/conclusion while listening to the same context. Villafuerte and Bernales (78) said that listening requires full attention. Listening is said to be active when the listener is affected by the words being listened to and gives his/her reaction to the meaning. Because listening is a dual process, it is essential to have an effective and active speaker.

In summary, the data gathered shows that senior high school students have a moderate level of comprehensive listening, wherein some factors were determined. There is difficulty experienced in listening when each indicator in the level of comprehensive listening needs to be followed appropriately and set. The teachers may use this result as a guide to interactive discussions with their students.

There are three indicators in measuring critical thinking; these are the following: systematic evaluation, thinking inside the box, and thinking outside the box.

The indicator 'thinking outside the box' is described at a high level. This means that it is sometimes observed that the students think outside the box. Most students have an intense desire and need to learn; they find it fun and satisfying to learn from their classmates or other people and are highly interested in solving complex situations or problems. This skill deserves to be cultivated and practiced because thinking outside the box means an individual is open to perceiving and using others' ideas. One will tend to find a better way or solution to a problem (Young 356).

This is followed by 'systematic evaluation' as an indicator which shows a moderate level in which students have a logical way of thinking, good at solving problems and give value to themselves as a person with good thinking skills. This is connected to the study of Palmer (35) that being systematic comes with searching, testing, examining, organizing, and interpreting data towards solving a problem, verifying prediction, and validating the invention of a person. Additionally, systematic evaluation is one way of thinking and aggregating information to understand the things happening in society, the people living there, and the whole world (Kong et al. 34).

'Thinking inside the box' comes last in the level of critical thinking at a moderate level; in this indicator, the students seek the truth supporting their opinions and are afraid to explore the truth in issues. This relates to the idea of Kendra (353), in which there is a natural resistance to the idea that better things can be the best. Those thinking inside the box are very particular in their creative skills. They believe that all problems need one solution only.

Therefore, each indicator in students' critical thinking has a moderate level. This indicates that interest in solving and exploring issues/problems is often seen and observed in students as a comprehensive people.

The level of metacognitive in reading strategy is being measured using the following indicators: global strategy in reading, strategy in solving a problem, and strategy in guided reading.

The students respond highly to the indicator 'strategy in solving a problem,' which indicates that they consistently demonstrate this skill in their senior high school years. They

read slowly and carefully to ensure comprehension, and when the text is complex or higher than their level of understanding, they reread it to understand it better. This expounds the idea of Kendra (354) that solving an issue, or a problem refers to the cognitive process people experience to discover, analyze, and solve problems. This includes all the steps in problem-solving; identifying and defining the problem; generating possible solutions and evaluating alternatives and acting and generating solutions to achieve the desired goals.

The indicator 'global strategy in reading' at a high level describes students' active participation and value of reading in which there are objectives expected to be obtained in reading - using schemata in comprehending the text given, analyzing if the content of the text fits the reading objective and thorough evaluation of the information given. This is also clarified by Śpiewak (67), who stated that universal reading is based on one's ability to memorize the details of the text. It only shows that having enough reading knowledge results in constructing good statements and ideas.

Henceforth, the indicator 'strategy in guided reading,' described at a high level, indicates that students often demonstrate this strategy wherein they prepare a guide in the form of a list while reading to understand each word, especially the difficult and unknown ones. This is connected to the idea of Ryan (103) that a reasonable reader knows and prepare different strategies that will aid him/her in understanding the text and making a significant connection and discussion for better result.

Thus, the respondents highlighted that each strategy in reading is essential and is evident in the result that all indicator was described at a high level. This also shows that the student

respondents often exhibit these strategies in reading. It will be, therefore, essential to their different academic tasks.

Listening comprehension and critical thinking show a significant correlation based on the *p-value* lower than its factual basis. This indicates that comprehensive listening bears a positive connection with the student's critical thinking skills. This also means that students' comprehensive listening brings a good effect on improving their critical thinking skills. That is why all students' critical thinking skills are used in different tasks to develop their reading skills. It was proven by Ahmadi (208) and Namaziandost et al. (27) that critical thinking skills are fundamental and connected to effective listening and processing of information. Comprehensive listening is an active process in which people create meaningful information.

Listening comprehension and metacognitive in reading strategy are significantly related. This suggests that the two variable correlates with each other. This proves the *p-value* that is lower than the allocated level, which means that senior high school students' comprehensive listening and metacognitive strategy in reading are related.

The said result is foregrounded by Logan (124) that reading is understanding the knowledge to achieve wisdom, and comprehension is needed in every reading task. He added that readers need to develop skills that they would need to understand what they are reading. Therefore, comprehension is vital in understanding contexts and information to aid in compelling reading and to listen. Reading is a complex and complicated task requiring conscious and unconscious use of skills and strategies, just like solving a problem to form the author's desired meaning. As a complex mental process, the reader actively plans, decides, and connects skills and strategies that help understand (Logan 126).

According to the data gathered from the respondents, the metacognitive reading strategy and critical thinking significantly correlate. This suggests that the two variable correlates with each other. This proves the *p-value* that is lower than the allocated level, which means that senior high school students' comprehensive listening and metacognitive strategy in reading are related. It was indicated in the study of (Fahim 837) that there is a significant correlation between the students' critical level of thinking, which they understood better through their comprehensive skills. Thus, it was added that comprehension is vital in any text being read. As comprehension is based on; (1) the knowledge in reading is significant; (2) knowledge gained by the readers; and (3) the use of context clues in understanding words and meanings (Mateo 126).

The result of the correlation in comprehensive listening and critical thinking of the metacognitive strategy in reading is composed of three combined and correlated variables; global strategy in reading; strategy in solving a problem; and strategy in guided reading. This indicates that the three indicators in the metacognitive strategy in reading are important variables because it mediates the correlation between listening comprehension and critical thinking. Thus, the mediation in each variable can be seen and classified.

CONCLUSION

The respondents valued each strategy in reading and described it at a high level, indicating that they often exhibit these skills. It is helpful to senior high school students, especially in their academic tasks. On the other hand, the respondents prove that comprehensive listening has a moderate level and is caused by some experienced disturbance and difficulties brought by unclear and unrefined indicators of

comprehensive listening. Teachers can use the result to guide valuable and meaningful discussions with active listeners. Meanwhile, critical thinking at the moderate level indicates that students often characterize interest in problem-solving and exploring/analyzing issues.

Listening comprehension and critical thinking have a significant correlation. This means that students' listening comprehension has a meaningful effect in improving one's critical thinking skills. That is why each student's critical thinking skill improves their reading skills when used in different tasks (Ahmadi 212; Namaziandost et al. 27). This is proven as an essential skill in critical thinking connected to one's ability to listen effectively and process the information being heard.

However, it was found that listening comprehension and metacognitive in reading strategy are significantly correlated. This indicates that the two variables relate to each other. The said result relates to Logan's (128) idea that reading is understanding the knowledge to obtain wisdom and comprehension in reading materials. The readers need to develop skills to help them understand what they are reading. Whereas metacognitive reading strategy and critical thinking, according to the data gathered from the respondents, show a significant correlation. Fahim (837) supports this with his study that a significant correlation between the student's level of critical thinking in which they will understand what they are reading through comprehension skills and critical thinking. In addition to this, comprehension is needed in all reading tasks.

It was discovered in the study that metacognitive reading strategy plays a significant role in students' listening comprehension and critical thinking. Checking the correlation indicates that it affects the student's academic performance.

Therefore, the null hypothesis was rejected, and the alternative hypothesis was given in favor, which states that there is a significant correlation between the senior high school students comprehensive listening and critical thinking skills: the mediation effect of metacognitive reading and the mediation of each variable is seen and classified.

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