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Mathematics Teachers' Strategies for Improving Students' Critical Thinking Skills

Franklin A. Cayud-ong*, Maria Chona Z. Futalan
Foundation University, Dumaguete City, Negros Oriental, Philippines
*Corresponding Author Email: franklin.cayud-ong@foundationu.com

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Abstract. This study aimed to determine mathematics teachers' extent of utilization of strategies in terms of asking questions, analyzing situations, interpretation of data, and panel discussions in improving students' critical thinking skills. It also examined the level of critical thinking skills of students as well as its relationship to the enumerated strategies. The researchers utilized the descriptive-correlation design and employed the systematic sampling technique in identifying the 320 junior high school respondents from grade 7 to grade 10 of the school year 2023 to 2024 of the four secondary schools of Lazi District in the Division of Siquijor. The researchers used adapted and validated questionnaires and employed mean and Spearman Rank Order Correlation for the data treatment. The findings revealed that the teachers' extent of utilization in terms of the following strategies is "high": (a) asking questions, (b) analyzing situations, (c) interpreting data, and (d) panel discussion. It was also found that the level of students' critical thinking skills is "high". The data further indicated that the mentioned strategies are significantly related to students' level of critical thinking skills. These findings implicate that teachers are able to employ teaching strategies that are beneficial for improving the critical thinking skills of the students in the field of Mathematics. By incorporating these strategies, the teachers are creating an engaging and intellectually stimulating learning environment.

Keywords: Mathematics teaching; Teaching strategies; Critical thinking.

1.0 Introduction

Developing critical thinking skills is crucial for educators as they strive to equip 21st-century students with the necessary abilities to succeed in a highly competitive and technologically advanced professional landscape (Almasco, 2023). It is one of the skills along with collaboration, creativity, communication, citizenship, and character, which are skills referred to as the 6Cs of 21st-century skills (Anggraeni et al., 2022). However, there are problems in education concerning students' level of critical thinking, as indicated by numerous studies. To name a few, a study in Indonesia revealed that grade 5 pupils (Sarwanto, Fajari, & Chumdari, 2021) and grade 8 students (Basri & As' ari, 2019) have low critical thinking skills. A study in Malaysia found that students' proficiency in selecting and utilizing appropriate problem-solving strategies still needs to improve (Abdullah et al., 2019). Students, critical thinking being low is one of the common problems being faced in the world of education at various levels of schools (Haniko et al., 2023). Students who have low levels of critical thinking skills need help to solve problems effectively. This can impede their capacity to excel academically and hinder their prospects in future professional endeavors.

The issues mentioned earlier are not just a concern in foreign countries, but they are also problems in the Philippines. The latest findings from the Programme for International Student Assessment (PISA) in 2022 revealed that students in the Philippines continue to be among the least proficient in the world when it comes to mathematics. The country's performance in the 2018 PISA assessment did not show any significant improvement, and this trend has persisted in the most recent PISA 2022 results (Acido & Caballes, 2024). One of the factors

behind the Philippines' poor performance in mathematics is the low critical thinking abilities of its students. Lack of critical thinking skills among students may be a result of teachers' low expertise and knowledge (Benedicto & Andrade, 2022).

Considering these issues in the world and the Philippines, teachers must go out of their way to seek out other strategies that could help improve critical thinking skills among their learners. Among several research published, only Guevarra, Marquez, and Pecson (2017) made use in their study of the following strategies utilized by teachers in improving the critical thinking skills of students: (1) asking questions, (2) analyzing situations, (3) interpretation of data, and (4) panel discussions. Data interpretation and panel discussion as strategies for improving critical thinking skills are less explored topics in research.

The researchers are motivated to explore this study to determine teachers' extent of utilization of strategies of asking questions, analyzing situations, interpreting data, and panel discussion and believes that the use of these strategies is a contributing factor in the improvement of students' level of critical thinking skills. The result of this study would assist educators in enhancing their instructional delivery by employing effective and relevant teaching strategies.

The study determined the mathematics teachers' utilization of strategies to improve students' critical thinking skills as perceived by the students. Specifically, it (a) determined the extent of teachers' utilization of the following strategies to improve students' critical thinking skills as perceived by the students: asking questions, analyzing situations, interpretation of data, and panel discussion; (b) examined the level of critical thinking skills of students; and (c) explored the relationship between the teachers' utilization of the enumerated strategies and the students' level of critical thinking skills. The findings of this study would provide valuable insights for teachers to understand how well they are teaching critical thinking skills. Furthermore, this information can be used to improve teaching methods and enhance the learning experience for students.

2.0 Methodology

2.1 Research Design

The study utilized a descriptive-correlational survey approach. It is descriptive as it aimed to (a) describe the strategies employed by teachers to improve students' critical thinking skills through asking questions, analyzing situations, interpretation of data, and panel discussion; and (b) identify the level of students' critical thinking skills. On the other hand, it was also correlational, as it examined the relationships between the variables.

2.2 Research Participants

The respondents of the study were the junior high school students from Grade 7 to Grade 10 of the school year 2023-2024 in the Lazi District in the Division of Siquijor. A systematic random sampling technique was applied. There was a total of 320 respondents. The number of students who served as respondents differed depending on the school's grade level population**.**

2.3 Research Instrument

The researchers utilized two adapted questionnaires in this study. One questionnaire was formulated by Sarigoz (2012) in the study Assessment of the High School Students' Critical Thinking Skills" which comprised fifteen (15) items measuring their level of critical thinking skills. On the other hand, the other questionnaire which encompassed the strategies in asking questions, analyzing situations, interpretation of data, and panel discussion with ten (10) items each were taken from the study of Guevarra, Marquez and Pecson (2017) entitled "Development of Students' Critical Thinking Skills At Public Secondary Schools, Dinalupihan District: An Assessment." Approval of the authors were sought prior to the use of these questionnaires. Since adapted, the questionnaires underwent validation by three (3) master teachers for content validity. The conduct of dry run with thirty (30) selected students of Campalanas National High School (CNHS) as participants and the use of Cronbach's Alpha Test were done to ensure the survey instrument's reliability.

2.4 Data Gathering Procedure

The researchers forwarded a written request to the Schools Division Superintendent of Siquijor division upon the endoresement of the graduate school dean of Foundation University. The signed and approved letter was

presented to the school heads of the four (4) secondary schools of Lazi District. After having the consent and a schedule to conduct the study, the researchers distributed the survey questionnaires to the respondents. Prior to that, explanation to the purpose and intent of the study were explained comprehensively. The researchers collected the completed questionnaires from the students immediately after they had finished answering the questions. The students' responses were recorded in a spreadsheet, and the researchers employed the mean and Spearman's Rank-Order Correlation for the data analysis.

2.5 Ethical Considerations

This research study followed ethical guidelines throughout the study. The researchers kept respondents' details private to protect their dignity and privacy. The respondents' readiness to provide the necessary data for the study was a sufficient proof of their informed consent. Moreover, the safety of the respondents was given utmost importance. Furthermore, The study followed the ethical guidelines set by the Ethics Committee of Foundation University. Before starting, the researchers got approval from the relevant authorities.

3.0 Results and Discussion

3.1 Teachers' Strategies to Improve Students' Critical Thinking Skills

Asking Questions

Table 1 reveals the perception of students towards their teachers' extent of utilization of strategies in terms of asking questions to improve students' critical thinking skills. Collectively, the teachers have a "high" extent of utilization, as reflected in the composite mean of 3.92.

Table 1. Descriptive statistics of teachers' extent of utilization of strategies of asking (n=320)

Indicators	Mean	Interpretation	Extent
1. rephrases questions to make them clear to us.	4.09	Often	High
2. encourages us to elaborate our ideas.	4.00	Often	High
3. asks us to justify our answers.	3.99	Often	High
4. asks open-ended questions.	3.97	Often	High
5. uses elevating questions to develop higher order thinking skills.	3.97	Often	High
6. asks questions that will prompt us to investigate a thought or process.	3.93	Often	High
7. stimulates discussion with probing questions.	3.84	Often	High
8. challenges us with funneling questions.	3.82	Often	High
9. encourages us to formulate questions of our own.	3.79	Often	High
10. asks questions in different domains of learning like cognitive, affective, and psychomotor.	3.78	Often	High
Composite	**3.92**	**Often**	**High**

To point out, the teachers have "high" usage of rephrasing questions to make them clear to the students ($\bar{x}$ = 4.09), which ranks first among all other indicators. Rephrasing questions promotes better understanding and develops student engagement and critical thinking. It also fosters deeper comprehension and retention of the concepts of the lesson. This aligns with the results of Milawati and Suryati (2019), wherein they unveiled that rephrasing questions is one of the questioning strategies that encourage students to respond more and allows the teacher to better understand the depth of the student's knowledge. Additionally, rephrasing questions is one of the modification strategies used to enhance the clarity of teachers' questions, thereby providing students with more opportunities to reconsider and formulate their responses (Jusoh, Rahman, & Salim, 2020).

Meanwhile, asking students to elaborate on their ideas ($\bar{x}$ = 4.00) encourages them to articulate their thoughts and enhance their communication skills. This affirms the statement of Gillies (2019) that discourse-intensive instructional approaches that allow students to elaborate their ideas can facilitate their ability to build upon the perspectives of their peers, seek clarification, and draw reasonable conclusions. Wilen and Clegg (as cited in Brualdi Timmins, 2019) suggested probing students' responses to have them clarify ideas, support a point of view, or extend their thinking to foster higher student achievement.

It is likewise evident in the table that teachers have "high" usage of different ways of asking questions, as indicated in the mean values ranging from 3.78 to 3.97. The questions asked focus on the different domains of learning: cognitive, affective, and psychomotor. Targeting different domains of learning with questions provides a well-rounded educational experience. Cognitive questions stimulate thinking and understanding, fostering intellectual growth. Affective questions address emotions and values, promoting empathy, self-awareness, and social skills.

Psychomotor questions involve physical actions, enhancing coordination, dexterity, and practical skills. By addressing all three domains, educators cater to diverse learning styles and abilities, promoting holistic development in students.

The above results only prove that using questioning methods is a powerful strategy that educators can apply to guide and support learning (Hmelo-Silver, Bridges & McKeown, 2019). Questioning techniques can significantly impact the flow and direction of discussions, helping either expand or limit the scope of discourse. Additionally, questioning serves to concentrate students' attention on specific content, recall existing knowledge, and support the setting of learning objectives and goals.

Analyzing Situations

Table 2 shows students' views on their teachers' extent of utilization of strategies in terms of analyzing situations to improve students' critical thinking skills. Entirely, the data reveal that there is a "high" extent of utilization as depicted in the composite mean of 4.01.

Table 2. Descriptive statistics of teachers' extent of utilization of analyzing situations (n=320)

Indicators	Mean	Interpretation	Extent
1. asks us to analyze problems that are needed to be solved.	4.37	Often	High
2. helps us analyze clues and hints in treating various situations.	4.14	Often	High
3. uses inferential questions as guide for us in analyzing situations	4.09	Often	High
4. provides us opportunities to correct each other's analysis.	4.08	Often	High
5. encourages us to collaborate our ideas during brainstorming.	3.98	Often	High
6. provides us opportunities to put ourselves in a given situation.	3.93	Often	High
7. asks our reactions on a given situation	3.92	Often	High
8. cites logical situations that arouse our curiosity and interest.	3.88	Often	High
9. guides us to break down concepts that we are learning.	3.84	Often	High
10. exposes us to situations that require us to think critically.	3.82	Often	High
Composite	**4.01**	**Often**	**High**

It is also exposed in the table that teachers have "high" usage of asking students to analyze problems that need to be solved ($\bar{x}$ = 4.37), and helping students analyze clues and hints in treating various situations ($\bar{x}$ = 4.14). These are the two indicators in the top-ranks. The act of analyzing problems encourages students to engage in mathematical reasoning, such as making connections from previous knowledge, recognizing patterns, and drawing logical conclusions. Meanwhile, analyzing clues and hints requires students to think critically, make connections, and draw inferences to uncover the relevant information needed to solve the problem. According to Brookhart (as cited in Anggraini & Pratiwi, 2021), effective learning should go beyond simply having students retrieve or comprehend information from their past learning experiences. It should also challenge students to engage in more complex cognitive processes. This includes thoroughly analyzing the content they are studying, reflecting deeply on what they have been taught, and then applying that knowledge in creative ways to address real-world issues and problems. This statement is in affirmation of the statement of Erdogan (2019) that critical thinking is the act of utilizing reflective, rational, and reasonable thought processes to gather, interpret, and evaluate information, ultimately leading to a well-informed judgment.

Interpretation of Data

Table 3 shows the students' view toward their teachers' extent of utilization of strategies in terms of interpreting data to improve their critical thinking skills. Explicitly, the data reveal that there is a "high" extent of utilization, as shown in the composite mean of 3.83. This indicates that teachers are actively engaged in designing lessons and activities that require students to understand data and how to find accurate data, how to consider the source of data and its purpose, how to determine if data is appropriate, and how to use data successfully.

Additionally, the data manifests that the teachers have "high" usage of making students analyze, evaluate and synthesize data integral to learning ($\bar{x}$ = 4.11). A data-literate student should possess the necessary quantitative and analytical skills to address a problem, as well as the ability to apply these tools in context to analyze, interpret, and effectively communicate their findings from data (Kjelvik & Schultheis, 2019). When teachers encourage students to analyze, evaluate, and synthesize data, they are fostering higher order thinking skills (HOTS). Hence, high usage of these skills indicates that teachers are effectively engaging students in HOTS, which is a positive sign for educational development.

Table 3. Descriptive statistics of teachers' extent of utilization of interpretation of data (n=320)

Indicators	Mean	Interpretation	Extent
1. makes us analyze, evaluate, and synthesize data integral in learning.	4.11	Often	High
2. makes us collaborate with one another.	3.95	Often	High
3. presents data either in tables, graphs, & other illustrations for analysis.	3.92	Often	High
4. uses data in teaching and learning instruction.	3.84	Often	High
5. uses questions to prompt our assertions and interpretations.	3.84	Often	High
6. helps us implicate the data interpreted with other data.	3.82	Often	High
7. facilitates small group discussion in interpreting data.	3.79	Often	High
8. makes us see concepts from various perspectives during the interpretation of data.	3.78	Often	High
9. makes us discriminate the content of data we are interpreting.	3.66	Often	High
10. makes on-going use of data as part of our habits.	3.60	Often	High
Composite	**3.83**	**Often**	**High**

The table also reflects students' perception of teachers' "high" usage of making them collaborate ($\bar{x}$ = 3.95). This indicates that teachers are incorporating collaborative learning strategies into their teaching methods. Collaborative data interpretation requires students to engage in critical thinking, analyze the data from multiple angles, and work together to arrive at meaningful conclusions. This is aligning to the study of Warsah et al. (2021), that collaboration entails interactions. In collaborative learning, students actively participate in the processes of thinking, reasoning, analyzing, and elaborating with one another about the learned material while also understanding each other, completing their competencies, being emphatic, and feeling the essence of their collaborations.

A crucial aspect of the teacher's role as a facilitator is to aid in fostering productive group dynamics among students, particularly in the interpretation of data. This entails observing the group, ensuring that all members are engaged and that key ideas are not overlooked (Hmelo-Silver, Bridges & McKeown, 2019). This finding is also evident in the study of Johnson and Johnson (as cited in Gillies, 2019) that when learners collaborate, they develop the ability to listen attentively to others, clarify any misunderstandings, assist one another, and partake in practices that enhance learning. Through participating in such events, students cultivate the capacity to effectively communicate and engage in debates with one another, fostering bonds that enhance group unity, self-assurance, and trust; these are crucial elements for students to thrive in a collaborative environment.

Panel Discussion

Table 4 presents the students' perception of the teachers' extent of utilization of strategies in terms of panel discussion to improve their critical thinking skills. Cumulatively, the data reveal that there is a "very high" extent of utilization, as depicted in the composite mean of 4.01.

Table 4. Descriptive statistics of teachers' extent of utilization of Interpretation of Data (n=320)

Indicators	Mean	Interpretation	Extent
1. presents an issue or topic involving an important conflict in values and/or interest.	4.21	Always	Very High
2. makes us express our ideas freely.	4.14	Often	High
3. asks us to provide mathematical definitions, postulates, and theories about the topic on the panel discussion.	4.13	Often	High
4. helps us understand the need for fair procedures in discussing an issue or topic.	4.10	Often	High
5. gives us opportunity to take part on the roles to panel discussion.	4.05	Often	High
6. assists us in preparation for the discussion by directing us to various source materials, authorities in fields, etc.	3.99	Often	High
7. encourages us to perform collaborative work.	3.98	Often	High
8. indicates objectives before starting the panel discussion.	3.98	Often	High
9. makes us criticize important points to ponder.	3.89	Often	High
10. makes us research certain topics before the discussion.	3.67	Often	High
Composite	**4.01**	**Often**	**High**

The result shown in the table is similar to the finding of Safarnejad and Montashery (2020) that panel discussion aids learners to have skills in critical thinking. Panel discussion encourages active participation from students. As stressed by Acharya et al. (2019), panel discussion communicatively stimulates the mental faculties. Students can ask questions, offer their insights, and engage in discussions with the panelists. Active participation facilitates the cultivation of critical thinking and communication abilities in students.

The data, likewise, suggests that the teachers have "very high" usage of presenting an issue or topic involving an important conflict in values and interest ($\bar{x}$= 4.21). This suggests that teachers are frequently using this teaching strategy. By presenting issues or topics that involve conflicts in values and interests, teachers are encouraging students to think critically and solve problems, which are important skills in mathematics. Additionally, by making the learning of mathematics relevant to real-world issues, they are helping students understand the practical applications of mathematics.

Moreover, it is exhibited in the table that teachers display "high" usage of making students express their ideas freely ($\bar{x}$=4.14). This indicates that the teachers are encouraging and facilitating an environment where students feel comfortable sharing their thoughts and ideas. Fostering a secure and encouraging atmosphere in which students are able to articulate their thoughts openly enhances their self-assurance in their mathematical aptitude. This result is evident in the study of Sobhy Abo El-yazid, Elsayed, and Ebrahim (2024). They stressed that panel discussion allows students to interact with each other in a democratic, conversational manner, taking turns to speak.

3.2 Critical Thinking Skills of Students

Table 5 reveals the students' level of critical thinking skills. As indicated in the overall result, the data show that there is a "high" level of critical thinking skills, as depicted in the composite mean of 3.55.

Table 5. Descriptive statistics of critical thinking skills of students (n=320)

Indicators		Mean	Interpretation	Level
1.	I make or do things with great care or with much detail with my thoughts.	3.84	Often	High
2.	I carefully study it by thinking the data in relation to that problem/situation.	3.78	Often	High
3.	I understand the level of its seriousness and importance and notice unknown things from the explanations related to it.	3.73	Often	High
4.	I understand the main idea and plan/purpose of the writer after carefully reading that problem/situation.	3.70	Often	High
5.	I concentrate on it together with my thoughts while it is explained.	3.69	Often	High
6.	I express my thoughts regarding it and I can defend my opinion.	3.68	Often	High
7.	I understand whether the information is original or reinterpreted.	3.64	Often	High
8.	I make inferences based on widely accepted facts, and I can evaluate the reasons for these actions.	3.61	Often	High
9.	I detect what this is all about and eventually explain and define them.	3.60	Often	High
10.	I think critically, sensibly, logically, and analytically.	3.59	Often	High
11.	I visualize it and can feel as the main character of that problem/situation.	3.58	Often	High
12.	I find the contradiction between reason and result after considering the explanations from it.	3.57	Often	High
13.	I improve its essence intelligently considering my initial thoughts with it.	3.49	Often	High
14.	I explain my thoughts regarding it convincingly and logically.	3.46	Often	High
15.	I pass an accurate judgement on it, and I can come to a conclusion with my thoughts.	3.44	Often	High
16.	I establish striking connections by means of explanations regarding it.	3.44	Often	High
17.	I predict the ideas explained by means of explanations regarding it.	3.43	Often	High
18.	I am sure that my thoughts do not misguide me.	3.42	Often	High
19.	I make comments and judgments based on my thoughts.	3.40	Sometimes	Moderate
20.	I solve it easily and make intelligent views or inferences.	3.38	Sometimes	Moderate
21.	I deal it with fair and unbiased opinions.	3.03	Sometimes	Moderate
Composite		**3.55**	**Often**	**High**

The above results corroborate with the results of Farillon (2022). The result of the study of Farillon on the level of critical thinking skills of Grade 12 students has a composite mean of 3.68 as compared to the composite mean of 3.54 of the result of this study falls within the same range of 3.41-4.20, which has a descriptive rating of "developed" in that of Farillon's (2022). The difference lies only in the grade level since Farillon (2022) tested Grade 12 students while this study tested junior high school students from Grade 7 to Grade 10. Likewise, the result of the study of Demir (2022) revealed that high school students demonstrated strong analytical abilities and exhibited a high degree of critical thinking dispositions.

Moreover, this finding also corroborated with that of Putra, Riastini and Paramita (2022). Accordingly, the level of the critical thinking skills of the fifth graders at the Elementary School in Sukawati District is in the high category during the face-to-face post-pandemic period. This contradicts with the findings of Basri and As' ari (2019). They

found that junior high school students' critical thinking skills were in the "low" category. However, data in their study were obtained using math tests and interviews.

3.3 Relationship Between Teachers' Strategies and Students' Critical Thinking Skills

Table 6 indicates the data in identifying the relationship between the teachers' extent of utilization of the strategies in acquiring critical thinking and students' level of critical thinking skills. Using Spearman Rank Order Correlation, it is shown that all p-values are less than the level of significance (0.05). This means that there is sufficient evidence to reject the null hypothesis. This signifies that there is a significant relationship between the teachers' extent of utilization of the enumerated strategies and students' level of critical thinking skills.

Table 6. Correlation analysis for the relationship between the teachers' strategies and students' critical thinking skills (n=320)

Variables Correlated to Critical Thinking Skills	r_s	p	Decision	Remark
Asking Questions	0.469	<.001	Reject H_{o1}	Significant
Analyzing Situations	0.491	<.001	Reject H_{o1}	Significant
Interpretation of Data	0.459	<.001	Reject H_{o1}	Significant
Panel Discussion	0.440	<.001	Reject H_{o1}	Significant

Note: Level of significance = 0.05

Specifically, the table reveals that there is a significant relationship between the teachers' extent of utilization of strategy in terms of asking questions and the students' level of critical thinking skills ($p < .001$). It was found by Clase and Bonk (as cited in Bezanilla et al., 2019) that despite the numerous techniques to foster critical thinking, the most effective method is when teachers question the students, and the level of student thinking should match the complexity of the questions asked. When educators prepare their lessons, they should think about the goal, the complexity of the questions, and the type of questions that will best reach the set goal. Furthermore, every student requires exposure to challenging questions. Research by Collins (as cited in O'Reilly, Devitt, and Hayes, 2022) indicates that demanding tasks stimulate children to think, analyze, summarize, and explain what they have read. This enhanced mental involvement is due to the teacher's guiding questions. Moreover, Säre, Tulviste, and Luik (2019) argued that questioning techniques can be a great way to encourage verbal reasoning and learning, but it is important to choose the right types of questions.

Moreover, the table unveils that there is a significant relationship between the teachers' extent of utilization of strategy in terms of analyzing situations and the students' level of critical thinking skills. Pithers and Soden (as cited in Alsaleh, 2020) backed the use of questioning as a way to improve critical thinking abilities and pointed out other methods that, based on their literature review, altered students' thought processes. The most important of these involves students deliberately reflecting on their main ideas and being motivated to analyze these ideas. Teachers, for example, can help students evaluate their thoughts by inquiring about similarities, assumptions, and alternatives, challenging preconceived notions, categorizing, and determining which data or information validates the idea.

Additionally, the table suggests that there is a significant relationship between the teachers' extent of utilization of strategy in terms of interpretation of data and the students' level of critical thinking skills ($p < .001$). This result is similar to the findings of Mourad et al. and Langen et al. (as cited in Kjelvik and Schultheis, 2019) that having experiences in collecting, analyzing, and interpreting data, students can have the skills to become critical thinkers and the ability to understand the value of data in comprehending the natural world. Similarly, Cook et al. (as cited in Gibson and Mourad, 2018) argue that having the ability to create and use different forms of data is a key component of critical thinking.

It is further stipulated in the table that there is a significant relationship between the teachers' extent of utilization of strategy in terms of a panel discussion and the students' level of critical thinking skills ($p < .001$). This result is similar to the finding of Safarnejad and Montashery (2020) that panel discussion aids learners to have skills in critical thinking. Panel discussion encourages active participation from students. As stressed by Acharya et al. (2019), panel discussion communicatively stimulates the mental faculties. Students can ask questions, offer their insights, and engage in discussions with the panelists. This active engagement helps students develop critical thinking and communication skills.

4.0 Conclusion

The teachers are able to employ teaching strategies that are beneficial for improving the critical thinking skills of the students in the field of Mathematics. By incorporating these strategies, the teachers are creating an engaging and intellectually stimulating learning environment. The emphasis on the use of questioning, situation analysis, data interpretation, and panel discussion strategies are on developing students to think critically, evaluate information from diverse perspectives, and develop problem-solving skills. These skills are very important for success in the 21st century, as they enable students to navigate complex challenges, make informed decisions, and communicate their mathematical ideas effectively. Overall, the utilization of these teaching strategies in mathematics is a clear indication that teachers are committed to preparing their students for the demands of the modern world, equipping them with the necessary mathematical skills and competencies to thrive in their future endeavors. Hence, it is suggested that school administrators create a mentorship program where experienced teachers, skilled in teaching critical thinking, mentor and support new teachers. Teachers should also focus on developing students' abilities to critically analyze information, engage them in problem-solving activities that require deep thinking, and create an environment that promotes the exchange of ideas and the exploration of various perspectives. Furthermore, teachers are encouraged to utilize technology-enhanced assessment methods to offer a more genuine and thorough evaluation of students' critical thinking skills in mathematics.

5.0 Contributions of Authors

The authors of this research contributed equally to the final version of the document.

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7.0 Conflict of Interests

The authors asserted that they have no conflicts of interest related to this study.

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