

# Anticipation Guide Worksheet: An Innovative Supplementary Strategic Material in Improving Students' Engagement, Critical Thinking Skills and Numeracy Skills of Grade 7 Learners

Mary Rose Bodino Bonita

Laguna State Polytechnic University Sta. Cruz Laguna 4009 PHILIPPINES

Email address: julierosemendoza002@gmail.com

**Abstract**— This study aimed to determine the effect of the Anticipation Guide Worksheet in improving Grade 7 learners. Specifically, it assesses the level of Anticipation Guide Worksheet for components and characteristics, students' engagement and students' critical thinking skills. Additionally, the level of students in numeracy skills for the written test was tested. Moreover, the significant relationship between the Anticipation Guide Worksheet on students' engagement, critical thinking, and numeracy skills were evaluated. The study employed a descriptive-correlational research design. Fiftysix (56) Grade 7 students from Bukal National High School were purposively selected as respondents. Data was collected through a validated self-made Likert-scale questionnaire and teacher-made test. Findings revealed that the Anticipation Guide Worksheet received high levels of acceptability in both its components such as learning objectives, guided questions, and problem-solving exercises and its characteristics, including clarity, relevance, and alignment with learning goals. Students demonstrated a high level of engagement, particularly in the area of curiosity, and exhibited strong performance in critical thinking skills. In terms of numeracy, students were rated as "Moving Towards Mastery," indicating an emerging level of proficiency that suggests continued development is needed to reach full mastery. The study found no significant relationship between the Anticipation Guide Worksheet and students' engagement or critical thinking, suggesting it may not directly influence participation or higher-order thinking skills. Likewise, it showed no significant effect on numeracy skills, indicating that additional targeted strategies may be needed to enhance mathematical performance. No significant relation and effect found in the variables of this research thus, the acceptance of all the hypotheses was noted. This concludes that the anticipation Guide Worksheet does not help in enhancing students' engagement, critical thinking and numeracy skills. It recommends integrating such instructional materials into math instruction under the MATATAG Curriculum and suggests further research to explore strategies for improving numeracy outcomes through interactive and contextual learning tools.

**Keywords**— Anticipation Guide Worksheet, Grade 7 Math, Critical thinking, Students' engagement, Numeracy skills.

## I. INTRODUCTION

Teaching mathematics requires not only the mastery of content but also creative strategies for teachers to engage learners and promote critical thinking. In the modern days where educational reform is widespread, the challenge of promoting meaningful student engagement has grown more

prominent, particularly in subjects like mathematics, where abstract concepts can feel disconnected from students' lived experiences. One instructional approach that has potential in doing this is the Anticipation Guide Worksheets. These are tools designed to activate prior knowledge, stimulate cognitive curiosity, and deepen students' connection to new learning through reflective thinking.

The MATATAG Curriculum, which was introduced in 2015, seeks to revitalize the Philippine education system by emphasizing higher-order thinking skills, problem-solving abilities, and conceptual understanding alongside factual knowledge. This shift developed challenges for Grade 7 students, who must transition from basic arithmetic in their elementary to more abstract mathematical thinking during the junior high school. Because of this transition, supplemental instructional materials are essential. By fostering careful engagement and strategic thinking, anticipation guides that invite students to analyze and assess claims prior to official teaching might improve numeracy abilities.

While anticipation guides are widely recognized for improving reading comprehension and critical thinking, their effectiveness in mathematics is still under review. Critics argue that they may not adequately support procedural fluency or the precision often required in numerical tasks. However, others resist that the structure of the guides promotes analytical thinking and aligns with the goals and objectives of the MATATAG Curriculum.

At Bukal National High School, adopting innovative instructional strategies to enhance learning outcomes in mathematics is prioritized. Early observations suggest that Anticipation Guide Worksheets may effectively bridge the gap between conceptual understanding and practical application in Grade 7 classrooms. This study sought to explore the effectiveness of these worksheets on student engagement, critical thinking, and numeracy development. By focusing on their use within the MATATAG framework, the research aims to contribute to evidence-based practices that promote cognitive growth and long-term success in mathematics education.

### 1.1 Statement of the Problem

*Problem/s which were addressed by the research*

This study aimed to determine the effect of the Anticipation Guide Worksheet on improving Grade 7 students' engagement, critical thinking, and numeracy skills.

Specifically, it sought to answer the following research questions:

1. What is the level of the Anticipation Guide Worksheet in terms of components as perceived by the respondents relative to:
  - 1.1 Learning objectives;
  - 1.2 Pre-reading statements;
  - 1.3 Guided Questions;
  - 1.4 Post-reading Discussions
  - 1.5 Problem-solving Exercises; and
  - 1.6 Reflection?
2. What is the level of the Anticipation Guide Worksheet in terms of characteristics as perceived by the respondents as to:
  - 2.1 Usability;
  - 2.2 Accuracy;
  - 2.3 Alignment;
  - 2.4 Relevance; and
  - 2.5 Clarity?
3. What is the level of Students' Engagement in terms of:
  - 3.1 Attention;
  - 3.2 Curiosity; and
  - 3.3 Optimism?
4. What is the level of Students' Critical Thinking Skills in terms of:
  - 4.1 Reasoning;
  - 4.2 Problem-solving;
  - 4.3 Analysis;
  - 4.4 Evaluation; and
  - 4.5 Synthesis?
5. What is the level of Students' Numeracy Skills in terms of the Written Test?

## II. METHODOLOGY

The study employed a descriptive-correlational research design. Fifty six (56) Grade 7 students from Bukal National High School were purposively selected as respondents. Data was collected through a validated self-made Likert-scale questionnaire and teacher-made test.

## III. RESULTS AND DISCUSSION

This part analyzes the impact of the Anticipation Guide Worksheet on student engagement and the significant difference in Grade 7 students' critical thinking between pre-test and post-test results.

It explores and investigates how the structured prompts and reflective questions in the worksheet encouraged active participation, fostered deeper thinking, and guided learners to critically examine their prior knowledge in relation to new concepts. Through comparing the assessment scores before and after the intervention, this chapter emphasizes how the worksheet contributed to the improvements measured by the researchers in students' analytical reasoning and decision-making skills, underscoring its effectiveness as a tool for

enhancing higher-order thinking in the mathematics classroom.

Additionally, feedback from both students and teachers revealed that the Anticipation Guide planted the seed of curiosity, encouraged students to have meaningful conversations in classrooms, and helped them feel more confident in sharing their ideas and explaining their reasoning. Many noted that the strategy not only engaged students before reading but also fostered a deeper investment in the content that followed.

### Anticipation Guide Worksheet

The components level of anticipation guide worksheet relative to learning objectives, pre-reading statements, guided questions, post-reading discussions, problem-solving exercises, and reflection, was treated statistically using mean and standard deviation.

Table 1 presents the Level of Acceptability of the Anticipation Guide Worksheet Relative to the learning objectives for Grade 7 mathematics.

TABLE 1. Level of Acceptability of the Anticipation Guide Worksheet Relative to the Learning Objectives

The learning objectives...	MEAN	SD	REMARKS
... identify what I am expected to learn from the worksheet.	4.55	0.57	Strongly Agree
... examine how the objectives help me focus on essential math skills.	4.52	0.57	Strongly Agree
... assess whether the objectives are clear and simple to understand.	4.46	0.6	Strongly Agree
... use the objectives to check my understanding of the math concepts.	4.43	0.66	Strongly Agree
... describe how the learning objectives connect to the math concepts we are studying.	4.38	0.65	Strongly Agree
Weighted Mean	4.47		
SD	0.61		
Verbal Interpretation	Very Acceptable		

The computed weighted mean of 4.47 with a standard deviation of 0.61 indicates a very high level of acceptability among respondents regarding the alignment of the Anticipation Guide worksheet with the intended learning objectives. This strong positive response suggests that students found the worksheet highly effective in clarifying what they were expected to learn and in guiding their focus toward essential mathematical concepts. The high mean score reflects that the learning objectives embedded in the worksheet were perceived as clear, relevant, and supportive of student understanding, helping them stay engaged and purposeful during the learning process.

This emphasize that students clearly understand what is expected of them and how the objectives help them focus on essential math skills. They also feel confident in using objectives to check their understanding and make connections with the math concepts being studied.

According to Gibbons (2017), anticipatory learning strategies enhance engagement and motivation, which are crucial for helping students understand and achieve learning objectives. This only means that when students are exposed to activities where they assume what they are going to learn, they build interest and confidence. This is evident in the

worksheet’s ability to present objectives in a structured manner.

Table 2 presents the Level of Acceptability of the Anticipation Guide Worksheet relative to the pre-reading statements for Grade 7 mathematics.

TABLE 2. Level of Acceptability of the Anticipation Guide Worksheet Relative to the Pre-Reading Statements

The pre-reading statements...	MEAN	SD	REMARKS
... use the statements to activate my prior knowledge of math concepts.	4.71	0.49	Strongly Agree
... justify how the pre-reading statements prepared me for practicing math skills on the worksheet.	4.64	0.55	Strongly Agree
... describe how the statements relate to the math topic I am learning.	4.50	0.66	Strongly Agree
... examine the statements to make predictions about the math problems I will solve.	4.46	0.66	Strongly Agree
... define and recognize key terms in the pre-reading statements, making them easier to understand.	4.46	0.63	Strongly Agree
Weighted Mean		4.56	
SD		0.60	
Verbal Interpretation			Very Acceptable

As presented in Table 2, the computed weighted mean of 4.56 with a standard deviation of 0.60 indicates a very high level of acceptability among respondents regarding the use of the Anticipation Guide worksheet in terms of its pre-reading statements. The strong agreement among respondents highlights the worksheet's ability to engage learners early in the lesson, encouraging them to think critically and make predictions about the content. The relatively low standard deviation further indicates consistency in student responses, showing that the effectiveness of the pre-reading statements was widely recognized across the sample group.

This emphasize that the statements effectively prepare students for learning by activating prior knowledge, guiding predictions, and enhancing comprehension of mathematical concepts. Students are able to engage critically with the content before solving problems, which promotes deeper understanding and active learning.

According to Sweeney and McKenzie (2019), anticipation guides enhance higher-order thinking by helping students connect prior knowledge with new content, fostering deeper learning. This aligns with the role of the pre-reading statements in encouraging students to make predictions about upcoming math problems, reinforcing the effectiveness of anticipatory strategies in scaffolding learning. Students making predictions of what they are going to learn in the reading part likely develop curiosity and optimism to continue learning and understanding the lesson.

The findings indicate that the pre-reading statements effectively support student engagement and comprehension, underscoring their importance as a key component of the Anticipation Guide Worksheet in fostering meaningful mathematical learning experiences. By activating prior knowledge and prompting students to make predictions, these statements create a purpose for reading and encourage active thinking even before the lesson formally begins. This strategy helps students connect new information with what they

already know, making complex mathematical concepts more accessible and relatable. Moreover, the pre-reading statements stimulate curiosity and discussion, setting a collaborative tone that encourages deeper exploration of the subject matter. As a result, students are more motivated and better prepared to engage with the subsequent instructional content.

Table 3 presents the level of acceptability of the guided questions in the Anticipation Guide Worksheet.

TABLE 3. Level of Acceptability of the Anticipation Guide Worksheet Relative to the Guided Questions

The guided questions...	MEAN	SD	REMARKS
... explain how the guided questions relate to what I am learning in math.	4.70	0.63	Strongly Agree
... examine how the guided questions encourage different ways of thinking, such as recalling and solving math problems.	4.63	0.66	Strongly Agree
... assess whether the guided questions are clear and easy to understand.	4.55	0.55	Strongly Agree
... identify that the guided questions align with the Grade 7 math learning objectives.	4.50	0.66	Strongly Agree
... use the guided questions to think critically and deepen my understanding of math concepts.	4.38	0.49	Strongly Agree
Weighted Mean		4.55	
SD		0.62	
Verbal Interpretation			Very Acceptable

As presented in Table 3, the computed weighted mean of 4.55 with a standard deviation of 0.62 indicates a very high level of acceptability among respondents regarding the use of guided questions in the Anticipation Guide worksheet. The high mean score reflects a strong agreement that these questions helped clarify key concepts, foster curiosity, and support students in connecting prior knowledge to new ideas. The comparatively low standard deviation also points to a consistent and favorable attitude among a diverse student population. Overall, the data reinforces the value of incorporating well-structured guided questions into instructional materials to enhance student engagement and deepen learning.

This emphasize that the guided questions effectively support students in understanding mathematical concepts by aligning with learning objectives and promoting different modes of thinking. Students are encouraged to think critically, recall relevant knowledge, and solve problems more confidently as a result of this structured approach. They also find the questions clear and easy to understand, which enhances their engagement and comprehension.

These findings align with the research of Novitasari et al. (2022), who emphasized that well-designed questions could scaffold students' ability to analyze and solve mathematical problems by encouraging logical reasoning and concept development. The findings emphasize the strong role of guided questions in enhancing student comprehension and problem-solving skills in Grade 7 mathematics.

Table 4 presents the level of acceptability of post-reading discussions in reinforcing mathematical concepts among Grade 7 students.

As presented in Table 4, the computed weighted mean of 4.55 with a standard deviation of 0.60 indicates a very high

level of acceptability among respondents regarding the use of post-reading discussions in the Anticipation Guide worksheet.

This emphasizes that students are actively engaged in the learning process as the discussions support their ability to comprehend and solve mathematical problems effectively. They are able to reflect on their reasoning, connect questions to learning objectives, and explore various problem-solving strategies in a collaborative setting. This concludes that the structured discussions significantly enhance student participation, deepen mathematical understanding, and foster critical thinking skills in the classroom.

TABLE 4. Level of Acceptability of the Anticipation Guide Worksheet Relative to the Post-Reading Discussions

The post-reading discussions...	MEAN	SD	REMARKS
... decide how to follow the questions to help me complete my worksheet correctly.	4.63	0.59	Strongly Agree
... use the questions to solve math problems and understand math better.	4.61	0.56	Strongly Agree
... compare different types of questions that make me think in new ways, like solving and remembering math problems.	4.57	0.60	Strongly Agree
... identify that the guided questions match what we are learning in Grade 7 math	4.54	0.57	Strongly Agree
... explain the guided questions easily because they are clear and not confusing.	4.41	0.65	Strongly Agree
Weighted Mean		4.55	
Verbal Interpretation	Very Acceptable	0.60	

Research by Liu et al. (2021) supports the effectiveness of post-reading discussions in promoting reflective thinking and improving comprehension, particularly in subjects like mathematics. By encouraging students to share their solutions and reasoning, discussions provide opportunities to clarify misunderstandings and deepen their understanding of key concepts, thereby contributing to the high acceptability of this component among student respondents.

Table 5 presents the level of acceptability of the problem-solving exercises in the Anticipation Guide Worksheet.

TABLE 5. Level of Acceptability of the Anticipation Guide Worksheet Relative to the Problem-Solving Exercises

The problem-solving exercises...	MEAN	SD	REMARKS
... judge whether the exercises are the right level of challenge—not too easy, but not too hard.	4.61	0.59	Strongly Agree
... apply the math concepts I learned to complete the exercises.	4.59	0.61	Strongly Agree
... describe how I use math concepts to solve the exercises.	4.59	0.56	Strongly Agree
... explain the steps I take when solving math problems in the exercises.	4.59	0.56	Strongly Agree
... identify how the exercises relate to the math content on the worksheet.	4.48	0.66	Strongly Agree
Weighted Mean		4.57	
SD		0.60	
Verbal Interpretation		Very Acceptable	

As presented in Table 5, the computed weighted mean of 4.57 with a standard deviation of 0.60 indicates a very high level of acceptability among respondents regarding the problem-solving exercises in the Anticipation Guide

worksheet. Much like effective activity sheets that use clear language and provide guided steps to support comprehension, the Anticipation Guide worksheet successfully offers structured problem-solving tasks that are accessible and engaging.

This emphasize that the exercises effectively support students in applying mathematical concepts, interpreting problems, and articulating their reasoning. They also promote clarity in explaining solution steps and relating tasks directly to the worksheet content.

This is supported by Herrity (2025), who emphasized that problem-solving is a multifaceted skill requiring several essential abilities. It begins with active listening—paying close attention to others in order to accurately identify the core issue. Analytical skills then enable individuals to break complex problems into smaller, manageable parts for better understanding and resolution. Most crucially, creative thinking allows people to view challenges from fresh perspectives and develop innovative solutions.

Table 6 presents the level of acceptability of the reflection prompts in the Anticipation Guide Worksheet. These prompts are designed to cultivate these problem-solving abilities by encouraging students to think critically about their learning process and articulate their insights.

As presented in Table 6, the computed weighted mean of 4.50 with a standard deviation of 0.62 indicates a very high level of acceptability among respondents regarding the use of reflection prompts in the Anticipation Guide worksheet. This indicates that students found the reflection prompts to be highly effective in encouraging them to think critically about their learning, evaluate their understanding, and make meaningful connections between the concepts and their real-life experiences.

TABLE 6. Components' Level of Acceptability of the Anticipation Guide Worksheet Relative to Reflection

The reflection...	MEAN	SD	REMARKS
... explain how reflection questions help me check my understanding and performance in math.	4.57	0.60	Strongly Agree
... evaluate which areas I need to improve, such as working with integers, decimals, and data collection.	4.54	0.63	Strongly Agree
... use reflection questions to think about my learning process and the math strategies I apply.	4.50	0.63	Strongly Agree
... examine what I do well when working with numbers and data.	4.48	0.63	Strongly Agree
... identify how reflection questions connect to what I learn and practice in the worksheet.	4.43	0.63	Strongly Agree
Weighted Mean		4.50	
SD		0.62	
Verbal Interpretation		Very Acceptable	

This emphasize that students actively engage in self-assessment by evaluating their understanding and performance in mathematics. They identify both strengths and areas for improvement, using reflective questions to guide their learning process and strategy development. Students are also able to make meaningful connections between the worksheet activities and their broader learning goals. This concludes that

the integration of reflection promotes goal setting, deeper comprehension, and a more personalized approach to learning math.

This aligns with research by Gibbons (2017), which indicates that self-reflection enhances student engagement and motivation, ultimately fostering deeper learning which is thereby leading to the high acceptability of this component among the student respondents of the study.

Table 7 presents the Level of Acceptability of the Characteristics of the Anticipation Guide Worksheet relative to its usability for Grade 7 mathematics.

TABLE 7. Level of Acceptability of the Characteristics of the Anticipation Guide Worksheet Relative to Usability

When using the worksheet, I ...	MEAN	SD	REMARKS
... assess which topics I need to practice more based on my answers.	4.54	0.54	Strongly Agree
... explain how to solve problems using the examples and exercises in the worksheet.	4.54	0.50	Strongly Agree
... compare my answers with the examples to see if I solve problems correctly.	4.50	0.50	Strongly Agree
... follow the directions easily to complete the tasks correctly.	4.46	0.54	Strongly Agree
... identify integers, decimals, and data better with worksheet questions.	4.45	0.54	Strongly Agree
Weighted Mean		4.50	
SD		0.52	
Verbal Interpretation		Very Acceptable	

As presented in Table 7, the computed weighted mean of 4.50 with a standard deviation of 0.52 indicates a very high level of acceptability among respondents regarding the usability of the Anticipation Guide Worksheet. This indicates that students found the worksheet easy to navigate, well-organized, and user-friendly, allowing them to engage with the content efficiently and independently.

This emphasize that students find the worksheet to be a highly effective tool for improving their understanding of the material. The structured format, clear instructions, and engaging design elements encourage active participation, making it easier for students to grasp key concepts. This suggests that the worksheet's design not only supports comprehension but also boosts students' confidence and motivation, leading to a more engaging and productive learning experience. Thus, the worksheet is considered highly usable and effective for Grade 7 students, fostering a positive learning environment.

This supports the findings of Stoesz and Niknam (2022), who emphasize that incorporating clear, well-organized design elements into educational tools significantly contributes to more effective learning experiences. According to their research, when instructional materials are thoughtfully structured and visually coherent, students are more likely to remain engaged, better understand the content, and retain information more effectively. As a result, student satisfaction increases, and measurable improvements in academic performance can be observed.

Table 8 presents the Level of Acceptability of the Characteristics of the Anticipation Guide Worksheet relative to its accuracy for Grade 7 mathematics.

As presented in Table 8, the computed weighted mean of 4.52 with a standard deviation of 0.52 indicates a very high level of acceptability among respondents regarding the accuracy of the Anticipation Guide Worksheet. This indicates that respondents strongly agree that the worksheet effectively and accurately reflects the intended learning objectives, providing correct and relevant content that aligns with the educational goals. The relatively low standard deviation further suggests that there was a high level of agreement among students, signaling that the accuracy of the worksheet was consistently acknowledged across the group.

This emphasizes that students find the worksheet's content to be highly accurate and reliable, with no apparent errors in the instructions or problems. The worksheet is perceived as clear and relevant to the concepts being taught, ensuring that students can confidently use it to reinforce their learning. Students also recognize that the numerical data, graphs, and diagrams are accurate and clearly labeled, further enhancing their understanding of the material. This concludes that the accuracy of the worksheet significantly contributes to its effectiveness in supporting Grade 7 students' comprehension and learning experience.

TABLE 8. Level of Acceptability of the Characteristics of the Anticipation Guide Worksheet Relative to Accuracy

When using the worksheet, I ...	MEAN	SD	REMARKS
... identify that the examples and math problems are the same as what we learn in class.	4.59	0.53	Strongly Agree
... use the information in the worksheet to help me learn new concepts.	4.57	0.50	Strongly Agree
... compare the numbers, graphs, and pictures to check if they are clear and easy to understand.	4.50	0.54	Strongly Agree
... recognize that there are no mistakes in the instructions, content, or problems.	4.46	0.50	Strongly Agree
... judge that the information in the worksheet is correct and useful for my level.	4.46	0.50	Strongly Agree
Weighted Mean		4.52	
SD		0.52	
Verbal Interpretation		Very Acceptable	

The high level of acceptability of the Anticipation Guide Worksheet reflects what many educators and researchers have long emphasized. When learning materials are clear, purposeful, and well-structured, they not only capture students' attention but also contribute significantly to their academic success (Oribhabor, 2020). This idea is supported by Hartman and Nelson (2016), who emphasized how the accuracy and clarity of mathematics resources play a key role in helping students grasp complex concepts.

Table 9 presents the Level of Acceptability of the Characteristics of the Anticipation Guide Worksheet relative to its alignment with Grade 7 mathematics.

As presented in Table 9, the computed weighted mean of 4.47 with a standard deviation of 0.54 indicates a very high level of acceptability among respondents regarding the alignment of the Anticipation Guide Worksheet with Grade 7 mathematics learning objectives. This indicates strong agreement among students that the worksheet effectively supports the learning goals set for their grade level. The high

mean score suggests that students felt the worksheet was well-suited to their academic needs, providing clear guidance that directly aligned with the concepts they were expected to learn. Additionally, the relatively low standard deviation highlights a consistent perception across respondents, reinforcing the idea that the alignment of the worksheet with the learning objectives was widely recognized and appreciated.

TABLE 9. Level of Acceptability of the Characteristics of the Anticipation Guide Worksheet Relative to Alignment

When using the worksheet, I ...	MEAN	SD	REMARKS
... judge how the pre-reading statements and questions connect to our math lessons.	4.61	0.53	Strongly Agree
... compare the tasks and problems in the worksheet with the tests we take in Grade 7.	4.48	0.54	Strongly Agree
... explain how the topics and skills in the worksheet match what we discuss in class.	4.48	0.50	Strongly Agree
... identify that the worksheet content helps me understand the Grade 7 math objectives.	4.39	0.56	Strongly Agree
... use the worksheet steps to solve math problems, as in our class discussions.	4.38	0.56	Strongly Agree
Weighted Mean		4.47	
SD		0.54	
Verbal Interpretation			Very Acceptable

This emphasizes that students are able to recognize clear connections between the worksheet content and their math lessons, including topics, skills, and assessment formats. They also perceive that the structure of the worksheet effectively supports their understanding of curriculum standards and classroom discussions. This concludes that the worksheet plays a significant role in reinforcing academic goals and ensuring consistency between instruction, learning activities, and evaluation methods.

The findings align with the study made by Scager et al. (2016). The study found that aligned tasks, as perceived by students, increase their motivation and achievement in a subject area. Additionally, Sari et al. (2020) found out that by aligning anticipation guide strategies with students' needs, engagement with the content is enhanced. This indicates that the Anticipation Guide Worksheet's relevance to current math topics engages Grade 7 students, thereby enhancing their learning experience.

Table 10 presents the Level of Acceptability of the Characteristics of the Anticipation Guide Worksheet relative to its relevance for Grade 7 mathematics.

As presented in Table 10, the computed weighted mean of 4.55 with a standard deviation of 0.55 indicates a very high level of acceptability among respondents regarding the relevance of the Anticipation Guide Worksheet. This indicates strong agreement among students that the worksheet is highly relevant to their learning needs and aligns well with the content being studied. The high mean score reflects that students find the worksheet both applicable and meaningful in helping them connect new information with their existing knowledge.

This emphasizes that students are able to connect mathematical concepts to real-world situations, such as budgeting, interpreting data, and making informed decisions in daily life. They recognize the value of applying math in

practical contexts, which enhances their appreciation and understanding of the subject. This concludes that the worksheet effectively supports meaningful learning by making math more relatable and engaging for Grade 7 students.

TABLE 10. Level of Acceptability of the Characteristics of the Anticipation Guide Worksheet Relative to Relevance

When using the worksheet, I ...	MEAN	SD	REMARKS
... use what I learn from the worksheet to solve real-world problems, like budgeting or reading graphs.	4.61	0.49	Strongly Agree
... compare different math concepts to see how they help in daily decision-making.	4.57	0.53	Strongly Agree
... justify why learning math through real-life examples makes the subject more meaningful and valuable.	4.55	0.60	Strongly Agree
... explain how the examples and problems in the worksheet connect to everyday situations.	4.55	0.57	Strongly Agree
... identify how math is used in real-life situations, such as handling money, measuring, and problem-solving.	4.48	0.57	Strongly Agree
Weighted Mean		4.55	
SD		0.55	
Verbal Interpretation			Very Acceptable

Sari et al. (2020) found out that by aligning anticipation guide strategies with students' needs, engagement with the content is enhanced. This indicates that the Anticipation Guide Worksheet's relevance to current math topics engages Grade 7 students, thereby enhancing their learning experience.

Table 11 presents the Level of Acceptability of the Characteristics of the Anticipation Guide Worksheet relative to its clarity for Grade 7 mathematics.

TABLE 11. Level of Acceptability of the Characteristics of the Anticipation Guide Worksheet Relative to Clarity

When using the worksheet, I ...	MEAN	SD	REMARKS
... explain the lessons better because the worksheets provide clear and simple explanations.	4.52	0.54	Strongly Agree
... use the examples in the worksheets to help me solve the exercises correctly.	4.46	0.63	Strongly Agree
... identify the instructions in the worksheet because they are clearly written and easy to follow.	4.46	0.57	Strongly Agree
... compare different exercises in the worksheets to see patterns and understand the concepts better.	4.46	0.57	Strongly Agree
... judge that the worksheets are well-organized and use simple language, which makes learning easier.	4.41	0.56	Strongly Agree
Weighted Mean		4.46	
SD		0.58	
Verbal Interpretation			Very Acceptable

As presented in Table 11, the computed weighted mean of 4.46 with a standard deviation of 0.58 indicates a very high level of acceptability among respondents regarding the clarity of the Anticipation Guide worksheet. This suggests strong agreement among the respondents that the worksheet was clear and easy to understand. The relatively low standard deviation reflects a high level of consistency in the responses, showing that most students found the instructions and content of the worksheet to be straightforward and accessible. The high mean score reinforces the idea that clarity is crucial for

ensuring students can effectively engage with the material, facilitating better comprehension and learning outcomes.

This emphasizes that students find the worksheet’s language clear, concise, and easy to follow, which contributes to better comprehension and learning. The use of well-organized instructions, simple language, and consistent mathematical vocabulary reinforces the effectiveness of the worksheet in supporting students’ understanding of mathematical concepts. This concludes that the worksheet’s clarity plays a key role in fostering a positive learning experience and enhancing students’ ability to engage with the content.

Fredricks et al. (2021) found that when learners perceive content as relevant, their motivation and engagement levels increase significantly. These findings support the high acceptability ratings, suggesting that when students connect the content to their own experiences and interests, they are more likely to engage meaningfully with the material.

*Student’s Engagement*

The level of student’s engagement of Grade 7 learners in terms of attention, curiosity and optimism was treated statistically using mean and standard deviation. The mean helped determine the average response, giving an overview of the students’ general level of engagement, while the standard deviation highlighted the variability in their responses, showing how consistent or varied their engagement was across the group.

Table 12 presents the students’ level of engagement in terms of attention while using the Anticipation Guide Worksheet.

TABLE 12. Level of Student’s Engagement in Terms of Attention

While using the anticipation guide, I ...	MEAN	SD	REMARKS
... use my knowledge to answer each question carefully.	4.55	0.60	Strongly Agree
... identify key ideas in each question before answering.	4.45	0.57	Strongly Agree
... explain the instructions in my own words to make sure I understand them.	4.43	0.68	Strongly Agree
... reflect on my answers to see if they fully explain my thoughts.	4.36	0.75	Strongly Agree
... compare my responses with my previous knowledge to check my understanding.	4.21	0.76	Strongly Agree
Weighted Mean		4.40	
SD		0.68	
Verbal Interpretation			Highly Engaged

As presented in Table 12, the computed weighted mean of 4.40 with a standard deviation of 0.68 indicates a high level of student engagement in terms of attention while using the Anticipation Guide. This suggests a strong agreement among respondents that the worksheet effectively captures and maintains their attention during the learning process. The relatively high mean score reflects that students were actively focused on the content, demonstrating a clear connection between the design of the Anticipation Guide and its ability to engage learners. The standard deviation of 0.68 indicates that this positive perception was consistent across a wide range of students, further confirming that the tool is successful in fostering attentiveness and active participation.

This emphasizes that students were highly attentive and mentally engaged during the activity, actively reflecting on their responses and using their prior knowledge to enhance understanding. The consistent ratings across the indicators reflect a strong level of focus, with students demonstrating thoughtful participation and a high level of critical thinking throughout the process. This concludes that the anticipation guide successfully facilitated students’ cognitive engagement, contributing to deeper learning and reflection.

These findings align with research emphasizing the role of sustained attention in academic success. Fung and Chen (2018) found that students with higher levels of cognitive engagement or attention demonstrated high academic performance. This supports the idea that tools like the Anticipation Guide, which promote reflective and attentive thinking, can positively influence academic outcomes. By fostering focused engagement with the content, such tools help students process information more deeply and retain concepts more effectively.

Similarly, Sen (2022) identified a significant correlation between students’ sustained attention in mathematics and their overall learning approaches, affirming that the attentiveness of students directly influences how they effectively process mathematical concepts.

In this context, the Anticipation Guide serves as a valuable tool in fostering the kind of focused engagement that supports long-term academic growth, particularly in subjects like mathematics where precision and concentration are key.

Table 13 shows how the Anticipation Guide Worksheet sparked students’ curiosity.

TABLE 13. Level of Student’s Engagement in Terms of Curiosity

While using the anticipation guide, I ...	MEAN	SD	REMARKS
... explain how the anticipation guide helps me think about the topic.	4.50	0.66	Strongly Agree
... decide how real-world examples relate to the topic.	4.48	0.63	Strongly Agree
... identify key ideas in the anticipation guide.	4.45	0.63	Strongly Agree
... compare my prior knowledge with new information.	4.38	0.70	Strongly Agree
... ask questions to learn more about the topic.	4.18	0.77	Agree
Weighted Mean		4.40	
SD		0.69	
Verbal Interpretation			Highly Engaged

As presented in Table 13, the computed weighted mean of 4.40 with a standard deviation of 0.69 indicates a high level of student engagement in terms of curiosity while using the Anticipation Guide. This indicates a strong agreement among respondents that the worksheet effectively sparked their interest and motivated them to explore the material more deeply. The relatively high mean score suggests that students were intrigued by the content and felt encouraged to actively participate in the learning process.

This suggests that students are highly engaged in exploring the topic, connecting prior knowledge with new information, and actively questioning to deepen their understanding. This concludes that the anticipation guide is an effective tool in

promoting curiosity and engagement, contributing to a deeper learning experience.

These findings align with research emphasizing the positive impact of curiosity on academic engagement and performance. Medlin and Faulk (2023) suggested that curiosity plays a key role in nurturing students' optimism toward learning. When students are naturally inquisitive or encouraged to ask questions, they become more actively involved in the learning process. As a result, curious learners often exhibit greater self-assurance and are more willing to take on academic challenges. This positive outlook can lead to improved performance, motivation, and a lifelong love for learning.

Table 14 reflects the students' level of engagement in terms of optimism while using the Anticipation Guide Worksheet.

TABLE 14. Level of Student's Engagement in Terms of Optimism

While using the anticipation guide, I ...	MEAN	SD	REMARKS
... describe what I learned from the anticipation guide to explain the topic better.	4.59	0.56	Strongly Agree
... ask questions about the topic while working on the guide.	4.54	0.60	Strongly Agree
... identify key ideas in the anticipation guide to understand the topic.	4.50	0.63	Strongly Agree
... compare my prior knowledge with new information to see how my understanding changes.	4.43	0.68	Strongly Agree
... explore real-world examples to connect the topic to everyday life.	4.39	0.68	Strongly Agree
Weighted Mean		4.49	
SD		0.63	
Verbal Interpretation			Highly Engaged

As presented in table 14, the computed weighted mean of 4.49 with a standard deviation of 0.63 indicates a high level of optimism among respondents regarding their engagement while using the Anticipation Guide.

This emphasizes that students felt positive and confident in their ability to learn and understand the material. They were actively involved in reflecting on their prior knowledge, asking questions, and making real-world connections to the content. This further highlights that the anticipation guide contributed to fostering an optimistic and encouraging learning environment, reinforcing students' motivation and engagement.

The consistent high levels of optimism support findings from the study of Sen (2022), who emphasized that students who are optimists are more likely to engage with their studies and adopt effective learning strategies. Similarly, Dien (2022) stated the positive correlation between academic optimism, motivation, and academic performance, suggesting that students' optimism can be powerful predictors of their academic success.

Overall, the data from Table 14 indicate that the Anticipation Guide Worksheet positively impacted students' optimism in learning. It helped them feel confident, curious, and capable of understanding complex concepts by allowing them to make connections, ask questions, and see the real-world relevance of what they were learning.

*Critical Thinking Skills*

The level of critical thinking skills of Grade 7 learners in terms of reasoning, problem-solving, analysis, evaluation, and synthesis was treated statistically using mean and standard deviation.

Table 15 shows how students demonstrated critical thinking skills in terms of reasoning while using the Anticipation Guide Worksheet.

As presented in Table 15, the results, with a weighted mean of 4.04 and a standard deviation of 0.82, the results indicate that students were skilled at applying reasoning throughout the task. This suggests that the worksheet helped students engage in thoughtful reasoning, guiding them to make meaningful connections and deeper understandings.

TABLE 15. Level of Critical Thinking Skills in Terms of Reasoning

When accomplishing the task in the anticipation guide, I ...	MEAN	SD	REMARKS
... justify my answers by giving examples from the guide.	4.13	0.76	Agree
... compare the statements in the guide with what we learn in class.	4.04	0.83	Agree
... identify key ideas in the anticipation guide before choosing my answers.	4.02	0.84	Agree
... explain why I agree or disagree with the statements using reasons.	4.02	0.84	Agree
... connect the information in the guide to what I already know.	4.00	0.85	Agree
Weighted Mean		4.04	
SD		0.82	
Verbal Interpretation			Skilled

The findings align with Lai (2015), who stated that critical thinking encompasses a range of cognitive processes such as analysis, evaluation, and reasoning. Such skills are essential for deep understanding and effective problem-solving across various contexts. Structured educational interventions, including tools like the Anticipation Guide, have been shown to significantly enhance these cognitive abilities in students, fostering their ability to approach problems with clarity and insight. By creating opportunities for active engagement and reflection, these interventions support the development of higher-order thinking skills, which are critical for both academic success and real-world decision-making.

By incorporating tasks that promote reflection and problem-solving, such interventions help students develop a deeper understanding and improve their ability to evaluate and analyze information effectively.

Table 16 presents the Level of Critical Thinking Skills in Terms of Problem-solving while using the Anticipation Guide Worksheet.

As presented in Table 16, the computed weighted mean of 4.05 with a standard deviation of 0.81 indicates a high level of critical thinking skills among students in terms of problem-solving when using the Anticipation Guide. This suggests that students effectively analyze, break down, and resolve problems as they work through the tasks in the guide. They demonstrate strong abilities in identifying key information, justifying their answers, and applying concepts to solve problems.

The results emphasize that students are skilled in dissecting complex issues into manageable steps and

internalizing the problems to ensure understanding before finding solutions. This concludes that the guide successfully supports the development of critical thinking skills, promoting deeper engagement with problem-solving tasks.

TABLE 16. Level of Critical Thinking Skills in Terms of Problem-solving

When accomplishing the task in the anticipation guide, I ...	MEAN	SD	REMARKS
... identify key information in the guide that helps me understand the problems.	4.09	0.84	Agree
... justify my answers by explaining the steps I took to solve the problems.	4.05	0.82	Agree
... use concepts from the guide to help me solve the problems.	4.05	0.80	Agree
... break down the problems into smaller steps to find solutions.	4.04	0.81	Agree
... explain the problems in my own words to make sure I understand them.	4.00	0.81	Agree
Weighted Mean		4.05	
SD		0.81	
Verbal Interpretation		Skilled	

Additionally, Kaplan (2023) explained that problem-solving calls for critical thinking, creativity, and sound decision-making. This skill does not only help students be academically ready, it also makes them reality-ready solving real problems in real-life set up. It encourages deeper engagement with what they are learning and allows them to explore different ways in solving problems of different sorts.

Analytical skills help break a problem into smaller parts so it's easier to understand and address. This process allows individuals to identify patterns, relationships, and underlying factors that may not be immediately apparent, which is essential for solving complex issues. Creative thinking, on the other hand, enables people to approach problems from new perspectives, challenging existing assumptions and traditional methods of problem-solving. By fostering both analytical and creative thinking, individuals can generate innovative solutions and adapt to new challenges more effectively (Herrity, 2025).

Table 17 presents how students demonstrated critical thinking skills in terms of analysis while completing the Anticipation Guide Worksheet.

TABLE 17. Level of Critical Thinking Skills in Terms of Analysis

When completing the anticipation guide, I ...	MEAN	SD	REMARKS
... explain each statement in my own words to check my understanding.	4.05	0.83	Agree
... identify keywords in each statement to understand their meaning.	4.05	0.82	Agree
... compare my answers with the information in the guide to see if they match.	4.05	0.82	Agree
... reflect on how my understanding of the topic has changed while working through the guide.	4.04	0.83	Agree
... find examples or details in the guide to support my answers.	4.04	0.79	Agree
Weighted Mean		4.05	
SD		0.81	
Verbal Interpretation		Skilled	

As presented in Table 17, the computed weighted mean of 4.05 with a standard deviation of 0.81 indicates a high level of critical thinking skills among students, particularly in terms of

analysis, while using the Anticipation Guide. This indicates that, relatively, students demonstrated strong analytical abilities when engaging with the Anticipation Guide, suggesting that the tool effectively promoted reflective thinking and encouraged deeper engagement with the material. The relatively high mean score reflects a solid agreement among respondents that the Anticipation Guide facilitated their ability to analyze and evaluate the content more critically.

This emphasizes that students actively engage in the learning process by explaining statements in their own words, identifying key words, and comparing their answers with the guide's information. Additionally, they reflect on how their understanding evolves and seek examples or details to support their answers, further demonstrating active participation and engagement with the material. This concludes that students effectively analyze and reflect on the content, reinforcing their comprehension and critical thinking abilities.

This aligns with Foster and Ambrose (2023) which revealed that analysis involves breaking down complex information into smaller components to better understand relationships, patterns, and underlying structures. It plays an essential role in education by deepening understanding, supporting critical evaluation of information, and enabling students to make informed decisions. Analysis helps clarify expectations and improves both teaching and learning outcomes. By encouraging students to break down and evaluate the material, they develop the ability to see beyond surface-level information, which strengthens their overall academic performance. Moreover, these analytical skills are not only beneficial in the classroom but also in real-world problem-solving and decision-making.

Overall, Table 17 shows how the Anticipation Guide Worksheet helped students strengthen their analytical skills. By explaining, reflecting, comparing, and supporting their ideas with evidence, students actively engaged with the material, deepening their understanding and developing strong critical thinking abilities.

Table 18 examines the Level of Critical Thinking Skills in Terms of Evaluation while students were completing the Anticipation Guide Worksheet.

TABLE 18. Level of Critical Thinking Skills in Terms of Evaluation

When accomplishing the task in the anticipation guide, I ...	MEAN	SD	REMARKS
... explain how the examples or details in the guide help me understand the topic better.	4.02	0.84	Agree
... identify if my first answers are correct based on the information in the guide.	4.02	0.82	Agree
... compare my answers with the correct methods or data in the guide to check if they are correct.	4.00	0.85	Agree
... judge how my understanding of integers, decimals, and data improves as I work through the guide.	3.96	0.83	Agree
... explore the different ways in the guide to solve problems with integers and decimals.	3.95	0.84	Agree
Weighted Mean		3.99	
SD		0.83	
Verbal Interpretation		Skilled	

As presented in Table 18, the weighted mean of 3.99 and a standard deviation of 0.83 indicate that students were relatively skilled at evaluating the information, checking their understanding, and comparing their responses with the guide to assess their knowledge. This suggest that the Anticipation Guide Worksheet effectively supported students in evaluating their learning, checking for accuracy, and reflecting on their understanding, which are important skills for both academic success and real-life problem-solving.

This is supported by Villegas (2023) revealing that evaluation is important to determine the value, significance, or quality of learning based on criteria and standards. In education, evaluation is crucial for assessing student learning, which offers constructive feedback, and ensuring educational objectives are met. It informs both teaching practices and student development.

Moreover, evaluation fosters self-awareness among learners, allowing them to reflect on their strengths and areas for improvement. It encourages students to take ownership of their learning and become more mindful of their academic journey. Ultimately, evaluation not only supports the achievement of educational objectives but also contributes to the development of more thoughtful, independent, and goal-oriented learners.

Table 19 presents the level of students' critical thinking skills in terms of Synthesis while using the Anticipation Guide.

TABLE 19. Level of Critical Thinking Skills in Terms of Synthesis

When accomplishing the task in the anticipation guide, I ...	MEAN	SD	REMARKS
... connect what I learned to real-life situations and everyday examples.	4.00	0.83	Agree
... describe the main ideas from the guide in my own words.	4.00	0.77	Agree
... use what I learned to solve similar problems in class or on tests.	3.98	0.84	Agree
... identify important ideas from the anticipation guide.	3.98	0.82	Agree
... compare the new information with what I already know about numbers and data.	3.95	0.84	Agree
Weighted Mean		3.98	
SD		0.82	
Verbal Interpretation		Skilled	

As presented in Table 19, the data shows that students demonstrated a "Skilled" level of synthesis, with a weighted mean of 3.98 and a standard deviation of 0.82. This indicates that students generally agreed they were able to synthesize information effectively, showing a relatively high level of competency in integrating and applying the knowledge they learned. The weighted mean of 3.98 suggests that most students felt confident in their ability to connect various concepts, describe main ideas in their own words, and relate what they learned to real-life situations.

This emphasize that students are not only acquiring new information but also actively engaging in higher-order thinking processes, such as comparing new information with prior knowledge and applying their learning to solve similar problems. These findings suggest that students are developing critical thinking skills that contribute to a deeper

understanding of the content, reinforcing their ability to integrate and apply knowledge in meaningful ways.

This outcome is consistent with the findings of a study of Valle et al (2020) on anticipation guides and their impact on visual attention distribution and learning outcomes, which highlighted that although anticipation guides can influence cognitive processes, their effectiveness largely depends on how they are integrated into the overall learning experience.

Numeracy Skills

The level of numeracy skills in terms of written test was treated statistically using the frequency and percentage.

Table 20 presents the distribution of students' numeracy skills based on their written test scores after using the Anticipation Guide Worksheet.

As presented in Table 20, the weighted mean score of 36.95 and a standard deviation of 3.97 reflect a generally consistent performance among students, with most scoring in the middle range. This emphasizes that while most students are making progress, further development of their numeracy skills is needed for mastery. Additionally, the absence of students in the "Low Average," "Very Low," or "Absolutely No Mastery" categories suggests that all students are demonstrating at least some level of understanding and are actively developing their numeracy skills. This overall trend underscores that the numeracy exercises are contributing to student progress, reinforcing the importance of continued practice and targeted support

TABLE 20. Level of Numeracy Skills in Terms of Written Test

Scores	Frequency	Percentage	Remarks
48-50	0	0.00	Mastered
43-47	5	8.93	Closely Approaching Mastery
33-42	44	78.57	Moving Towards Mastery
18-32	7	12.50	Average
8-17	0	0.00	Low Average
3-7	0	0.00	Very Low
0-2	0	0.00	Absolutely No Mastery
Total	N=56	100	

Weighted Mean = 36.95  
SD=3.97

This improvement in post-test scores aligns with the findings from previous studies, such as Tsai and Hsieh (2015) and Davidson and Karp (2016), which emphasized that interactive learning environments and collaborative learning materials can effectively enhance critical thinking skills. The structured nature of the Anticipation Guide Worksheet likely contributed to this improvement by guiding students through critical thinking processes, allowing them to explore and engage with math concepts.

Furthermore, incorporating real-world examples and problem-solving activities significantly contributed to making abstract concepts more relatable and understandable for students. By connecting theoretical content to everyday situations, learners were able to see the relevance and usefulness to enhanced both comprehension and long-term retention. This practical approach encourages active engagement, prompting students to think critically and explore various strategies for solving real-life problems. In turn, it supports the development of higher-order thinking skills and

strengthens their ability to transfer knowledge across different subjects and situations.

#### IV. CONCLUSION AND RECOMMENDATIONS

Based on the findings above, the following conclusions were hereby drawn:

The use of the anticipation guide worksheet showed no significant relationship with students' engagement, leading to the acceptance of the null hypothesis. This finding emphasizes the components and characteristics of the worksheet may not have a direct influence on students' active participation, motivation, and overall involvement in the learning process.

The use of the anticipation guide worksheet showed no significant relationship with students' critical thinking skills, accepting the null hypothesis. This finding suggests that the components and characteristics of the worksheet may not have a direct influence on students' ability to engage in critical thinking processes such as reasoning, analysis, or problem-solving.

The components and characteristics of the anticipation guide worksheet showed no significant effect on students' numeracy skills, leading to the acceptance of the null hypothesis. This suggests that the specific elements of the worksheet may not directly contribute to improvements in students' mathematical abilities, such as problem-solving or numerical reasoning.

In the formulated conclusions from the findings, it was recommended that:

Administrators encourage evidence-based teaching strategies that improve engagement and critical thinking. Promote action research to explore more effective learning strategies. Use assessment data to guide policy decisions on curriculum and teaching methodologies.

Schools train teachers on alternative strategies to enhance student engagement and critical thinking. Offer remedial or enrichment programs based on assessment outcomes.

Since the Anticipation Guide Worksheet has no significant effect on engagement, teachers are encouraged to integrate interactive activities such as group activities, role-playing, or hands-on experiments other than written tests. Use multiple assessment methods beyond written tests to gauge critical thinking. Teachers regularly assess students' critical thinking skills through questioning strategies and collaborative tasks, identify trends in pre-test and post-test differences and adjust instruction accordingly, and may utilize technology by Integrating digital tools like simulations, online discussions, and interactive assessments.

Parents have a critical role to play in fostering critical thinking abilities at home. A successful approach involves often posing open-ended questions that encourage youngsters to think critically, articulate their thoughts, and consider different viewpoints. Helping children set realistic and achievable learning goals encourages self-directed learning and responsibility. Rather than simply providing answers to homework or problems, parents should guide their children through the thought process by offering hints, asking guiding questions, and encouraging independent problem-solving, which ultimately strengthens critical thinking and confidence.

For future research, investigate other instructional strategies that may have a stronger influence on student engagement than the Anticipation Guide Worksheet. Conduct a long-term study to determine whether the improvement in critical thinking skills persists over time. Compare the effectiveness of traditional, inquiry-based, and technology-enhanced teaching methods in fostering student engagement and critical thinking. Investigate how seating arrangement, teacher-student interaction, and peer collaboration affect student engagement and learning outcomes. Assess the effectiveness of interactive digital anticipation guides compared to traditional paper-based ones. Analyze how students from different backgrounds respond to instructional strategies and assessments. Explore whether incorporating game-based learning enhances student participation and critical thinking.

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