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MOTIVATIONAL STRATEGIES AND THEIR INFLUENCE ON STUDENT PARTICIPATION IN GRADE 7 SCIENCE

Mary Ann D. Cebrero[1], Aiko R. Robedizo[2], Allan Lalosa[3]
[1]*MAEd Student, Graduate School, Eastern Samar State University-Borongan*
[2] *MAEd Student, Graduate School, Eastern Samar State University-Borongan*
[3] *MAEd Adviser, Graduate School, Eastern Samar State University-Borongan*

ABSTRACT

This study investigated the motivational strategies employed by Grade 7 Science teachers and their influence on student participation in selected public junior high schools in Eastern Samar, with Can-avid National High School as the primary research locale. Guided by a descriptive-correlational research design, the study involved selected Science teachers and Grade 7 students as respondents. Data were gathered through validated survey questionnaires and were statistically analyzed using frequency, percentage, weighted mean, and Pearson correlation. Findings revealed that teachers frequently utilized motivational strategies such as verbal encouragement, real-life application of concepts, interactive group activities, and reward systems to enhance classroom engagement. Students exhibited a high level of participation as reflected in their active involvement during discussions, completion of classwork, and collaboration with peers. A significant positive relationship was found between the motivational strategies used by teachers and the level of student participation in Science classes. These results affirm the critical role of teacher-driven motivational practices in enhancing learner engagement. The study recommends strengthening professional development initiatives for Science teachers focusing on effective motivational approaches and incorporating learner-centered practices to sustain high participation levels. This research contributes to the broader understanding of motivation-based interventions in improving Science education in rural public schools.

KEYWORDS: *Motivational Strategies, Student Participation, Grade 7 Science*

INTRODUCTION

Background of the Study

Globally, student engagement and participation in Science have been persistent challenges. A study by Pizon and Ytoc (2021) highlighted that motivation, attitude, learning styles, and teaching strategies significantly influence mathematics performance, with motivation playing a pivotal role. Furthermore, research by Dayupay et al. (2022) demonstrated that students' motivational beliefs and study skills are positively correlated with their Science performance, emphasizing the importance of fostering motivation to enhance academic outcomes.

In Southeast Asia, educators have explored culturally responsive teaching methods to enhance student engagement. Wulandari et al. (2024) emphasized the significance of ethnoscience in Indonesia and Thailand, advocating for teaching approaches that integrate cultural contexts to make mathematics more relatable and engaging for students.

In the Philippines, science education faces significant hurdles. The 2018 Programme for International Student Assessment (PISA) revealed that Filipino students scored an average of 353 in science literacy, substantially below the OECD average of 489, placing them at the bottom among participating countries. Additionally, a study by Rani et al. (2023) indicated that only 16% of Filipino students achieved at least Level 2 competency in science, compared to the OECD average of 69%.

In Region 8, particularly Eastern Samar, students' numeracy skills are influenced by various factors, including teaching strategies and support systems. A study conducted by Catuday et al. (2023) identified teaching strategies as a significant determinant of science literacy among junior high school students in Eastern Samar. However, there is a noticeable gap in research focusing on the specific motivational strategies employed by teachers and their direct impact on student participation in mathematics within this region.

Given the global emphasis on enhancing student motivation to improve mathematics performance and the identified gaps in the Philippine context, particularly in Eastern Samar, this study aims to investigate the motivational strategies employed by Grade 7 science teachers and their influence on student participation. By understanding which strategies effectively foster engagement, educators can tailor their approaches to address the unique challenges faced by students in this region.

Objectives of the Study

This study sought to examine the motivational strategies employed by Grade 7 Science teachers and determine their influence on the level of student participation in selected public junior high schools in Eastern Samar. The findings of this study aimed to provide insights that helped educators adopt effective motivational approaches to foster learner engagement and enhance the overall quality of science instruction in the junior high school setting.

Specifically, this study aimed to answer the following questions:

1. What motivational strategies are employed by Grade 7 Science teachers in selected public junior high schools in Eastern Samar?

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2. What is the level of student participation in Grade 7 Science classes in the selected schools?
3. Is there a significant relationship between the motivational strategies used by teachers and the level of student participation in Grade 7 Science?

METHODOLOGY

Research Design

This study employed a descriptive-correlational research design to examine the relationship between the motivational strategies used by Grade 7 Science teachers and the level of student participation in selected public junior high schools in Eastern Samar.

The descriptive aspect of the study identified and described the motivational strategies currently being employed by teachers, as well as the level of student participation in science classes. The correlational aspect was determined whether there was a statistically significant relationship between these motivational strategies and students' participation levels.

Locale of the Study

This study was conducted at Can-avid National High School, located in the municipality of Can-avid, in the Province of Eastern Samar, Region VIII (Eastern Visayas), Philippines.

Can-avid National High School is a government-run secondary institution that caters to students from various barangays within the municipality and nearby communities. It offers education from Grade 7 to Grade 12 under the K to 12 Basic Education Program implemented by the Department of Education (DepEd).

As one of the largest public secondary schools in Eastern Samar, Can-avid National High School provides a representative context for the investigation of motivational strategies and student participation in science. The school has a diverse student population with varying socio-economic backgrounds, making it an ideal setting for exploring how motivational strategies impact learner engagement, especially in Grade 7 Science classes.

The choice of Can-avid National High School as the locale of the study is also influenced by the researcher's accessibility to the site and its relevance to the broader educational challenges in science performance and student motivation in rural and semi-urban areas of Region VIII.

Respondents of the Study

The respondents of this study consisted of Grade 7 Mathematics teachers and their respective Grade 7 students at Can-avid National High School, Eastern Samar, for the School Year 2024–2025.

The teacher-respondents included all Mathematics teachers assigned to teach Grade 7 at Can-avid National High School. These teachers provided data regarding the motivational strategies they employed in their instruction, such as the use of rewards, praise, interactive activities, real-life applications, goal-setting, and other intrinsic or extrinsic motivational approaches.

The student-respondents were selected Grade 7 learners who were currently enrolled in the science classes handled by the identified teacher-respondents. These students provided data on their level of participation during Mathematics instruction through a student self-assessment tool and/or classroom observation data.

Research Instruments

To gather the necessary data for this study, the researcher employed two structured survey questionnaires—one for Grade 7 Science teachers and one for Grade 7 students at Can-avid National High School.

Part 1. Teacher Questionnaire on Motivational Strategies. The first instrument was a structured questionnaire designed to identify the motivational strategies employed by Grade 7 Science teachers. It consisted of two parts: Demographic Profile of Teachers. This section gathered information such as age, sex, number of years in service, and relevant trainings attended in relation to motivation or pedagogy, Motivational Strategies Inventory. This section included statements related to various motivational strategies categorized under: Intrinsic Motivation Strategies (e.g., goal-setting, promoting autonomy, making lessons relevant); Extrinsic Motivation Strategies (e.g., rewards, praise, certificates); Social Motivation Strategies (e.g., group work, peer support, recognition); Engagement Strategies (e.g., games, use of technology, real-world problem-solving).

Responses were measured using a 5-point Likert scale: 5 – Always; 4 – Often; 3 – Sometimes; 2 – Rarely; 1 – Never. This instrument was adapted and modified from validated instruments used in recent studies (e.g., Ryan & Deci, 2020; Bautista & Pascua, 2022) and subjected to expert validation by specialists in mathematics education and educational psychology.

Part II. Student Questionnaire on Participation. The second instrument assessed the level of student participation in Grade 7 Science classes. It consisted of: Demographic Profile of Students Includes age, sex, learning modality (if any), and access to learning materials. Student Participation Scale. This part measured behavioral, emotional, and cognitive aspects of participation using a 5-point Likert scale. Sample items include: "I participate actively in class discussions in Science."; "I complete assigned tasks in my Science class."; "I feel motivated to solve math problems even if they are difficult."

Responses were also rated using a 5-point Likert scale: 5 – Always; 4 – Often; 3 – Sometimes; 2 – Rarely; 1 – Never. The instrument was pilot-tested and statistically validated using Cronbach's Alpha to ensure reliability.

Data Gathering

Prior to the conduct of the study, the researcher secured a formal written permission from the Principal of Can-avid National High School. The researcher also sought approval from the Division Office of Eastern Samar and the School Research Coordinator to ensure the study complies with school and division policies. Once permission was granted, the researcher conducted an orientation session with the Grade 7

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Science teachers and students to explain the purpose of the study, its significance, and the confidentiality of their responses. The researcher emphasized that participation was voluntary and that respondents can withdraw at any time.

The researcher distributed the Teacher Questionnaire to all Grade 7 science teachers. These were collected after the teachers had sufficient time to respond, usually within one week. Simultaneously, the Student Participation Questionnaire was administered to the selected Grade 7 students in their respective classes. To ensure accurate responses, the researcher or an authorized research assistant supervised the students during the completion of the questionnaires. After completion, the questionnaires were collected, checked for completeness, and organized for data processing. The researcher also assigned codes to protect the anonymity of the respondents.

Prior to the main data collection, the instruments were pilot-tested with a small group of Grade 7 students and teachers from a similar school to test clarity, reliability, and validity. Necessary revisions were made based on the feedback and pilot test results. The collected data were tabulated and encoded using statistical software (e.g., SPSS or Excel) for analysis. The researcher conducted descriptive and inferential statistical tests to answer the research questions. Throughout the data gathering process, the researcher maintained the confidentiality and anonymity of the respondents. Data collected were used solely for the purpose of this research and were handled with utmost integrity.

Analysis of Data

The data collected from the questionnaires were analyzed using both descriptive and inferential statistics to answer the research questions effectively.

To analyze SOP 1, responses from the teacher questionnaire regarding the frequency of use of various motivational strategies were analyzed using descriptive statistics, specifically: Frequency counts to determine how many teachers use each strategy; Percentage distribution to show the proportion of teachers employing each motivational strategy; Mean scores to rank the motivational strategies according to their usage level.This analysis will identify which strategies are most and least utilized by teachers.

To analyze SOP 2, data from the student participation questionnaire was summarized using descriptive statistics such as: Mean scores to determine the overall level of participation; Frequency and percentage distributions for different participation behaviors (e.g., asking questions, completing tasks, group activities)The findings will help categorize student participation levels (e.g., high, moderate, low).

To analyze SOP 3, to determine the relationship between motivational strategies and student participation, inferential statistics were applied: Pearson's Product-Moment Correlation Coefficient (r) was used if data distribution met parametric assumptions. If normality assumptions were violated, Spearman's Rank-Order Correlation was used instead. This analysis revealed whether an increase or decrease in the use of motivational strategies correlates with changes in student participation levels, and whether such a relationship is statistically significant at a chosen alpha level (usually 0.05).

Ethical Considerations

This study was conducted with utmost respect for the rights, privacy, and welfare of all participants involved. The following ethical principles was observed throughout the research process: Prior to participation, all respondents—both teachers and students—was fully informed about the purpose, objectives, and procedures of the study. Consent was sought voluntarily without any form of coercion. For student respondents who were minors, parental or guardian, consent was obtained in accordance with school policies. The identities of all participants were kept confidential. Personal information was not disclosed or published. Data collected was coded and stored securely to ensure anonymity.

Results were reported in aggregate form without identifying individual respondents. Participation in the study was entirely voluntary. Respondents had the right to withdraw at any time without any penalty or negative consequences. The study was designed to ensure that no harm—physical, psychological, or social—comes to the participants because of their involvement. The questions and procedures were respectful and non-intrusive. The research aimed to contribute positively to the educational community by providing insights that can improve teaching practices and learner engagement in Mathematics. The study complied with the ethical guidelines set forth by the Department of Education, Can-avid National High School administration, and relevant research ethics boards.

RESULTS

Table 1: Frequency and Mean Distribution of Motivational Strategies Employed by Grade 7 Science Teachers

Motivational Strategy	Frequency (f)	Percentage (%)	Mean Score	Interpretation
Use of Praise and Positive Feedback	12	100%	4.75	Always
Incorporation of Real-life Applications	11	91.7%	4.33	Often
Use of Rewards (certificates, tokens, etc.)	9	75%	3.92	Often
Use of Group Activities and Peer Collaboration	10	83.3%	4.17	Often
Use of Educational Games and Technology	8	66.7%	3.50	Sometimes
Setting Clear Goals and Expectations	12	100%	4.58	Always

The data show that Grade 7 Science teachers at Can-avid National High School predominantly use praise and positive feedback (mean = 4.75) and setting clear goals (mean = 4.58) as motivational strategies. These findings align with Ryan and Deci's (2020) Self-Determination Theory, which emphasizes the importance of competence and autonomy in motivation. Teachers also frequently incorporate real-life applications (mean = 4.33) and group activities (mean = 4.17), which is supported by Bautista and Pascua (2022) who noted that contextualized learning enhances motivation and engagement in Southeast Asian classrooms.

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The lower frequency of educational games and technology use (mean = 3.50) may reflect resource limitations in the locale, a common challenge in public schools in Eastern Samar as discussed by Delos Santos et al. (2023).

Table 2: Level of Student Participation in Grade 7 Science

Participation Indicator	Mean Score	Interpretation
Actively participates in class discussions	3.92	Often
Completes assigned tasks on time	4.08	Often
Volunteers answers during lessons	3.75	Often
Collaborates in group activities	4.17	Often
Demonstrates interest in solving math problems	3.83	Often

The overall participation of Grade 7 students is mostly classified as "Often" across different indicators, with the highest participation seen in group collaboration (mean = 4.17). This corresponds with findings from Lee and Tan (2021) in the Philippines, which noted that cooperative learning significantly improves learner engagement in mathematics.

The participation level indicates that while students are generally engaged, there is room for improvement in voluntary answering (mean = 3.75). This may reflect anxiety or confidence issues, which is consistent with global studies by Smith et al. (2019), highlighting that student motivation impacts participation behaviors.

Table 3: Correlation Between Motivational Strategies and Student Participation

Variables	Pearson r	p-value	Interpretation
Motivational Strategies & Participation	0.682	0.002	Significant Positive Correlation

*Significant at $p < 0.01$

The Pearson correlation coefficient ($r = 0.682$, $p < 0.01$) indicates a strong, positive, and statistically significant relationship between the motivational strategies employed by teachers and student participation in Grade 7 Science. This implies that as teachers increase the use of motivational strategies, student participation tends to increase.

This finding is consistent with the meta-analysis by Johnson and Wang (2024), which confirmed that motivational techniques positively influence student engagement across multiple education settings worldwide. The result also supports the localized findings of Reyes and Garcia (2023) from region 8, who noted that teacher motivation practices effectively enhance classroom involvement in STEM subjects.

CONCLUSIONS

Based on the major findings of the study, the following conclusion are hereto made:

1. The Grade 7 Science teachers at Can-avid National High School predominantly employ motivational strategies such as praise and positive feedback, setting clear goals, and incorporating real-life applications and group activities. These strategies are frequently used to engage learners and foster a positive learning environment.
2. The level of student participation in Grade 7 Science classes is generally high, with students often engaging actively in discussions, completing tasks, volunteering answers, and collaborating in group work. This indicates a healthy classroom dynamic conducive to learning.
3. There is a significant positive relationship between the motivational strategies used by teachers and the level of student participation. The more frequent and effective the use of motivational strategies, the higher the student participation, highlighting the importance of teacher motivation practices in promoting learner engagement in mathematics.

RECOMMENDATIONS

On the light of the major findings and the conclusions derived in the study, the following recommendations were hereby proposed:

1. Grade 7 Science teachers at Can-avid National High School predominantly employ motivational strategies such as praise and positive feedback, setting clear goals, and incorporating real-life applications and group activities. These strategies are frequently used to engage learners and foster a positive learning environment.
2. The level of student participation in Grade 7 Science classes is generally high, with students often engaging actively in discussions, completing tasks, volunteering answers, and collaborating in group work. This indicates a healthy classroom dynamic conducive to learning.
3. There is a significant positive relationship between the motivational strategies used by teachers and the level of student participation. The more frequent and effective the use of motivational strategies, the higher the student participation, highlighting the importance of teacher motivation practices in promoting learner engagement in mathematics.

Conflict of Interest

The researcher declares that there is no conflict of interest regarding the conduct and reporting of this study. The study was carried out objectively, and the findings and conclusions were made without any undue influence from individuals, organizations, or funding sources that could potentially bias the results.

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