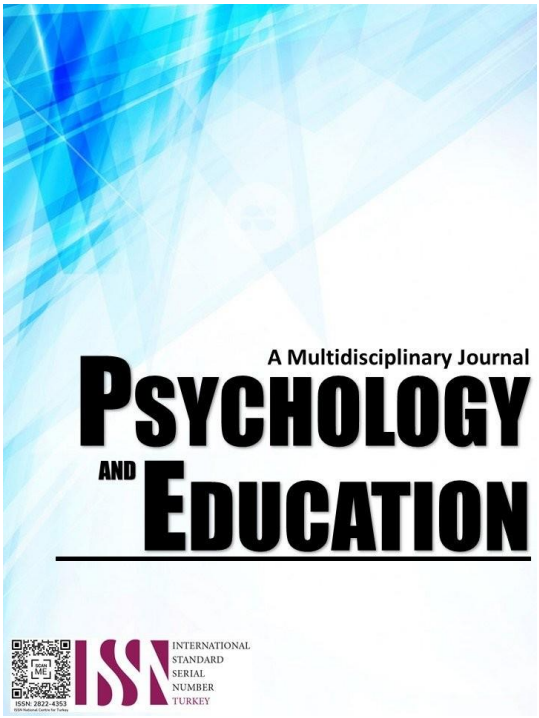
MOTIVATIONAL MANAGEMENT AND STRATEGIES OF SELECTED JUNIOR HIGH SCHOOL SCIENCE TEACHERS IN SULTAN KUDARAT



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Research Article

Motivational Management and Strategies of Selected Junior High School Science Teachers in Sultan Kudarat

Princess Joy M. Samoraga,* Christine P. Abo
For affiliations and correspondence, see the last page.

Abstract

A high-quality education requires motivated students. Students who are motivated are eager to study and participate in academic pursuits having enough potential to be successful. Teachers, classmates, the lecture material, the learning process, the surroundings, and many other factors can all inspire students. On the other hand, a lack of resources, lack of interest, unmet psychological needs, anxiety, or a negative opinion of the study might demotivate them. This study explores the motivational management practices and strategies employed by Junior High School Science teachers in the classroom. The research is anchored on Abraham Maslow's Hierarchy of Needs and Howard Gardner's Theory of Multiple Intelligences. The study adopts a quantitative and translational approach, analyzing the demographic profile of the respondents and their practices in terms of motivational management and strategies utilized in the classroom across different grade levels and branches of Science. Key findings reveal that the majority of respondents are female, aged between 31-40 years, and have 7-15 years of teaching experience. Teachers exhibit strong engagement in safety, ego-related, social, and self-actualization practices, with safety practices receiving the highest ratings. However, physiological practices were the least emphasized. Motivational strategies such as group/teamwork activities, individual quizzes, and laboratory experiments were most commonly employed, while naturalistic and musical strategies were least used. The research concludes that while Science teachers effectively implement motivational strategies in fostering a supportive and engaging classroom environment, there is an opportunity to diversify and improve the use of various strategies.

Keywords: *motivational management, motivational strategies, science education, hierarchy of needs, multiple intelligences, translational research*

Introduction

In the recent Programme for International Student Assessment (PISA) 2022, the Organization for Economic Co-operation and Development (OECD) has conducted a test for learners who are 15 year old, the Philippines' average performance in Science was 356 points ranking third to last globally in mean science performance among participating countries. The results showed that the Philippines scored less than the OECD average in Mathematics, Reading and Science (Chi, 2023).

According to Kurt (2020), one potential explanation for this issue is that students are distracted by a variety of factors, including their other classes, personal lives, friendships, hobbies, physical distractions like hunger or fatigue, and much more. Students' urgent needs take precedence over their own education and accomplishments when they are distracted by these or any other problems (Brobbey, 2020).

Filgona (2020) mentioned that the motivation of the students determines how well they study. Learners are motivated to achieve their learning objectives. It is crucial to acknowledge that a key component of effective teaching is inspiring students to learn. Science education is one of the important keys to succeed in todays' global expectations (Cadiz and Orleans, 2023). Therefore, science instructors should possess the essential abilities to effectively support the growth of citizens who are functionally literate and have a scientific mindset (Laguatan & Abad, 2019).

A high-quality education requires motivated students (Hawthorne, 2021). Students who are motivated are eager to study and participate in academic pursuits that have the potential to be successful. Teachers, classmates, the lecture material, the learning process, the surroundings, and many other factors can all inspire students. On the other hand, a lack of resources, lack of interest, unmet psychological needs, anxiety, or a negative opinion of the study might demotivate them. Numerous theories have been proposed to explain motivation, and because every individual is unique, one or more of these theories are blended to produce useful outcomes (Johnson, 2017).

According to Wilcox (2018), a great teacher understands that students need motivation to succeed in school and that they are in a unique position to help them become more motivated. Long-term work, not just fleeting enthusiasm, is the kind of motivation that outstanding teachers are interested in. According to Andrew D. Cohen and Zoltan Dornyei (2022), motivation is frequently regarded as the most important learner variable since little occurs in the absence of it. In conclusion, learning typically requires motivation. A key component of academic success is motivation, which encourages students to actively participate in deeper conversations. In order to improve their academic performance and general success, the kids must be sufficiently motivated to learn, adapt to the new system, and thrive independently (Capunitan, K. B. et al., 2023).

Although there are extensive researches on educational motivation, few have cared to dwell on the specific motivational management

and strategies practiced by Science teachers in the classroom. Moreover, there are researchers explaining more about what motivation is and how it can affect teaching and learning (Urhahne and Wijnia, 2023) but not many researches have looked into the strategies that teachers used to motivate students in the actual field.

The study aimed to fill the underlying gap in various researches by determining the demographic profile of the respondents and by examining the motivational management and strategies practiced by Junior High School Science teachers in the classroom. Abraham Maslow's Hierarchy of Needs (physiological, safety, love and belongingness, esteem and self-actualization) were utilized in identifying the motivational management of teachers in the classroom while Howard Gardner's Theory of Multiple Intelligences (logical-mathematical, linguistic, interpersonal, intrapersonal, spatial, naturalistic, musical and bodily kinesthetic) were utilized in identifying the motivational strategies of teachers in the teaching learning process.

Research Questions

The study examined the motivational management and strategies practiced by Junior High School Science teachers in the teaching-learning process. It answered the following questions:

1. What is the demographic profile of parent respondents in terms of:
    1.1. gender;
    1.2. age; and
    1.3. number of years in teaching;
2. How often do Junior High School Science teachers practice motivational management in the classroom based from Abraham Maslow's Hierarchy of Needs?
3. What are the motivational strategies utilized by Science teachers in the classroom per grade level and branch of Science taught based from Howard Gardner's Theory of Multiple Intelligences?

Literature Review

Student Motivation

Many definitions of motivation are thought to exist. According to Theobald (2006), motivation is defined as an intrinsic urge that propels people to engage in an activity due to the satisfaction it provides. Goal-directed learning, according to another theory of motivation, is what propels and directs people in a specific direction (Alexenoamen, 2009). Students are more likely to accomplish the objectives set for them, whether by the teacher or by themselves, when they are motivated to study (Theobald, 2006). Although it can be defined in a variety of ways, motivation affects students' learning.

Motivation has a direct impact on how an individual learns (Titus, 2016). Even if learning comes naturally to pupils, a lot depends on the teachers' participation. Students can lose their motivation, zeal, and excitement for a subject or assignment, necessitating ongoing reinforcement from outside assistance. This external assistance is frequently given by teachers, who are in charge of establishing a nurturing environment that promotes and enhances pupils' learning. By supporting the growth of students' autonomy, relevance, relatedness, competence, interests, and self-efficacy in their subject matter, teachers are seen as playing a part in helping students become more motivated. Even though students may be intrinsically or extrinsically motivated to learn, teachers can further increase their desire by fostering their learning and providing a conducive environment (Johnson, 2017).

It is maintained that regardless of the motivational factors used to encourage students to perform in the classroom—intrinsic or extrinsic—it is crucial to impact and inspire them in order for them to eventually develop an internal drive to learn and succeed rather than an external one (Kum, 2022). Furthermore, kids who perform well academically should create difficult, reasonable, and achievable goals for themselves and concentrate more on the task at hand than the outcome. Students must be engaged, empowered, motivated, and inspired in order for them to adjust, accomplish better academically, and develop into lifelong learners. To realize their greatest potential, motivated students should work to become self-reliant learners, use self-regulated learning techniques, and accept accountability for their own education (Zajda, 2021).

Considerable evidence suggests that when mastery, comprehension, and the development of skills and knowledge are prioritized in the classroom, elementary and secondary students exhibit the greatest favorable motivation and learning patterns. While some kids' academic performance can be improved by school cultures that emphasize showcasing talent and competing for grades, research indicates that many young people suffer from decreased motivation in these settings (Meece, et.al., 2006).

Motivation as an Element of the Lesson Plan

Fostering student motivation is a difficult but necessary aspect of teaching that instructors must consider (Yarborough and Fedesco, 2020). As such, motivation should be a mindset that is maintained throughout the class rather than just a gimmick at the beginning. The class cannot go as planned when there are gaps. Students who lack motivation are unlikely to be learning the material we want them to. A hierarchy of motivators is the source of sound motivation (Golland, 1998).

Science learning is best supported when learning experiences are designed to build and revise understanding over time (Gelman and

Lucariello, 2002). First, the topic to be taught should be identified as stated in the curriculum guide. After establishing the content and performance standards of the chosen subject matter, narrow down the focus of your lesson by specifying the objectives to be accomplished for the day or the given time frame. Once the the lesson objectives were already settled, the teacher is now ready to plan the motivation (Fink, 2005).

The lesson's motivational component aims to spark students' interest in the subject matter. This is also an excellent chance to find out what the student already knows about the lesson's subject or topic. For younger kids, the motivator is typically a brief activity (2–3 minutes), but depending on the subject and activity, it can be longer (5–10 minutes) for older students (Bell, 2021).

Motivational Management in the Classroom

Regarding lower level needs, if a student is hungry or thirsty, it is more difficult to focus on learning. Additionally, it will be difficult for the student to focus entirely on studying if the surroundings are harmful for them emotionally, cognitively, or physically. A pupil is unlikely to feel accepted or like they belong if the teacher constantly criticizes them. If the learner's ego and self-esteem are poor, they will feel ignored and unacknowledged. Therefore, the instructor must take the necessary actions to assist the student in reaching a higher degree of need satisfaction so that the student can focus on learning. The instructor may still need to provide opportunities or assistance during the self-actualization phase (Maslow, 1943).

Motivation is defined as our enthusiasm for doing something. It is the 'why' behind every action. Motivation is the reason – or reasons – for acting or behaving in a particular way. It helps a person to set a goal and reach it. The term 'motivation' is derived from the Latin verb 'movere', so quite literally, it's what keeps humans moving. Children and young people benefit from motivation in school when it comes to concentrating on a primary objective or result. By doing this, they become indifferent to potential distractions and are able to focus for extended periods of time. Motivated students exhibit goal-oriented behaviors. They take charge, are resilient, use their curiosity, and value and care for their job. They are capable of planning their own educational path (Hawthorne, 2021).

According to Malone and Lepper (1987), seven factors drive motivation: Challenge, Curiosity, Control, Fantasy, Competition, Cooperation and Recognition. Current developments in educational psychology highlight the fact that not just to cognitive growth, but also to the students' drive and preference as the essential elements in promoting successful learning and accomplishment (Souders, Beata, 2020).

Long-term productivity and well-being are hampered by a lack of motivation, which is a major obstacle to academic performance and manifests as feelings of dissatisfaction and frustration. The ability to believe in the effort, the lack of understanding of the value, and the nature of the academic activities are some of the aspects that affect the motivational level in learning (Legault, Green-Demers, & Pelletier, 2006).

Effective instructors are characterized by their capacity to control the learning environment, inspire students in the classroom, and provide instruction that is inspiring and helps students learn the material and develop the necessary skills. Teachers must possess highly developed abilities as instructional experts, managers, motivators, and problem solvers in order to achieve these requirements. Inferring motivation is likely to lead to academic success. That is a common defense used by educators to support the use of prizes in the classroom. Teachers think they can boost pupils' motivation, and once they are more eager to learn, they may remove the rewards. According to Hunt and Wiseman (2013), teachers who are engaging or motivating use a variety of motivational strategies rather than just one.

Motivational Strategies in the Teaching and Learning Process

Hyatt (2017) identified six ways to motivate students in learning Science. The first is to enhance the perception of science, which many people hold to be difficult and unfavorable. The portrayal of scientists as geeky in fiction and movies is largely to blame. Teachers have a lot of power to alter this perception. They can share fascinating facts about the topic and explain to children how science has impacted the globe. By demonstrating various scientific experiments, they can motivate the students. Second, set a good example. Students will attempt to emulate their teachers if they perceive them to be informed and enthusiastic about science. Thus, make an effort to be an example for them. Third, have fun with it.

According to National Science Education Standards (1996), the teacher should get students involved in science at an early stage and try to make it fun and interesting. To increase interest in them, practical experiments might be used. Next, relate it to your daily existence. The instructor ought to demonstrate to the pupils how science is applied in daily life. Thanks to research, we can now enjoy devices like tablets, video games, and cell phones. Telling them how these things are improving your life is a good idea. Fifth, provide them with chances. The instructor can set up competitions and ask the pupils to apply science to develop original concepts, designs, etc. For instance, the instructor may request that they create an application for daily usage. Additionally, the instructor could promote group competition. Finally, make it come to life. The teacher may show the students why certain things float while others sink, or make a mock crime scene and ask them to investigate. Make them do things related to science to excite them more.

Rogayan (2017) identified different motivational strategies used in the Philippine setting Science instruction. The classifications of the strategies were based on Gardner's multiple intelligence principle. The identified motivational strategies science teachers implement in the classroom are: 4 Pics 1 Word, Video clips / Short film, Science jingle / Science song, Narration, Semi-reporting, Picture analysis,

Jigsaw Puzzle, Storytelling, Brainstorming, Demonstration observation, Crossword puzzle, Quiz bee type, Riddles / brain teasers / logic, Science trivia, Text twist, Thought-provoking questions, Scrambled letters / words, Bingo, Pinoy henyo, Manipulation, Matching Object, Mini laboratory work / mini experiment, Relay (pass the message), Role playing / skit, and Charades.

Motivation and Abraham Maslow's Hierarchy of Needs

Susman, David, Ph.D. medically reviewved on a website as cited by Cherry, 2022 that Abraham Maslow's hierarchy of needs is one of the most well-known theories of motivation, according to a medical evaluation on a website.

According to Maslow's theory, a person's behavior is driven by a set of psychological and physiological requirements that increase in complexity from basic. Maslow wanted to know what makes individuals happy and how they go about achieving that goal.

According to Maslow, a humanist, people are born with the drive to be their best selves, or self-actualized. However, a number of more fundamental demands must be satisfied in order to reach this ultimate goal. Food, safety, love, and self-worth are all necessities. According to Maslow, these wants are crucial in driving behavior and are comparable to instincts (Cherry, 2022). The Maslow's pyramid has five tiers. The needs are ranked from lowest to highest in the hierarchy: self-actualization, esteem, safety (work security), love and belonging needs (friendship), and physiological (food and clothing) (McLeod, 2007).

Physiological requirements come first and must be met first, starting at the bottom. These necessities include clothing, shelter, food, and sleep. In order for people to concentrate on anything else, these basic wants must be satisfied; otherwise, their actions will only be directed at addressing these physiological demands. Because hunger takes precedence over education, a hungry student may act distractingly or violate the rules. Due to sleep deprivation the night before, a student may doze off in class rather than completing their assignments. The pupil in this scenario would instinctively put sleep before learning (Wahome, 2022).

Safety is the top concern after physiological needs are met. Environmental factors, such as a student's home, school, and any other setting they frequently interact with, are typically what they require for safety. Because their basic safety needs have not been satisfied, students who live in unsafe areas or who are dealing with personal concerns at home will find it difficult to learn. In a similar vein, a student will find it difficult to study and finish their work if they are being bullied or if they don't feel liked and welcomed by their teacher. They function best when their routines are unbroken. They could feel uneasy and nervous if they don't have a routine or if something is endangering it (Kurt, 2020).

Motivation and Howard Gardner's Theory of Multiple Intelligences

The Theory of Multiple Intelligences was first presented in 1983 by the psychologist Howard Gardner when he published his book Frames of Mind. He declared that learning occurred through many types of intelligences, and that people had various levels of each.

According to the Multiple Intelligences Theory, determining a student's IQ is advantageous for both the teacher and the student. By determining a student's IQ, the teacher may better direct the student's learning process and choose activities that are appropriate for the classroom. Despite the fact that there are nine distinct intelligences, it should be mentioned that teachers typically design assignments to appeal to the linguistic and logical-mathematical intelligences (Kurt, 2020).

Gardner (2013) asserts that regardless of which subject you teach—"the arts, the sciences, history, or math"—you should present learning materials in multiple ways. As a result, teaching in a variety of approaches not only aids in students' acquisition of the subject matter but also helps teachers strengthen and solidify their understanding of it.

Gardner himself argues that while creating lessons, teachers should use unique goals and values that are relevant to the subject matter, teaching style, and learning requirements of their students rather than adhering to a single theory or educational innovation. By addressing the various intelligences, educators can enhance student learning and pluralize their teaching and assessment strategies.

According to psychologist Howard Gardner's hypothesis of multiple intelligences, which was established in the late 1970s and early 1980s, people have eight or more relatively autonomous intelligences. Both individually and collectively, people use these intelligences to solve issues and provide goods that are pertinent to their communities (Gardner, 2011). The eight identified intelligences include linguistic intelligence, logical-mathematical intelligence, spatial intelligence, musical intelligence, bodily-kinesthetic intelligence, naturalistic intelligence, interpersonal intelligence, and intrapersonal intelligence (Gardner, 1999).

According to Bowker (2020), when Howard Gardner's multiple intelligences are used in the classroom, students are inspired to think critically and creatively while also gaining a better understanding and developing lifelong abilities that will benefit them both inside and outside of the classroom. Gardner's multiple intelligences theory enables youngsters to feel involved in their own education while being appropriately evaluated using non-limiting techniques (Cherry, 2023).

Gardner's multiple intelligences theory can help pupils better understand how they learn because people are skilled in different areas. Students can adjust the material to their learning style once they can recognize the multiple intelligences they employ to understand it. Students are then able to comprehend the content even when it is presented in a different fashion, in addition to having a better knowledge of the topic (Bilash, 2009).

Methodology

Research Design

The study employed translational research design in examining the motivational management and strategies practiced by Junior High School Science teachers in the teaching and learning process. Translational research attempts to bridge the gap between basic research and the world of practice (Mitchell, 2016).

This method was used because it sought to produce more meaningful, applicable results that directly benefit human health and education. According to National Center for Advancing Translational Sciences (2024), the goal of translational research is to translate (move) basic science discoveries more quickly and efficiently into practice. Translational research in education has been defined as "the movement of available research knowledge into active professional use" (Lavelle, 2015, p. 460). The term "knowledge mobilization" is occasionally used to refer to the procedures that allow research to be disseminated and made available to others.

Respondents

The respondents of the study were Junior High School Science Teachers of the selected big public schools in Sultan Kudarat namely, Bambad National High School, Esperanza National High School, Isulan National High School and Lambayong National High School. The responding schools were chosen because they contain not less than 12 science teachers in Junior High School department. The researcher selected three to five science teachers per grade level from each participating school through random sampling method. Lottery method was utilized, each member of the population is assigned a number, and numbers are then selected at random. Because individuals who make up the subset of the larger group are chosen at random, each individual in the large population set has the same probability of being selected (Thomas, 2020). In most cases this creates a balanced subset that carries the greatest potential for representing the larger group as a whole (Hayes, 2024).

Instrument

The researcher employed a researcher-made survey questionnaire to the respondents. The questionnaire has 3 (three) parts: (1) to identify the demographic profile of the respondents, (2) to determine the motivational management practices of junior high school science teachers in the teaching-learning process, and (3) to determine the specific motivational strategies practiced by junior high school science teachers to motivate students in the classroom. The content of the survey questionnaire were patterned using Abraham Maslow's Hierarchy of Needs in the Likert scale portion (25 statements to be responded) and Howard Gardner's Theory on Multiple Intelligences in a checklist (40 choices given). The research instrument was validated by three research experts and has undergone Chronbach Alpha Test with an acceptable reliability measure of 0.7.

Procedure

Prior to the implementation of the survey questionnaire, a written permission to conduct the study was requested from the Dean of the College of Graduate School in Sultan Kudarat State University. Then, a letter to formally ask for permission to conduct the study in the division of Sultan Kudarat were given to the Schools Division Superintendent for approval and to the corresponding School Principals for proper dissemination. After which, the study was conducted to the respondents from the four identified big public schools in Sultan Kudarat. Upon retrieval of the accomplished survey questionnaire, results were initially tallied, analyzed and interpreted.

Ethical Considerations

The following were the ethical considerations that were employed in the conduct of the study. The respondents of this study are ensured to be well-informed about the scope, purpose, benefits and risks, as well as the direction of the study. The researcher ensured that true and correct objectives were presented to the respondents before getting their consent to participate. The researcher made sure that the data collected were kept in strict confidentiality. With this, no information will be used against the respondents and beyond the scope of the study. The voluntary participation of the respondents were acquired after presenting them with the objectives of the study. The researcher also ensured that the respondents were not compelled to participate in the study and were given the option to participate or not. The researcher ensured that the results of the study to be conducted were properly analyzed, interpreted, and presented. The researcher also properly communicate to the respondents specifically to its target beneficiaries the results and output of the study.

Results and Discussion

This section presents the results and discussions based on the data gathered for this study. This study sought to identify the motivational management and strategies of selected Junior High School Science Teachers in the classroom.

Demographic Profile of the Respondents

Table 1 shows the data gathered from the respondents which were used to determine the demographic profile of high school teachers. The data gathered shows that majority of the respondents are female (70.83%) and 29.17% are male. Furthermore, it shows that 35.42% of the respondents are in the age group of 31-40 years old while the lowest in terms of population are those in the age group of 20-30 years old. Lastly, data shows that 29.17% of the total respondents have been teaching for 7-10 years and 11.15% have been in service

for 11-15 years.

Table 1. *Gender, Age, Number of years in teaching*

	Profile Categories	*Frequency*	*Percentage*
Gender	Female	34	70.83
	Male	14	29.17
	Total	48	100.00
Age	20-30 years old	9	18.75
	31-40 years old	17	35.42
	41-50 years old	12	25.00
	51-65 years old	10	20.83
	Total	48	100.00
Number of Years in Teaching	Less than a year	2	4.17
	1-3 years	2	4.17
	4-6 years	8	16.66
	7-10 years	14	29.17
	11-15 years	10	20.83
	16-20 years	2	4.17
	21-25 years	2	4.17
	26 years and above	8	16.66
	Total	48	100.00

Results supports the study of Hambre (2020) which states majority of the science teachers are female indicating that in the teaching profession, there are more female than male teachers. This also shows that males and females perform differently, according to the findings of several studies. For instance, a 2011 study titled "Gender Differences in Personality across the Ten Aspects of the Big Five" found that women tend to score higher than men on facets like warmth, gregariousness, and positive emotions, which are associated with interpersonal interactions. Results in terms of age contradicts the study of Wylie (2000) which notes that the number of young instructors is rapidly increasing, as might be predicted given the high number of people who have recently enrolled in the teaching courses. In terms of the length of service results, this indicates that they have worked as teachers between 7-15 years while only 20.83% have worked for more than 20 years. According to research, teachers with over 20 years of experience are generally more effective than those without, although they are not significantly more effective than those having worked for five years (Ladd, 2008). Additionally, research has shown some evidence that efficacy decreases after at some point, especially for high school educators. Additionally, evidence suggests that the most experienced high school teachers with greater than 25 years' experience may be less effective than their less experienced counterparts (Ladd, 2008) and even their inexperienced colleagues (Harris and Sass, 2007).

Motivational Management Practices

The data gathered from the respondents were used to determine how teachers practice motivational management in the classroom based from Abraham Maslow's Hierarchy of Needs which is in terms of physiological, safety, social, ego-related, and self-actualization practices.

Table 2.1. *Physiological Practices*

Indicators	*Mean*	*Interpretation*
I remind students to always turn on the lights and fans every time they get inside the room.	4.13	Physiological practices are often implemented/ practiced by the teachers in the classroom.
I allow students to take regular water and toilet breaks.	4.46	Physiological practices are always implemented/ practiced by the teachers in the classroom.
I monitor temperature so that students do not feel too hot or cold.	3.69	Physiological practices are often implemented/ practiced by the teachers in the classroom.
I provide breaks for food, and offer nutritious snacking options.	3.92	Physiological practices are often implemented/ practiced by the teachers in the classroom.
I give few minutes for students to rest their minds and have a short nap after a long quiz or rigid activity.	3.52	Physiological practices are often implemented/ practiced by the teachers in the classroom.
Average Mean Scores on Physiological Practices	3.94	Physiological practices are often implemented/ practiced by the teachers in the classroom.

The results indicated that physiological practices were frequently implemented by teachers in the classroom, with an overall average mean score of 3.94, interpreted as "often implemented/practiced." Among the specific practices, allowing students to take regular water and toilet breaks (M = 4.46) is the most consistently applied, while providing students with time to rest after a long quiz or rigorous activity (M = 3.52) is the least commonly implemented. These findings align with previous research that emphasizes the importance of physiological factors in enhancing students' motivation and learning outcomes.

The result of the study suggests that physiological needs, as defined by Maslow's Hierarchy of Needs, is being considered by teachers as having an important role in the students' ability to focus, engage, and perform academically (Maslow, 1943). Ensuring that basic needs, such as hydration, nutrition, and adequate rest, are met creates a conducive learning environment (Deci & Ryan, 2000).

Table 2.2. *Safety Practices*

Indicators	*Mean*	*Interpretation*
I remind students to follow rules and routines consistently.	4.77	Safety practices are always implemented/practiced by the teachers in the classroom.
I monitor the environment of my class to identify and prevent bullying.	4.75	Safety practices are always implemented/practiced by the teachers in the classroom.
I set forth well-defined rules and procedures and communicate them to my students.	4.73	Safety practices are always implemented/practiced by the teachers in the classroom.
I cultivate an environment that allows for healthy discussion and non-judgmental conversation.	4.75	Safety practices are always implemented/practiced by the teachers in the classroom.
I make sure students are at ease to ask questions or raise concerns without the fear of being reprimanded or judged.	4.65	Safety practices are always implemented/practiced by the teachers in the classroom.
Average Mean Scores on Safety Practices	4.73	Safety practices are always implemented/practiced by the teachers in the classroom.

The highest mean score (4.77) corresponds to the reminder for students to follow rules and routines consistently, reinforcing the importance of classroom structure in maintaining discipline and predictability. This aligns with classroom management theories, which emphasize that clearly defined rules contribute to student engagement and success (Marzano, Marzano, & Pickering, 2003).

Additionally, bullying prevention scored high (4.75), reflecting a strong commitment to maintaining a safe psychological and physical environment, a critical component in promoting student well-being and academic performance (Olweus, 1993).

Furthermore, the emphasis on healthy discussions and non-judgmental conversations (4.75) demonstrates that teachers are proactive in fostering a supportive learning climate. Research suggests that psychologically safe classrooms lead to increased student participation and motivation (Edmondson, 1999).

Meanwhile, ensuring students feel comfortable asking questions (4.65) aligns with self-determination theory, which posits that creating an autonomy-supportive environment enhances intrinsic motivation and learning outcomes (Deci & Ryan, 2000).

Table 2.3. *Social Practices*

Indicators	*Mean*	*Interpretation*
I create a sense of team by engaging students in team-building and bonding activities.	4.46	Social practices are always implemented/practiced by the teachers in the classroom.
I encourage group work and other inclusive learning techniques.	4.63	Social practices are always implemented/practiced by the teachers in the classroom.
I make conscious seating arrangements and groups.	4.52	Social practices are always implemented/practiced by the teachers in the classroom.
I place students where they can be best supported and aided.	4.58	Social practices are always implemented/practiced by the teachers in the classroom.
I establish ground rules about being respectful towards one another.	4.83	Social practices are always implemented/practiced by the teachers in the classroom.
Average Mean Scores on Social Practices	4.60	Social practices are always implemented/practiced by the teachers in the classroom.

The highest mean score (4.83) corresponds to establishing ground rules about respect, underscoring the importance of a structured and respectful classroom environment. Research suggests that clear social norms and behavioral expectations contribute to a positive classroom culture, reducing conflicts and promoting cooperation (Wentzel, 1998). Similarly, encouraging group work (4.63) aligns with cooperative learning theories, which emphasize that collaborative activities enhance students' communication, problem-solving, and critical thinking skills (Johnson & Johnson, 1999).

Another notable finding is the emphasis on strategic seating arrangements (4.52) and placing students in supportive positions (4.58), which aligns with studies on classroom dynamics indicating that intentional seating improves engagement and peer interactions (Wubbels & Brekelmans, 2005). Team-building activities (4.46) also reinforce the development of social bonds, which are crucial for student motivation and academic success (Durlak et al., 2011).

Table 2.4. *Esteem-Related Practices*

Indicators	*Mean*	*Interpretation*
I create opportunities for students to share positive feedback with their peers.	4.60	Esteem-related practices are always implemented/practiced by the teachers in the classroom.
I show my students that their efforts and hard work are noticed and appreciated.	4.69	Esteem-related practices are always implemented/practiced by the teachers in the classroom.
I give rewards to students inside and outside the classroom who achieved their short- and long-term goals.	4.46	Esteem-related practices are always implemented/practiced by the teachers in the classroom.
I encourage students to participate in competitions and extra-curricular activities and events.	4.65	Esteem-related practices are always implemented/practiced by the teachers in the classroom.

I give simple praises like "Good job!" or "Well done!" to boost students' self esteem and self worth.	4.81	Esteem-related practices are always implemented/practiced by the teachers in the classroom.
Average Mean Scores on Ego-related Practices	4.64	Esteem-related practices are always implemented/practiced by the teachers in the classroom.

The highest mean score (4.81) pertains to the use of simple praises like "Good job!" or "Well done!" to boost students' self-esteem and self-worth. Studies indicate that positive reinforcement enhances intrinsic motivation, fostering higher student engagement and academic performance (Deci & Ryan, 2000).

Similarly, recognizing students' efforts and hard work (4.69) aligns with growth mindset theories, emphasizing that acknowledging progress rather than just outcomes leads to better learning attitudes and resilience (Dweck, 2006).

Encouraging students to participate in competitions and extracurricular activities (4.65) is another important aspect of esteem-related practices. Research suggests that such activities contribute to holistic development, improving leadership skills, confidence, and teamwork (Fredricks & Eccles, 2006).

Likewise, creating opportunities for students to share positive feedback with their peers (4.60) reinforces peer encouragement and social learning, which are essential for a supportive classroom environment (Bandura, 1986).

Table 2.5. *Self-actualization Practices*

Indicators	*Mean*	*Interpretation*
I encourage and support students to explore topics in-depth to satisfy their hunger for knowledge.	4.52	Self-actualization practices are always implemented/practiced by the teachers in the classroom.
I give opportunities to students who are very good in a certain subject matter to help their classmates with their work.	4.69	Self-actualization practices are always implemented/practiced by the teachers in the classroom.
I allow peer-teaching or peer-coaching activities.	4.48	Self-actualization practices are always implemented/practiced by the teachers in the classroom.
I portray high expectations from all my students.	4.15	Self-actualization practices are often implemented/practiced by the teachers in the classroom.
I encourage my students to proactively reach their full-potential.	4.56	Self-actualization practices are always implemented/practiced by the teachers in the classroom.
Average Mean Scores on Self-actualization Practices	4.48	Self-actualization practices are always implemented/practiced by the teachers in the classroom.

Among the indicators, the highest mean (4.69) corresponds to providing opportunities for students who excel in certain subjects to assist their classmates. This aligns with Vygotsky's (1978) Social Development Theory, which emphasizes that peer-assisted learning enhances knowledge retention and collaborative skills.

Additionally, allowing peer-teaching or peer-coaching activities (4.48) complements this approach, reinforcing constructivist learning environments where students take an active role in their education (Slavin, 1995).

Encouraging students to explore topics in-depth (4.52) resonates with Maslow's (1943) hierarchy of needs, where self-actualization represents the highest level of personal growth and intellectual curiosity. Research suggests that students who engage in deep learning rather than surface-level memorization develop better problem-solving skills and long-term knowledge retention (Biggs & Tang, 2011).

Similarly, encouraging students to proactively reach their full potential (4.56) aligns with self-determination theory, which asserts that students excel when given autonomy, competence, and relatedness in their learning journey (Deci & Ryan, 2000).

The lowest mean score (4.15) pertains to portraying high expectations from students, indicating that while this is often practiced, there may be room for improvement. Research by Rosenthal & Jacobson (1968) on the Pygmalion Effect suggests that high teacher expectations positively impact student performance. This implies that reinforcing high expectations with personalized support and encouragement could further enhance self-actualization practices.

Motivational Strategies Utilized in the Classroom

Table 3. *Motivational Strategies Utilized Science Teachers in the Classroom per Grade Level and Branch of Science Taught based from Howard Gardner's Theory of Multiple Intelligences*

		Grade 7				*Grade 8*				*Grade 9*				*Grade 10*			
		P	*ES*	*C*	*LS*	*P*	*ES*	*C*	*LS*	*P*	*ES*	*C*	*LS*	*P*	*ES*	*C*	*LS*
Verbal-Linguistic	Story telling	1	6	1	9	1	7	1	7	3	7	4	5	6	9	3	9
	Oral recitation/reporting	6	10	7	7	8	10	8	7	10	9	9	7	8	11	8	8
	Reflective writing	2	9	1	5	2	7	2	6	5	7	3	7	3	9	3	8
	Word games	7	6	7	6	7	9	7	4	6	7	7	8	11	8	7	7
	Debate	1	5	2	4	1	5	1	5		3	1	5	5	5	1	4

Logical-Mathematical	Problem solving	10	3	7	3	11	1	5	2	10	2	8	2	12	3	8	4
	Computer/ICT activities	7	8	7	5	3	7	5	5	8	8	8	8	9	11	6	10
	Riddles or brain teasers	1	7	4	6	1	6	3	4	4	7	6	6	4	4	2	6
	Logic games	6	5	6	4	5	4	5	3	6	6	7	4	8	5	7	3
	Board games	1	2	3	4	5	3	4	4	7	6	7	5	4	5	5	5
Visual-Spatial	Use of concept maps	3	8	5	6	5	7	7	3	8	7	7	7	9	10	5	7
	Collage making	2	9	1	4	1	7	2	3	5	8	5	7	5	11	3	7
	Picture analysis	5	9	4	6	4	10	6	6	8	9	8	8	5	10	6	9
	Video viewing	6	7	5	7	5	10	5	6	9	9	9	9	8	9	8	8
	Short film production	1	7	1	5	2	6	2	4	3	6	4	5	4	7	4	5
Musical	Playing instruments	5	3	5	1	1	2	2	3	4			2	5	4	3	4
	Creating jingle/song	4	4	3	5	2	5	3	4	1	5	6	3	5	7	3	7
	Listening to musical pieces	3	5		1	1	2	1	3	3	2	4	2	4	5	1	3
	Music appreciation activities	5	1		2	1	5	1	3	2	3	1	4	3	3	2	4
	Melodies to learn concept	3	4	2	2	1	2	2	3	1	3	1	3	4	5	3	5
Bodily-Kinesthetic	Laboratory experiments	6	5	10	7	6	3	7	8	8	6	9	8	9	7	9	8
	Craft making	3	8	4	6	2	5	3	2	3	7	5	5	6	8	3	5
	Charades/Pantomime	3	3	2	4		3		4	1	3	3	3	6	7	4	6
	Acting	2	5	3	6	1	3	1	1	2	5	1	6	6	11	3	8
	Dancing	2	2	4	5	1	2		4	2	1	2	4	6	7	3	5
Intrapersonal	1-minute reflective period	3	6	2	6	2	7	2	5	3	5	4	6	8	6	5	6
	Independent study	4	7	5	5	4	6	4	2	7	8	7	6	9	9	8	8
	Individual quiz	9	9	9	8	10	8	9	6	10	10	9	9	12	10	8	9
	Journaling/Diary	1	7	1	4		2	2	2	2	5	4	4	4	6	3	3
	Writing essays	2	7	2	8	3	8	5	7	7	9	7	8	8	8	5	8
Interpersonal	Group/Teamwork activities	9	8	9	10	10	8	6	8	10	10	9	9	9	10	9	9
	Role playing	1	9	2	5	1	4		5	3	6	4	6	5	11	5	8
	Pass the message	1	4	2	2	1	5	2	3	2	5	3	2	6	6	5	3
	Team quiz	6	7	9	6	7	6	7	7	9	9	9	9	8	9	9	9
	Interview	1	5	2	5	2	4	3	4	4	4	3	8	5	6	3	5
Naturalistic	Making orchards/gardens	3	4		5		2		6		9		5	2	6	1	6
	Documentaries on nature		9	1	4		5	1	3	4	8	3	5	5	5	3	7
	Field trips	2	5	1	4	1	2	2	3	3	4	3	4	2	3	1	3
	Hiking	1	5	2	4		2		2	1	2	1	3	3	3	2	4
	Nature photography	3	6	2	6	3	3	2	4	1	6	1	5	1	6	1	5
	AVERAGE PER GRADE LEVEL	3.62	5.98	3.9	5.0	3.46	5.08	3.7	4.28	4.9	6.05	5.0	5.55	6.0	7.13	4.5	6.20
	AVERAGE PER GRADE LEVEL		4.63				4.12				5.38				5.96		

Motivational strategies of Grade 7 Science Teachers

The data gathered from the respondents were used to determine how teachers practice motivational strategies in the teaching and learning process based from Howard Gardner's Theory of Multiple Intelligences per grade level and branch of Science taught.

The results show the varying motivational strategies employed by science teachers across different branches in Grade 7 level, reflecting Howard Gardner's (1983) Theory of Multiple Intelligences. Out of the 12 respondents from the Grade 7 level, the average motivational

strategies score per subject reveals that Earth Science (5.97) uses the most diverse strategies, followed by Life Science (4.95), Chemistry (3.64), and Physics (3.59). This results suggests that Earth Science and Life Science educators are frequently integrating diverse intelligence-based strategies, while Chemistry and Physics teachers may rely more on traditional methods. The results indicate that verbal-linguistic strategies were mostly used in Earth Science (60%) but had limited usage in Physics (28.2%). This suggests that Earth Science, which often involves descriptive explanations and discussions, benefits from verbal engagement, aligning it with Piaget's (1952) Cognitive Development Theory, which emphasizes the role of logical reasoning in science learning, whereas Physics may require reinforcement through structured explanations and concept-based discussions.

Logical-mathematical strategies, including problem-solving activities, ICT-based tasks, and logic games, were found to be more utilized in Chemistry (44.8%) and least used in Life Science (36.6%). This aligns with the nature of Chemistry, which requires analytical thinking and quantitative reasoning. However, in Life Science, where conceptual understanding is often more qualitative, logical strategies may need to be integrated with real-world biological examples to enhance student motivation.

Furthermore, visual-spatial strategies were mostly utilized in Earth Science (66.6%) due to the subject's reliance on diagrams and visual representations but had the least usage in Chemistry (26.6%), highlighting the need for more visual aids. On the other hand, bodily-kinesthetic strategies were practiced in Life Science (46.6%) due to hands-on engagement but were least practiced in Physics (26.8%), where interactive simulations may be more beneficial. According to Dewey's (1938) Experiential Learning Theory, hands-on activities enhance engagement and deeper understanding of abstract scientific principles. Intrapersonal strategies, on the other hand, were also mostly practiced in Life Science (51.8%) and least in Chemistry (31.8%), indicating that reflective learning is more naturally suited to biological topics. While interpersonal strategies had the highest usage in Life Science (46.8%) but were less in Physics (29.8%), where individual problem-solving is crucial. Naturalistic strategies were mostly practiced in Earth Science (48.4%) but least in Chemistry (10%), suggesting a need for more environmental applications in chemistry lessons.

Motivational strategies of Grade 8 Science Teachers

The results showed the overall average utilization of the different strategies across all branches for the science teachers in Grade 8 which is about 32.5% (3.9 out of 12 teachers), indicating that these strategies are employed by a moderate number of science teachers in their teaching practice across different science subjects.

Results show that in the verbal-linguistic category, the most commonly used strategies were oral recitation/reporting (68.8%) and word games (56.3%), indicating that teachers favor verbal methods to engage students, focusing on articulation, discussion, and active participation. These strategies are mostly utilized in Earth Science and Life Science subjects, where students may need to articulate complex processes and explain observations. These verbal strategies can also be useful in fostering discussion-based learning in Physics and Chemistry, where students often need to explain theoretical concepts or apply formulas. This shows that teachers are leveraging verbal communication to encourage active participation and critical thinking, which has been shown to improve student performance and learning (Woolfolk, 2019).

In the logical-mathematical category, problem-solving (39.6%) and computer/ICT activities (41.7%) were frequently used by science teachers indicating a focus on critical thinking and the use of technology to enhance learning. This indicates that teachers teaching Physics and Chemistry uses problem-solving tasks and ICT-based simulations to help students better understand concepts that involve calculation and experimentation. Research suggests that using technology in science education enhances student engagement and conceptual understanding, aligning with trends that emphasize digital literacy and critical thinking in modern classrooms (Yilmaz & Gok, 2017).

Visual-spatial strategies were also used in helping make abstract scientific concepts more accessible through visual aids. On the other hand, musical and bodily-kinesthetic strategies were less frequently used (20% and 23%, respectively), suggesting room for improvement, especially in areas like hands-on experiments and creative activities. Additionally, incorporating visual, auditory, and kinesthetic learning styles has been linked to improved learning outcomes in science education. Furthermore, the use of musical elements, such as science songs, has been found to aid memorization and create a relaxed learning environment, contributing to better student engagement and learning (Arni et al., 2024).

Lastly, intrapersonal strategies, such as individual quizzes (68.8%) and independent study (33.3%), were popular, highlighting the importance of self-reflection and independence in learning. Lastly, interpersonal strategies like group activities (66.7%) and team quizzes (56.3%) emphasized collaboration, reflecting teachers' focus on peer interaction and teamwork to motivate students. This means that teachers across all subjects view using independent assessments and encourage self-directed as a learning tool to foster students' ability to analyze and internalize scientific information. These results supports the study of Winarti et al. (2019) which shows that integrating multiple intelligences-based teaching strategies can enhance students' academic achievement in science subjects. Furthermore, research supports the idea that self-directed learning is essential for developing lifelong learners who can independently analyze and apply scientific concepts (Deci & Ryan, 2000).

Motivational strategies of Grade 9 Science Teachers

About 43.5% (5.22 out of 12 Grade 9 teachers) utilize the different strategies across the different branches of Science, indicating that

these strategies are employed by a moderate number of science teachers in their teaching practice across different science subjects.

Almost the same results are being shown in the verbal-linguistic category just like with the Grade 8 level, which also shows that science teachers usually employs oral recitation/reporting (73%) and word games (58%), suggesting that teachers in all science subjects use verbal communication techniques to engage students. These strategies are particularly common in subjects such as Chemistry and Earth Science, where discussion and articulation are key in explaining complex scientific processes. The use of oral recitation, in particular, aligns with active learning techniques, which have been shown to improve student understanding and retention (Woolfolk, 2019).

In the logical-mathematical category, strategies like problem-solving (46%) and ICT activities (67%) were frequently employed. These methods are often associated with subjects like Physics and Chemistry, where the focus is on calculations, experiments, and the application of scientific formulas. Problem-solving exercises help develop students' critical thinking skills, while ICT activities provide a modern, interactive way to present scientific concepts. Research indicates that the use of technology in science education increases student engagement and conceptual understanding (Yilmaz & Gok, 2017).

Visual-spatial strategies such as picture analysis (69%) and video viewing (75%) were frequently used to make abstract scientific concepts more accessible. These strategies are particularly effective in Life Science and Earth Science, where visual representation of processes or systems is essential for understanding. Studies show that visual aids, such as concept maps and videos, significantly improve students' ability to grasp complex scientific information (Kosslyn, 2019).

In the musical and bodily-kinesthetic categories, these strategies were less commonly used. Musical activities like creating jingles or listening to musical pieces had an average of just 21% utilization. Bodily-kinesthetic strategies, such as laboratory experiments (65%), were somewhat more frequent, particularly in subjects like Chemistry and Physics, where hands-on experiments are integral to learning. The relatively low usage of musical strategies might indicate that teachers perceive these activities as less relevant to science teaching, although research suggests that integrating music into education can enhance motivation and retention (Sung et al., 2016).

The intrapersonal strategies (e.g., individual quizzes, independent study) showed higher utilization, with individual quizzes being particularly popular (79%). This indicates that teachers value fostering student autonomy and reflection, which are essential for long-term learning. Studies have demonstrated that self-reflection and independent study are critical for developing a deeper understanding of science (Deci & Ryan, 2000).

Interpersonal strategies such as group teamwork activities (79%) and team quizzes (75%) were also commonly used. These collaborative methods are effective in promoting peer interaction and enhancing learning through cooperation. Group activities are supported by research as they improve student social learning, communication, and academic achievement (Johnson & Johnson, 2009).

Naturalistic strategies like field trips (29%) and making orchards/gardens (29%) were the least utilized, suggesting that teachers might not prioritize activities related to nature, even though such activities can make science more tangible and relevant for students. Naturalistic methods have been shown to improve student engagement and interest in environmental science (Bastian, 2014).

Motivational strategies of Grade 10 Science Teachers

The data from Grade 10 science teachers reveals the utilization of a variety of motivational strategies across different science subjects (Physics, Earth Science, Chemistry, and Life Science). The overall average utilization of these strategies was approximately 47.0% (5.64 out of 12 teachers), indicating a also moderate utilization of motivational strategies in science education.

In the verbal-linguistic category, the most frequently used strategies were still oral recitation/reporting (73%) and word games (69%), same with the Grades 7, 8, and 9 levels, and particularly in the Physics and Earth Science subjects. This suggests that teachers in these subjects value verbal methods such as discussion, explanation, and active participation, which are essential for articulating complex scientific concepts regardless of the grade levels of their recipients. These strategies are effective in enhancing student comprehension, as studies have shown that verbal interaction and expression improve cognitive processing and engagement in science education (Woolfolk, 2019).

In the logical-mathematical category, strategies like problem-solving (56%) and computer/ICT activities (75%) were heavily employed as higher levels would most likely cover more complex discussions and applications of computations and formulas. This is particularly common in Physics and Chemistry, where critical thinking, calculations, and experimentation are integral to learning. The frequent use of ICT-based activities in these subjects is aligned with research showing that integrating technology into the classroom enhances student engagement and provides interactive platforms for learning complex scientific ideas (Yilmaz & Gok, 2017).

Visual-spatial strategies were frequently employed, still with video viewing (69%) and picture analysis (63%) being popular methods to make abstract scientific concepts more accessible. The high use of visual tools is particularly beneficial in Life Science and Earth Science, where visual representations like diagrams, models, and videos help students grasp difficult material. Visual aids have been shown to significantly improve understanding and retention in science education (Kosslyn, 2019).Musical and bodily-kinesthetic strategies had lower usage, with an average of 33% in the musical category and 53% in the bodily-kinesthetic category. In contrast to verbal and logical strategies, were less frequently used, suggesting that these types of strategies are not a primary focus in science classrooms. However, research has suggested that incorporating kinesthetic learning, such as laboratory experiments, can deepen

engagement and provide a hands-on understanding of scientific principles (Sung et al., 2016).

In terms of the intrapersonal category, results showed a high utilization of individual quizzes (81%) and independent study (71%), indicating a strong emphasis on fostering self-reflection, autonomy, and independent learning. These indicates that in the Grade 10 level, teachers utilize motivational strategies that would improve students' self confidence in their learning patterns. These strategies help students internalize scientific knowledge and are consistent with the literature, which highlights the importance of self-regulated learning for academic success (Deci & Ryan, 2000). Furthermore, in the interpersonal category, strategies like group/teamwork activities (77%) and team quizzes (73%) were widely employed. Since Grade 10 students have higher ability to interact with their peers, interpersonal strategies are more employed in the conduct of their learning process. These methods promote collaboration and peer learning, which are crucial for enhancing social interaction and cooperative learning in science classrooms. Collaborative strategies are supported by research indicating that group activities improve critical thinking, problem-solving, and communication skills (Johnson & Johnson, 2009). Lastly, naturalistic strategies, were also the least used even in the Grade 10 level, suggesting that teachers may not prioritize outdoor or nature-based activities in their teaching practices. However, research has shown that incorporating nature and real-world experiences can increase student engagement and provide meaningful contexts for learning scientific concepts (Bastian, 2014).

Conclusions

Based on the results presented, it shows that majority of the participants are female suggesting a higher representation of female educators in the study. The largest age group is 31-40 years old followed by the 41-50 years old group which indicates that the participants are mostly experienced educators, with a good mix of middle-aged professionals. Furthermore, the respondents are a mix in terms of their teaching experience which demonstrates that the science teachers consists of a well-rounded group of educators with varying levels of experience, but most are in the mid-career stage.

In terms of the respondents' motivational management practices, the results of this study indicate that teachers consistently implement various practices to support students' physiological, safety, social, ego-related, and self-actualization needs in the classroom. The findings reveal that safety practices received the highest average mean score, followed by ego-related practices, social practices, self-actualization practices, and physiological practices. These scores suggest that while teachers effectively cultivate a safe, inclusive, and supportive environment for students, there is still room for improvement in ensuring that students' physiological needs are fully met. Overall, the data highlights the strong commitment of teachers to fostering a positive learning environment where students feel valued, supported, and encouraged to reach their full potential.

In terms of the respondents' motivational strategies, for grade 7 teachers, the results indicate that verbal-linguistic strategies were mostly practiced in teaching Earth Science (60%), logical-mathematical strategies, including problem-solving activities, ICT-based tasks, and logic games, were found to be more utilized in Chemistry (44.8%), visual-spatial strategies were mostly practiced in Earth Science (66.6%), bodily-kinesthetic strategies were utilized in Life Science (46.6%), intrapersonal strategies (51.8%) and interpersonal strategies (46.8%) were mostly practiced in Life Science (51.8%) and naturalistic strategies were mostly practiced in Earth Science (48.4%). For grade 8 teachers, results show that in the verbal-linguistic category, the most commonly used strategies were oral recitation/reporting (68.8%) and word games (56.3%) mostly utilized in Earth Science and Life Science subjects. In the logical-mathematical category, problem-solving (39.6%) and computer/ICT activities (41.7%) were frequently used by science teachers teaching Physics and Chemistry. Visual-spatial strategies were also used in helping make abstract scientific concepts more accessible through visual aids. On the other hand, musical and bodily-kinesthetic strategies were less frequently used (20% and 23%, respectively). Intrapersonal strategies, such as individual quizzes (68.8%) and independent study (33.3%), were popular, highlighting the importance of self-reflection and independence in learning. Lastly, interpersonal strategies like group activities (66.7%) and team quizzes (56.3%) emphasized collaboration, reflecting teachers' focus on peer interaction and teamwork to motivate students. For grade 9 teachers, almost the same results are noted in the verbal-linguistic category just like with the Grade 8 level, which also shows that science teachers usually employs oral recitation/reporting (73%) and word games (58%), suggesting that teachers in all science subjects use verbal communication techniques to engage students. In the logical-mathematical category, strategies like problem-solving (46%) and ICT activities (67%) were frequently employed. Visual-spatial strategies such as picture analysis (69%) and video viewing (75%) were frequently used. Musical activities like creating jingles or listening to musical pieces had an average of just 21% utilization. Bodily-kinesthetic strategies, such as laboratory experiments (65%), were somewhat more frequent, particularly in subjects like Chemistry and Physics. The intrapersonal strategies (e.g., individual quizzes, independent study) showed higher utilization, with individual quizzes being particularly popular (79%). Interpersonal strategies such as group teamwork activities (79%) and team quizzes (75%) were also commonly used. Naturalistic strategies like field trips (29%) and making orchards/gardens (29%) were the least utilized. For grade 10 teachers, In the verbal-linguistic category, the most frequently used strategies were still oral recitation/reporting (73%) and word games (69%), same with the Grades 7, 8, and 9 levels, and particularly in the Physics and Earth Science subjects. In the logical-mathematical category, strategies like problem-solving (56%) and computer/ICT activities (75%) were heavily employed particularly common in Physics and Chemistry. Visual-spatial strategies were frequently employed, still with video viewing (69%) and picture analysis (63%) particularly beneficial in Life Science and Earth Science. Musical and bodily-kinesthetic strategies had lower usage, with an average

of 33% in the musical category and 53% in the bodily-kinesthetic category. In terms of the intrapersonal category, results showed a high utilization of individual quizzes (81%) and independent study (71%), and lastly, naturalistic strategies, were least used even in the Grade 10 level.

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Affiliations and Corresponding Information

Princess Joy M. Samoraga
Isulan National High School
Department of Education – Philippines

Christine P. Abo, PhD.
Sultan Kudarat State University – Philippines