A decade to remember: Attitudes, practices, and challenges of junior high school science teachers

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Abstract: Over the past decades, the educational landscape in the Philippines has undergone significant transformations with the implementation of the K to 12 curriculum, technological advancements, and the challenges posed by the shift to distance learning during the pandemic. This study explored the attitudes, practices, and challenges of junior high school science teachers with over ten years of service. A qualitative research design was employed, involving eight junior high school science teachers as participants. Data were collected through semi-structured interviews and analyzed using content analysis. The findings revealed that personal values, learning assessments, extended working hours, and applying various learning theories are central to upholding quality education. However, challenges such as learner attitudes, complex subject matter, overwhelming workloads, extended working hours, and non-teaching responsibilities hinder the delivery of quality education. The study further highlights the participants' reflections on their job satisfaction, teaching preparations, pedagogical practices, effective and ineffective strategies, challenges, and the consequences of these challenges on their personal and professional lives. Basic education institutions are suggested to deploy more administrative staff and revisit the current science curriculum to address these challenges effectively.

Keywords: *K to 12 curriculum, pandemic, technological advancement, quality education*

Introduction

The year 2018 marked the first participation of the Philippines in the Program for International Student Assessment (PISA). The results revealed the country's education quality, with the Philippines ranking last in reading comprehension and second to last in mathematics and science literacy (PISA, 2018). These outcomes reflect the state of the education system, influenced by factors such as socio-economic conditions, curriculum content, teacher quality, learner engagement, and government support. The findings served as a wake-up call to retool various aspects of the country's education system.

One critical determinant of learners' performance in international assessments like PISA is teacher quality (Kwak, 2019). As Kwak (2019) noted, "The higher the qualification level of science teachers and quality teacher readiness, the higher the student achievement" (p. 2). Improving the standard of science instruction necessitates focusing on teachers whose perspectives are integral to enhancing education quality. Experienced teachers bring valuable insights into the profession, shaped by their attitudes, practices, and challenges.

Teachers' experiences, attitudes, and practices are essential factors that influence the effectiveness of teaching and learning. As a subject, science equips students with skills to achieve their goals, emphasizing critical thinking and problem-solving. Effective teachers possess a broad range of knowledge and employ diverse instructional methods, significantly impacting student learning (Fahrman et al., 2019). Teacher competence—encompassing professional beliefs, knowledge, skills, attitudes, and motivational variables—directly affects teaching and learning (Ogegbo et al., 2019).

The inevitable changes in education require teachers to adapt. The COVID-19 pandemic catalyzed a shift in learning modalities worldwide, prompting modifications and reevaluations of educational practices (Rapanta et al., 2021). Positive attributes of online and modular learning have been integrated into face-to-face classes, with the intensification of technology use being a key takeaway (Khong et al., 2023). The emergence of various educational

technologies has reshaped teaching practices, replacing outdated methods with more efficient and effective tools. Indeed, the advancement of technology, such as AI, has allowed teachers to explore various teaching practices to facilitate an effective teaching and learning process (Bibi et al., 2024; Murtaza et al., 2024; O'Connor & Natividad, 2023). Hence, what teachers thought was effective years ago might be replaced due to the convenience brought about by technological advancements. The emergence of various software and applications also serves as an aid to efficiently and effectively facilitate learning (Cadiz et al., 2024).

A key variable influencing teaching is the teacher's attitude, defined as their personality, beliefs, values, behaviors, and motivations expressed through words and actions (Ogegbo et al., 2019). A teacher's attitude encompasses their perspectives on affective, cognitive, and psychomotor factors (Ambusaidi & Al-Farei, 2015). Saleh et al. (2023) emphasized that attitude in teaching is crucial for preparing students to attain specific competencies. For instance, studies in Turkey have shown that science teachers feel competent in their subject matter and exhibit positive outlooks toward their careers (Korur, 2022). Positive attitudes are reflected in behaviors, fostering successful teaching outcomes (Ambusaidi & Al-Farei, 2015).

Teaching practices, another critical variable, include knowledge, instructional strategies, classroom management, pedagogy, student engagement, and adequate instructional time (Ogegbo, 2019). Effective teaching strategies promote learning and adapt to evolving educational technologies (Hansson et al., 2021). However, as Meyer and Lederman (2013) found, a positive teaching attitude does not always translate into practical strategies without appropriate techniques. Technology advancements have enabled teachers to explore innovative methods to enhance teaching and learning (Azaz et al., 2024).

Lastly, the challenges faced by science teachers significantly impact their profession. Understanding these challenges can inform solutions to improve teaching conditions. Dong et al. (2020) highlighted that teachers' perceptions of challenges are influenced by their knowledge and beliefs, mediated by their instructional practices. Older teachers, in particular, often struggle to adapt to rapid technological advancements, underscoring the need for technical support and adequate funding (DeCoito & Estaiteyeh, 2022).

In the Philippines, the spiral progression approach to teaching science from grades three to ten poses challenges for teachers, especially those with specialized training in specific fields (Mizzi, 2013; Antipolo & Rogayan, 2021). The COVID-19 pandemic further exacerbated these challenges, forcing teachers to adapt to distance learning despite limited preparation (Medina, 2022). Rivera (2022) identified five themes contributing to teachers' struggles: diverse student contexts, extensive workloads, insufficient support, limited control over learning quality, and health risks.

Globally, novice and experienced teachers differ in practices, yet challenges remain consistent regardless of age or experience. Teachers with over ten years of service are particularly well-equipped to reflect on changes in the educational system. Education had a broad scope a decade ago and beyond because of many important events over the past few years. The country's teaching profession, specifically science teaching, has experienced two critical challenges over the last decade. The first one was the changes in the science curriculum, wherein it switched into a spiral progression. The second was the sudden change in the modality due to the pandemic.

In the local context, research on in-service teachers remains limited. Existing studies primarily focus on preservice teachers' competencies, leaving a gap in understanding the experiences, attitudes, practices, and challenges of practicing or in-service teachers. This study addresses that gap by exploring these variables in depth. Its qualitative approach provides a nuanced understanding by allowing participants to share their experiences without the constraints of standardized questionnaires.

Research Questions

This study generally aimed to document the attitudes, practices, and challenges of junior high school science teachers with more than ten years of service. Specifically, this research sought to answer the following questions, to wit:

(1) What are science teachers' attitudes and pedagogical practices with more than ten years in the service?

(2) What are the effective and ineffective practices of science teachers with more than ten years in the service?

(3) What are the challenges of science teachers with more than ten years in the service, and how do they affect their lives?

Methodology

Research Design and Sample

This study utilized a qualitative research design. This design illustrates how participants reassemble meanings (Reyes et al., 2024), which may refer to their attitudes, practices, and challenges in teaching science in the present study. Qualitative research involves documenting non-numerical data and transforming it into understandable concepts and

themes (Balansag et al., 2018; Natividad et al., 2024). Since this study aimed to draw insights from the experiences of science teachers who have been practicing the profession for more than ten years, a qualitative design was adopted to address the research questions. In this study, the researchers obtained in-depth information on various facets of the experiences and lives of junior high school science teachers.

The participants were selected using purposive sampling provided that they are qualified based on the following criteria: they (a) are Science teachers; (b) have been in the teaching service continuously for more than ten years; and (c) belong to a junior high school department in a public school within the Division of Science City of Muñoz. To provide rich data, teaching experience with over ten years of experience was set as an inclusion criterion. Since this study encompasses only one school division and the Division is relatively small, the number of science teachers qualified is only eight. Out of eight teachers, only four Science teachers consented to participate in the study. The identities of the participants in this study were treated with utmost confidentiality. Participants were coded from Participant 1 to Participant 4 to ensure their anonymous identity.

Data Collection and Instruments

The researcher gathered relevant information from the respondents needed for data analysis of this study. The researcher prepared a questionnaire composed of open-ended questions needed for the interview. The interview questions are divided into two parts. The first part solicited personal information from the participants. This includes their name (optional), the grade level they are currently handling, the grade level they handled, the number of years in the service, and their age. The names of the participants were not indicated in this paper. Only their assigned codes were used in this study. The second part comprises questions about their attitude, practices, and challenges. Before the in-person interview, the participants were given the Data Privacy Act clause and informed consent forms. The researcher also requested that the participants sign and fill out the consent forms, which ensured their voluntary participation. All the data collected were treated with utmost confidentiality and will be deleted two years after the study's completion. Approval from the concerned authorities was secured. All the interviews were audiotaped and transcribed. Responses in the Filipino language were translated and checked by a language expert.

Data Analysis

The data collected were subjected to content analysis. This allows the organization of data to be understood by readers (Yıldırım & Simsek, 2013); this was accomplished by grouping the concepts and themes (Akpinar, 2018). Moreover, for Yildirim and Simsek (2013), the goal of content analysis is to identify the concepts and themes that can be used to explain the data that has been gathered, to collect related data within the context of particular concepts and themes, and to discuss these in terms that the reader can understand.

The identified themes are essential because they were used to explain the present study's critical points and help associate the answers or meanings with particular research questions. The researchers independently transcribed the interview and read the participants' responses. The responses obtained from the participants were coded and grouped into categories to arrive at the nine themes. Moreover, the themes and categories were recorded through tables and discussed afterward. Data validation was conducted through triangulation and member checking.

Ethical Consideration

The information and knowledge gathered from the teachers' accounts include myriad experiences and issues as science teachers with more than ten years in the service. The researcher's obligation to uphold the participants' rights was necessary to ensure that the participants' rights would not be violated. This study was conducted upon the approval of the Central Luzon State University Ethics Review Committee with ERC Code 2023-619. The informed consent form consisted of an invitation to participate, key information about the study, and the signatures of the participants. Another letter indicated the data privacy clause, consent, and the study questionnaire. All their rights were explained to them before engaging in the research. Additionally, the participants' identities were treated with utmost confidentiality and anonymity. The researchers only knew their identities as their coded ID identified them. The researchers respect the participants' privacy and their right to withdraw from the study at any time. After serving their purpose in this study, the audio recordings of the participants' interviews will be deleted. This will ensure that the recordings are not used for purposes other than this study.

Results and Discussion

Thoughts, Satisfaction, Preparation, and Practices of Junior High School Science Teachers

The teachers' thoughts, satisfaction, and preparation are vital to their attitudes toward teaching science. This section emphasizes their perspectives on science teaching, teaching satisfaction, and the preparations necessary to become effective educators.

Table 1. Teachers' thoughts on science teaching.

Discourse and Dimension	Quote
Thoughts towards teaching	
Teachers experienced difficulty in delivering the lessons due to limited materials and equipment.	"During my early years of teaching, I had a hard time due to the lack of learning materials. Materials such as books and laboratory equipment are lacking. Hence, it is tough on our side." (Participant 3)
Private schools instill a more effective learning foundation in learners.	"It is easier to teach learners in private schools than in public schools because they have a stronger foundation in their early years of learning. This is because they had the privilege of having enough materials and equipment in school." (Participant 1)
Thoughts towards learners	
Teachers are passionate about teaching, as reflected in their treatment of learners.	"Your motivation in teaching will always be the reason why you pursue this profession. At times, you will get hurt because no matter how hard you try, they still do not get it." (Participant 1)
Teachers sometimes assume lessons to be easy for learners to grasp.	"As a teacher, before teaching, you studied it first. It was too simple for you, but you will try to teach it most. However, some learners are still unlike others who will exert effort to learn." (Participant 2)
Thoughts towards the subject matter	
Science subject has various applications that learners have to see.	"I will consider science a vital subject because we all know that this provides an opportunity for our students to understand the things around them, and it also helps them understand the nature of life." (Participant 4)

Table 1 presents the participants' thoughts and perceptions regarding science teaching. With over a decade of teaching experience, some participants emphasized the importance of having sufficient equipment and materials to deliver effective lessons. Participant 3's response reflects the issue of limited resources, as shown in Table 1.

This concern arises because science is inherently challenging to teach, requiring adequate resources to provide students with concrete and comprehensive knowledge. Participant 4 emphasized the need for resourcefulness in teaching science to facilitate effective learning. This aligns with the findings of Manalansan et al. (2020), who asserted that science teaching demands a deep understanding of content and innovative practices.

Moreover, it also requires patience due to the time-consuming preparation of learning and instructional materials. Participant 1's limited equipment and materials in her early years in public school made her compare the learning conditions of those she taught in private school. According to her, it is easier to teach learners in private schools than in public schools because they have a stronger foundation in their early years of learning. This is because they had the privilege of having enough materials and equipment in school.

Additionally, the participants expressed concern for their learners. Teachers' perceptions of their profession significantly influence their interactions with and treatment of students. This motivation was evident in the response of Participant 1, who highlighted her commitment to persevering until her learners understood the lesson. She stressed that motivation must begin within oneself before it can be extended to students. This perspective is supported by Panergayo et al. (2022), who found that teachers' motivation and self-efficacy significantly impact students' academic performance.

Table 2. The satisfaction brought about by teaching science.

Discourse and Dimension	Quote
Attainment of the purpose and professional satisfaction	
The learners' attitudes toward learning include their happiness, enjoyment, willingness, and effort.	"When the learners are enjoying the lesson because of the teaching strategies you came up with, it has a positive

Discourse and Dimension	Quote
	effect on your part. If the students are happy, you are also happy." (Participant 4)
Teachers are more idealistic and motivated when they are still novices.	"As a novice, especially in your first year, you will try to apply everything you learned in college. You are more motivated and active because you still have plenty of energy." (Participant 4)
Teaching their specialization The specialization mismatch hinders satisfaction.	"I can teach biology even when my eyes are closed, unlike physics, which requires more time to learn. Physics, maybe, is not my best subject." (Participant 1)
Class activities Having interactive, fun, and enjoyable activities in class.	"Having complete materials allows teachers to teach the subject matter efficiently. You cannot simply teach with them manipulating it on their own." (Participant 3)

Table 2 shows the satisfaction of teaching science as described by the participants. The learners' attitudes toward achieving the objectives of science teaching play a significant role for teachers. These attitudes—happiness, enjoyment, willingness, and effort—strongly influence the teachers' morale. For instance, Participant 2 noted that observing her learners performing well in class positively affects her mood, as their success reflects the knowledge they acquire. This fulfillment contributes to her happiness in her profession, aligning with the findings of Robosa et al. (2021), who identified learners as a key factor in reinforcing teachers' passion for teaching.

Attaining the purpose suggested by their thoughts in science teaching is not as easy as it may seem. This includes being resourceful in teaching when materials and equipment are not readily available. For this reason, Participant 3 mentioned that the gradual arrival of materials and equipment from the Department of Education eased the burden of teaching. Moreover, she also asserted that the presence of books, learning modules, televisions, and the internet makes teaching more efficient and effective because it can engage multiple senses in the learners.

Moreover, teachers' mastery in delivering lessons stems from their years of academic preparation, typically four to five years of specialization in specific subjects. This holds for the participants in this study. Participants 1–3 majored in biology education, while Participant 4 specialized in chemistry, and all expressed comfort in teaching their respective fields of expertise.

However, despite their preference for teaching within their specialization, the current curriculum requires them to cover other branches of science. Some participants found teaching physics more challenging than teaching biology, as argued in Mizzi's (2013) study. Nevertheless, they embraced the curriculum and dedicated additional time and effort to ensure the delivery of quality education.

On the other hand, the compensation or salary they receive as teachers also increases their satisfaction and motivation. Participant 4 is working because she wants to receive a salary. In addition, the advancement of technology also affected their satisfaction because it allowed easier communication with learners through group chats. Therefore, their connection with the learners also improved.

Teachers' satisfaction is also heightened when classroom activities are facilitated. They enjoy conducting laboratory and class experiments, especially when learners actively participate. Participant 3 emphasized the importance of having complete materials and equipment, as detailed in Table 2. Such activities are critical to learners' development, mainly when delivered engagingly and enjoyably.

Table 3. Preparations for becoming an effective science teacher.

Discourse and Dimension	Quote
Preparation of content and activities The flow of the content delivery and instructional materials must be appropriately outlined.	"We need to have a well-designed plan. We have to carefully plan, starting from the topic, the flow, outline, and materials, until the assessment. We must plan it well to prepare for the lesson we will teach them." (Participant 2)

Discourse and Dimension	Quote
Preparation of teaching skills Preparation requires ample time, particularly in reading and mastering the content.	"The day before or at night, you should clearly understand what you will teach. You cannot act as if you have forgotten it, and you will waste learners' time. You should not be like that; you must be prepared in almost every aspect of lesson delivery." (Participant 4)
Interaction with learners The learners are diverse, and accommodating varying interests is integral.	"There are times when they will test your patience and temper … think of a way to handle the circumstances; of course, you should remember that you are a teacher, after all. You do not want your license revoked, do you?" (Participant 1)

The practice of being an effective teacher begins with thorough preparation of content (Table 3). Effective lesson planning and adherence to the daily lesson log are essential components of this process, as their absence can compromise the quality of education. This is evident in Participant 2's response. Furthermore, activities must be engaging to capture the learners' attention. Participant 3 emphasized the importance of carefully planning classroom activities, while Participant 4 highlighted her practice of informing students about upcoming activities to ensure smooth implementation. Similarly, preparing teaching skills is another crucial aspect. This involves allocating sufficient time to read materials and master content, a practice supported by Setiorini and colleagues (2022), who emphasized the importance of advanced preparation.

Another important aspect of delivering quality education and being an effective teacher is the choice and preparation of the activities. Activities have to be engaging to draw the attention of the learners. In doing so, learners will not get bored. This is why Participant 3 carefully plans the activities she utilizes in class. For Participant 4, it is also her practice to inform her learners what they need to prepare for the following tasks to smoothly implement the activity in their next class. The next step is to prepare herself and the instructional materials needed for their activity.

Participant 1 highlighted that an effective teacher must know how to properly manage students, including anticipating and addressing their unique attitudes and behaviors. This task is particularly challenging in classrooms with more than 30 students per section. Additionally, teachers must prepare to accommodate or adjust their teaching strategies to cater to the ever-changing interests of students. Participant 3 noted that students' interests evolve, requiring teachers to be open to changes in their approach. Understanding and addressing these interests are critical to enhancing teaching effectiveness, as Awla (2014) suggested.

Table 4. Pedagogical practices for upholding quality education.

Discourse and Dimension	Quote
Personal values Teachers show compassion and patience towards the learners.	"You have to be compassionate and extend your patience when teaching. Teaching is not just about teaching; we are molding the characters of our students." (Participant 2)
Assessment of learning and learning theories Assessing learners through various forms of assessments.	"This allows flexibility because they can be reviewed through that. You can also easily identify if you have lapses on your part as a teacher." (Participant 1)
Applying various learning theories such as progressivism, social learning, and constructivism.	"Experimentation is good, especially for fast learners. However, slow learners need optimum guidance. While other learner-centered activities, such as differentiated instructions, require more time to conduct. You cannot do it easily because you have to exert effort due to its nature." (Participant 1)
Extension of teaching hours Teachers craft and conduct interventions if necessary.	"If the learners did not learn, those are the times that we will have remedial classes; it requires effort, of course.

Discourse and Dimension	Quote
	We will have the same lesson, and I will explain it again to them. It is laborious, but I must because that is part of the intervention. Every department has its intervention." (Participant 4)

The personal values of teachers play a significant role in the profession. While having an idealistic mindset and adhering strictly to what is written in textbooks is essential, the teaching profession requires more than just this approach. Compassion and patience toward learners are crucial for the participants in this study. This perspective aligns with the findings of Barton and Garvis (2019), who emphasized that empathy and compassion are fundamental for creating a conducive learning environment. Meanwhile, delivering quality education depends on the attitude of the teacher. For Participant 2, the teacher's preparation is one of the factors (Table 4). Also, teachers must do their best to provide quality education.

Learning assessments must be conducted to determine whether learners have effectively grasped the material through various pedagogical practices. This can be achieved by employing a variety of assessment methods. Participant 4 highlighted the importance of ensuring learners acquire the necessary competencies, as this is the ultimate goal of every lesson.

Additionally, teachers raised concerns about extending their teaching hours to deliver quality education. The typical teaching load for a public school teacher is six hours, with an additional two hours allocated for other non-teaching tasks. However, teachers often extend their teaching hours to conduct interventions, remedial classes, and reteaching to ensure learners receive the support they need. Participant 3 believes that if her learners have not mastered the lesson, she will not proceed to the next one, even if they become late. The mastery of the lesson is integral for her. Furthermore, teachers are also extending their time by providing announcements and reminders through group chats. For Participant 1, it is an avenue for her to remind her students to review if their performance or scores are declining.

Classification of Teaching Strategies Utilized in Science Teaching

With years of teaching experience, the participants have employed various teaching strategies. While some of these strategies have proven effective to a certain extent, others have been ineffective due to specific challenges. This section categorizes the teaching strategies mentioned by the participants and the reasons for using effective teaching strategies (Table 5).

Table 5. Classification of teaching strategies utilized in science.

Discourse and Dimension	Quote
Effective teaching strategies	
Integrating technology in classroom instruction invokes learners' interest and engagement.	"I have observed that when I integrate ICT, it makes them more curious. It ends up well because they learn and are so fun to watch. I feel like it is effective because they get to see it." (Participant 3)
Involving learners' multiple senses through multimedia, experimentation, and other hands-on activities.	"With this generation, 21st-century learners, we all know they are very interested in gadgets and technology. We can draw their interest by incorporating video clips into our presentations so they do not look boring." (Participant 2)
Addressing learners' multiple intelligences through differentiated instructions.	"I do not know how to refrain them from laughing when I show them the mock-up of a human body. They are amazed because they were not exposed to it in elementary school." (Participant 3)
Ineffective teaching strategies	
Utilization of strategies with unrealistic goals will compromise their purpose.	"Aside from struggling to handle these massive amounts of information and activities, a teacher should ask himself about the practical applications of these." (Participant 1)

Discourse and Dimension	Quote
Improper accommodation of learners with special needs.	"The lack of proper accommodation to learners with special needs constrains the effectivity of a teaching strategy." (Participant 4)

The involvement of multiple senses enhances the effectiveness of the learning process (Sert & Panieri, 2023). For Participant 2, this can be achieved by integrating multimedia into instructional materials. Additionally, teaching strategies incorporating hands-on activities are essential, as learners benefit from actively engaging in the learning process. These activities may include experimentation, as learners enjoy manipulating objects and conducting experiments independently. The use of manipulatives and mock-ups further supports this approach. Participant 3's response aligns with the findings of Torio and Cabrillas-Torio (2016), who argue that the chosen teaching strategy significantly influences the performance level of learners. Furthermore, Panergayo et al. (2022) assert that active learning must be employed to enhance performance and reduce achievement gaps.

Not all strategies implemented by the participants were successful. Some failed to achieve their intended purpose due to various factors. For example, some participants believe a teaching strategy becomes ineffective when teachers set unrealistic and unattainable goals. Repeatedly using the same strategy can lead to students' disinterest, which is why, according to Participant 1, teachers must effectively diversify their approach by exploring multiple teaching strategies.

This is manifested in the lecture-based approach. Participant 3 mentioned that some teachers still rely on this because they are unprepared. Lecture-based discussion is more convenient than preparing activities for the class. However, despite its convenience, it loses the enthusiasm of the learners. Moreover, every class comprises diverse learners, and there are cases where learners with special needs are included. This posits the need to address the students' varying learning styles and accommodate learners with special needs.

Identifying effective teaching strategies is important because they will be helpful not only for the teachers but also for the learners. For teachers, effective teaching strategies are indeed the reason for effectively acquiring knowledge. Participant 4's response (Table 6) supports this.

Moreover, effective teaching strategies increase learners' engagement and motivation. Motivation is another factor affecting learners' performance (Torio & Cabrillas-Torio, 2016). Participant 3 believes that if the learners ask questions, they are learning and interested. Moreover, if learners are not asking questions, it could imply that they are already satisfied with the knowledge they have gained.

Another reason is the possible reapplication of the teaching strategy. This is also highlighted in Participant 4's response. Conversely, for Participant 2, ineffective teaching strategies can be used as stepping stones to identify effective teaching strategies or transform ineffective ones into effective ones. The challenges experienced while implementing teaching strategies may serve as a way for teachers to improve themselves for the sake of their learners (Robosa et al., 2021).

Table 6. Reasons for the utilization of effective strategies.

Discourse and Dimension	Quote
Stimulation of learning	
Acquisition of knowledge and fostering effective learning.	"We can identify which strategy is most useful based on the reflection papers we asked them to submit at the end of every quarter. It has segments for 'We learn the most…', and 'We learn the easiest…'. From those reflection papers, we can infer that teaching strategies helped them retain the knowledge." (Participant 4)
Engagement and Motivation	
Sustainment of students' interest and curiosity.	"If the learners are asking questions, this means they are learning and interested." (Participant 3)
Reapplication	
Reapplication to another batch and sections.	"It is vital to identify the best practices so that you can apply them to the next batch of learners. Just like in research, you observed that certain strategies are effective for this batch; you will get curious if this is also

Discourse and Dimension	Quote
	effective for the next batch. If not, of course, you will no longer use it." (Participant 4)

Challenges and Its Consequences as a Science Teacher

Entering the teaching profession comes with numerous challenges due to the responsibilities entrusted to professional teachers. With over a decade of experience, the participants have encountered various obstacles, strengthening their ability to navigate these challenges while maintaining their chosen career path. This section discusses the challenges teachers face and the consequences on their lives (Tables 7 & 8).

The first category of challenges faced by the teachers involved in this study is dealing with learners. This issue arises from the imbalanced protection between learners and teachers. Participants 1 and 2 mentioned that existing laws predominantly favor the protection of learners, leaving teachers' protection insufficient. Participants 1 and 2 stated that the existing laws favored protecting the learners, while teachers' protection was lacking.

Teachers are also concerned about the learners' lack of interest in achieving high grades due to disengagement and disinterest. This scenario is supported by the findings in the study of Robosa et al. (2021). Additionally, Participant 1 highlighted that not all learners are motivated to learn or put in the necessary effort. The efforts of teachers and parents are often wasted when learners do not reciprocate their dedication. Participant 2 emphasized that while teachers strive to engage learners, there are instances where excessive effort fails to yield the desired results due to students' lack of motivation.

Another significant challenge teachers face is the overwhelming number of tasks required to be accomplished. Participant 4 experienced this, particularly during her early years in public school. A study by Schaffhauser (2020) reported that 81% of teachers require more than 14 hours to complete their professional responsibilities. Sacrificing personal time is often necessary to ensure timely and effective instructional materials are prepared.

Moreover, extended working hours present further challenges. Teachers frequently extend their working hours to complete pending tasks, compromising their rest. This issue is exacerbated when they bring work home to manage additional responsibilities. In smaller schools, teachers often face more ancillary tasks, as highlighted in Participant 3's response.

Table 7. Challenges faced as professional teachers.

Discourse and Dimension	Quote
Dealing with learners	
Discipline among learners must be imposed more carefully because the law protects them.	"As the years pass, you will learn that you should not scold them that easily. Some might be experiencing bad things. You have to understand them. You should never resort to corporal punishment because you might hurt them. If that happens, they will file a complaint." (Participant 2)
	"Students today act differently; some will sneer at you when you reprimand them. I admit I am strict and do not like students who lack good manners. I will talk to them privately to address my concerns. I will tell them I did not like how they acted, but we should not shame them." (Participant 3)
Losing interest of learners in obtaining high grades due to lack of eagerness and loss of interest.	"Not all learners are eager to learn and exert effort. The teacher's and parents' efforts are all wasted because the learners themselves do not want to equate the effort." (Participant 1)
Personal matters	
Overwhelming tasks faced by teachers.	"I get overwhelmed because I assume I have to finish everything all at once; it stresses me. Eventually, I learned to manage it." (Participant 4)
Managing emotions and temperance while dealing with challenging learners.	"You cannot bring your problems at home to your class. If you share your problem with your students, its implication will be negative because you transfer your

Discourse and Dimension	Quote
	negative emotions to them instead of motivating them. Also, it is a challenge to learn to hold your temper; you always have to show your happy side." (Participant 2)
Professional matters	
Non-teaching responsibilities such as administrative work, coordinatorship, and other paperwork.	"We have one hour vacant; it is supposed to be your resting hour, but the truth is, it is not your resting hour because paperwork preparations for class will consume it. Your time at school is insufficient, so you must bring it home." (Participant 2)
The shift to a spiral progression approach in teaching science.	"In grade 7, they took up biology, but the linkage is not well established, so the lesson will get deeper. The transition, for me, is not smooth. Besides, sometimes, overlapping will happen; in grade 9, for instance, too much attention in one area will take place." (Participant 1)

The challenges faced by teachers impact multiple aspects of their lives. One important consideration is how these challenges affect their personal lives. First, these challenges significantly impact their mental health. For some participants, these experiences contributed to developing a higher level of wisdom. Participant 3 noted that these challenges prompted them to reevaluate their teaching practices, gain new knowledge, and generate innovative ideas.

Another critical aspect affected by these challenges is personal growth. These experiences have helped teachers cultivate optimism, improve their mindset, and deepen their appreciation for learners. Participant 2 emphasized that viewing challenges positively is essential for fostering personal growth. She explained that overcoming these obstacles enables teachers to grow professionally and in other areas of life.

Additionally, Participant 2 highlighted the importance of maintaining a clear vision regarding the purpose of teaching—focused on the learners. She stressed that genuine growth in the teaching profession requires a heartfelt commitment. Without this dedication, personal and professional development may be hindered.

Table 8. Consequences in the life of the challenges.

Discourse and Dimension	Quote
Mental health	
Teachers experiencing burnout and feelings of underappreciation.	"You will get burnt out because you feel like you already did your best, your very, very, very best, but your students did not see it. They underappreciated your effort, and not only that, but you will feel empty because it is literally like nothing to them." (Participant 1)
Value improvement	
It taught teachers to become better people by acquiring courage, optimism, and being proactive.	"You will learn from your experience. You will learn something from those challenges. There is such a thing as being proactive or reactive. You have to be proactive, or else you will always react negatively to the tasks assigned by DepEd. You would not enjoy your profession if you always looked on that side. Those challenges should not defeat you; you must face them courageously." (Participant 4)
Teachers learned the importance of time management, setting priorities, and task management.	"Time management is important; you need to have time for yourself and your family. Bear in mind your least and top priorities. It saddened me that some teachers cannot handle the stress." (Participant 4)
Growth	
Acquisition of a higher form of wisdom and learning to accommodate changes.	"Effective and proficient teachers should embrace these challenges to improve their teaching abilities and support

Discourse and Dimension	Quote
	their learners continuously. Being a science teacher is challenging because you are not just focused on books and the materials you obtain from YouTube." (Participant 3)
Development of optimism, improvement of mindset, and greater appreciation for learners.	"You will eventually realize this is how they live now; you must adapt. You cannot persist in making them believe what you believe in. Perhaps it is a realization that we belong to different generations." (Participant 1)

Conclusion and Recommendations

The study uncovered that science teachers' attitudes center on their passion for teaching and learners, attaining purpose, teaching within their specialization, and implementing desired class activities. The participants' practices depend highly on content preparation, activities, teaching skills, and learner interaction. Besides, the perceived effective teaching strategies integrate technology, engage multiple senses, and address multiple intelligences, whereas ineffective strategies are characterized by unrealistic goals and a failure to accommodate learners' needs. Furthermore, the challenges they have faced and continue to face include imposing discipline, declining interest among learners, overwhelming tasks, managing emotions, and handling non-teaching-related responsibilities. In terms of consequences, these challenges have impacted their mental health, values, and professional growth. For future researchers, it is recommended to explore the perspective of learners concerning their experiences in utilizing effective and ineffective teaching strategies identified in this study and to consider the teachers in elementary and senior high schools to obtain a different perspective.

Conflict of Interest

The authors declare no conflict of interest.

Authorship Details

Guansing (75%): Concept and design, data acquisition and analysis, data interpretation, writing the manuscript. Natividad (25%): Conceptualization, supervision, editing the manuscript.

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