

## Challenges and struggles of public senior high school science teachers during the new normal

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### Abstract

The rapid increase of COVID-19 has brought challenges in the delivery of basic education and forced teachers to adapt the distance learning modality. It is interesting to find out the teachers' experiences in terms of their preparation, teaching engagement, and challenges in the new normal. The study aimed to capture the lived experiences of Senior High School (SHS) science teachers in the new normal education. Specifically, it sought to (a) determine the conception of science teachers on education in the new normal, (b) describe the challenges and struggles in the new normal, and (c) unveil the coping mechanisms of science teachers in addressing the challenges and struggles. A descriptive phenomenological study based on Colaizzi's (1978) method was utilized to describe the lived experiences of Senior High School science teachers in the new normal education and their challenges and struggles of the Science instruction. Eleven (11) participants were selected as respondents of the study using the purposive sampling technique. The study utilized two research instruments – Part A. demographic profile and Part B. interview validated by an expert on research instrumentation utilized modified Colaizzi's seven-step method (2018) for data analysis. Three (3) major themes emerged from the analysis of the responses to the study queries: *Science as a Challenging Subject*, *Teaching and learning in the new normal*, *Teaching as a Vocation*. The themes derived from the analysis of responses are essential in filling the gap in the literature that sought to explore the lived experienced of teachers in the new normal.

**Keywords:** Distance learning modality, new normal, phenomenological study, qualitative research, science teacher

## **Introduction**

The COVID-19 pandemic is one of the most recent public health emergencies across the globe. The rapid increase of infections has resulted in the global economic recession (Fernandes, 2020), closure of schools (Viner et al., 2020), travel restrictions (Chinazzi et al., 2020), as well as misinformation and controversies (Enitan et al., 2020). With the implementation of community lockdown, quarantine, and travel restrictions, the lives of people of all ages have been strongly impacted. However, these preventive measures have posed an unprecedented challenge on the governments to ensure that there should be continuity of learning (Chang & Yano, 2020). Meanwhile, countries worldwide have temporarily closed educational institutions to control the spread of COVID-19 and reduce infections. As a result, many teachers and students miss the necessary social interaction and communication for learning and development (UNESCO, 2020).

## **Educational Challenges during the Pandemic**

Asian countries like the Philippines are not exempt from these challenges in delivering basic education amidst the pandemic where face-to-face classes in schools are compromised due to the prohibition of the General Health and Safety Protocol (Bagoood, 2020). Thus, forcing teachers and students to work and learn from home (Crawford et al., 2020). In addition, recent reports from UNESCO in 2020 highlighted that more than 1.2 billion students worldwide had been affected by the temporary closure of schools, including more than 28 million students in the Philippines.

To aid every Filipino student in this pandemic, the Department of Education (DepEd) seeks to address the challenges in basic education through its Basic Education Learning Continuity Plan (BE-LCP) under DepEd Order nos. 007, 12, 13, and 14 series 2020 to develop a learning continuity plan (LCP) and health and safety protocols (Fajardo, 2020). With these, the Philippines Basic Education has shifted to distance learning from face-to-face classes for 2020-2021 (DepEd, 2020). Unfortunately, not all people have access to technology which affects billions of students (De Leon, 2021). Moreover, this sudden shift to distance learning fueled a hot debate in the country's poor living conditions of most learners (Ancheta, 2020). As a result, most academic institutions must develop new learning platforms and instructional delivery methods.

## **Learning Modality in the New Normal**

The Department of Education enjoined all levels of education. Instead of face-to-face with the students, adopts the more applicable and understandable learning delivery modes such as distance learning and homeschooling. As a new normal mode of education delivery, distance learning was initiated to overcome the challenges of access, equity, and quality of education (DepEd, 2020). These features will have the likeliness to bring efficient education amidst the world's present crisis. Blended is the combination of distance and homeschooling, while distance is composed of Online, radio, and television. While DepEd prepares for the "new normal" in education, the department emphasizes the important role of parents and guardians in ensuring that their children's learning will continue amid the disruptions brought by the COVID-19 crisis (Hernando-Malipot, 2020).

## **Science Teaching in the New Normal**

Science education involves students in a scientific investigation. The scientific investigation includes thinking, attitude, and steps scientific activities to obtain products and knowledge of science. Science education offers lifelong skills that allow students to generate ideas, weigh decisions intelligently and even understand the facts (Arrieta et al., 2020). As the COVID-19

brought unusual situations, it forced Science teachers to become more creative, resourceful, and innovative (Moore, 2016). Science educators worldwide were faced with figuring out how to effectively support teachers on how to teach science to match traditional in-person teaching and field-based experiences (Campbell et al., 2021). Instructional approaches mostly shifting to online modality should be considered in the light of different factors. Regarding instructional evaluation, some concerns related to learning assessment present cogent reminders for educators (Cahapay, 2020).

Since no school has ever done completely face-to-face classes, particularly in science, it is interesting to find out the Science teachers' experiences in terms of their preparation, teaching engagement, and challenges in online teaching. Thus, the papers sought to explore Senior High Science teachers' experiences to provide a deeper understanding on the challenges, struggles, and coping mechanisms.

### **Theoretical Underpinning**

The theoretical underpinning of this study is TPACK, an extension of Shulman's (1986) idea of Pedagogical Content Knowledge (PCK), "the body of understanding, knowledge, skills, and dispositions that a teacher needs to perform effectively in a given teaching situation" (Wilson et al., 1987). It is a revolutionized framework that attempts to capture indispensable forms of knowledge needed among teachers for technology application in teaching while responding to the multifaceted nature of teachers' knowledge (Mishra & Koehler, 2006).

The challenges and struggles experienced by SHS science teachers in the New Normal was the main subject of interest in this study. Their coping mechanism in integrating technology in their teachings and the smart adoption of the ever-changing steep learning curves that influence the delivery of high-quality education.

### **Objectives of the Study**

The study aimed to capture the lived experiences of Senior High School (SHS) science teachers in the new normal education. Specifically, it sought to (a) determine the conception of science teachers on education in the new normal, (b) describe the challenges and struggles in the new normal, and (c) unveil the coping mechanisms of science teachers in addressing the challenges and struggles.

### **Methodology**

#### ***Research design***

A descriptive phenomenological study based of Colaizzi's (1978) method was utilized to describe the lived experiences of Senior High School science teachers in the new normal education, as well as their challenges and struggles of the Science instruction. Specifically, the study employed the analysis of responses of the participants where the experiences of the science teachers were considered to make sense on their coping mechanism in addressing the challenges and struggles.

#### ***Participants of the Study***

Eleven (11) participants were selected as respondents of the study using purposive sampling technique. These respondents were science teachers from the schools of the Division of Cebu City, Philippines. These selection criteria were as follows: (a) graduates of science-related

baccalaureate degrees, (b) science teacher teaching SHS science subjects, and (c) science teacher teaching in the new normal.

Table 1 presents the demographic profile of the study. The majority of the participants were bachelor's degree holders in education and with at least 0 – 4 years of teaching experience. Also, most participants were college and master's graduates, obtaining teaching positions from Teacher I to Teacher III position. Lastly, most participants adapted modular distance learning in teaching the students.

The study involved human subjects as participants; strict confidentiality was assured to the participants specified in the informed consent form. Adherence to the ethical principles during the conduct of the entire study was also observed. Informed consent was given before the interview began, and asked as volunteers of the study, understanding all the rights of withdrawal or refusal during the conduct. Moreover, any personal information like names, telephone/cellphone numbers, and address or direct identity obtained during this study to identify the participants was kept strictly confidential.

**Table 1.** Demographic Profile of the Teacher Participants

Variable (N=12)	Responses	
	f	%
<b>Bachelor's Degree</b>		
Bachelor of Secondary Education	9	81.82
Bachelor of Science in Chemical Engineering	1	9.09
Bachelor of Science in Nursing/ Diploma in Professional Education	1	9.09
<b>No. of Years Teaching</b>		
0-4 years	4	36.36
5-9 years	3	27.27
10-14 years	2	18.18
15-19 years	1	9.09
20- above	1	9.09
<b>Highest Educational Attainment</b>		
College Graduate	4	36.36
Masteral Level (Units)	2	18.20
Master's Graduate	4	36.38
Doctorate Level (Units)	1	9.09
Doctorate Graduate	0	0.00
<b>Teaching Position</b>		
Teacher I-III	10	90.91
Master Teacher I-IV	1	9.09
<b>Learning Delivery Modalities</b>		
Modular Distance Learning	6	54.55
Online Distance Learning	2	18.18
Blended Learning	3	27.27

### ***Research Instruments***

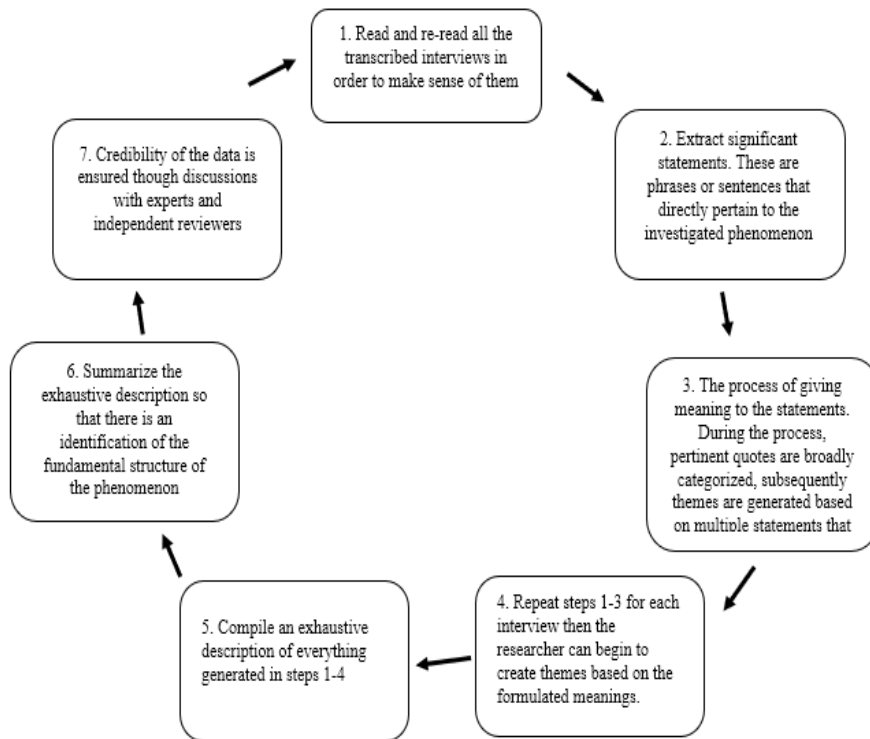
The study utilized two research instruments – Part A. demographic profile and Part B. interview validated by an expert on research instrumentation. The demographic survey

questionnaire determined the profile of the teacher participants, including their educational background, teaching experience, educational attainment, and teaching position. The interview guide directed the researchers towards gathering pertinent details essential to understanding the lived experiences of SHS science teachers in the new normal. The following are the essential guide questions used in the study:

1. What are the experiences of teachers in teaching science in the SHS during the COVID-19 pandemic?
2. What are the science teachers' conceptions on Education in the New Normal?
3. What are the challenges and struggles of science teachers in the New Normal?
4. What are the coping mechanisms of science teachers to address the experienced challenges?
5. What is the meaning of teaching science in SHS during this time of pandemic?

### ***Data Analysis***

The researchers utilized modified Colaizzi's seven-step method for data analysis (Finlayson et al., 2018). It is an iterative refinement process to ensure no detail of the phenomenon is missed (Colaizzi, 1978). First, the interviews were transcribed, transcribed, organized, as well as read and understood thoroughly. Then, a conventional content analysis was used to compare the words, phrases, sentences, and meaningful units that show patterns were identified. Next, during open coding, concepts were determined, and subthemes were created and defined. Also, relationships between subthemes were assessed using tables and diagrams to gain conceptual patterns. Finally, themes were formulated through line-by-line coding and integration of sub-themes through constant comparative analysis of concepts. Finally, findings were discussed with a group of experts to ensure adequate analysis and interpretation of the data (Elo et al., 2014).

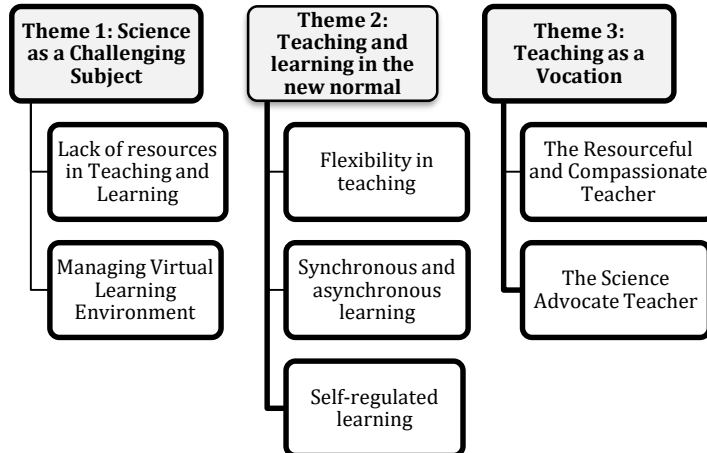


**Figure 1.** A modified Colaizzi's seven-step method for data analysis.

## **Results and Discussion**

### ***Themes Generated from the Challenges, Struggles and Coping Mechanism of Public Senior High School Science Teachers***

Three (3) major themes and seven (7) subthemes emerged from the analysis of the responses to the study queries.



**Figure 2.** Themes and sub-themes

### **Theme 1: Science as a Challenging Subject**

Teachers encountered numerous challenges posed by the pandemic, such as learning quality transfer, students' difficulties in following instructions, power and internet connection disruption, and health risks in distance learning (Agayon et al., 2022). They were challenged to develop more engaging and interesting lessons, considering the degree of difficulty in teaching SHS science subjects in the new normal. In fact, teacher narrated,

*“Science teaching in the New Normal with insufficient knowledge of the different online learning platforms as well as teaching applications makes it more of a challenging in conveying science lessons.” (P9)*

As online learning platforms are becoming the new trend in delivering quality education amidst Covid 19 pandemic. Teachers also experience challenges in the preparation of their classes (Kebritchi et al., 2017). In fact, problems were encountered in handling existing technology and effectively facilitating online teaching and learning due to the transition from conventional to online teaching-learning process (Thomas et al., 2020). A participant explicitly affirms this,

*“Teaching science during this COVID pandemic is very challenging because as a teacher I need to spend longer time in the preparation for online classes and creating learning activity sheets.” (P10)*

Teachers face various challenges in the new normal, including a lack of technical resources, training, clarity, direction, and knowledge (Joshi et al., 2020). Despite these challenges experienced, teachers still consider it motivation to teach SHS science subjects better. This motivation is seen in the extent of their effort to develop engaging lessons and supplementary learning materials. When they can successfully implement it in their lesson engagement, they gain confidence and inspiration in teaching SHS science subjects and leading them to be more committed to innovating effective science teaching. Teachers gradually adopted aspects of distance learning through professional development training (Ali and Kaur, 2020; Barrera et al., 2020).

#### **Sub – theme 1.1: Lack of Resources in Teaching and Learning**

Most of the educational systems worldwide have migrated to remote learning modalities as a response to the pandemic. However, this causes a lot of difficulties, especially in developing

countries (Rotas & Cahapay, 2020). Remote learning reveals a digital divide among Filipino students (Santos, 2020). This current situation in remote education may most possibly exacerbate existing inequalities and translate to online learning barriers (Santos, 2020). The participants note that the inadequacy of gadgets among learners, e.g., cellphones, laptops, etc., are explicitly experienced during online classes; the intention to teach and learn keeps both teachers and students persevering,

*“Some students don't have gadgets, but they will find a way communicate just to learn.” (P2)*

*“Only few students can join the consultation due to unavailability of gadgets and intermittent connection and so they are asking for a printed copy of learning materials.” (P5)*

SHS teachers handling science subjects through online learning platforms have voiced their thoughts and concerns on the learning outcomes of teaching online. Key participants highlighted,

*“Students are face with the challenge of comprehending the lessons in an online class that resulted to the submissions of average quality of outputs.” (P8)*

*“For both students and teachers, the greatest struggle is definitely the availability and accessibility of the technology. There is very little support to scaffold our online learning systems. Finally, I think that the overall quality of education has suffered.” (P4)*

Teaching-learning resources and learners' participation engagement is seen as a significant challenge in delivering quality distance education (Kebritchi et al., 2017). Adnan and Anwar (2020) highlighted that students' and teachers' problems with internet accessibility are generally attributed to expensive and fluctuating connections. For instance, Callo and Yazon (2020) mentioned that most students do not have a stable internet connection and often rely on mobile data. Also, faculties share the same internet connection either in school or at home, thereby creating several challenges such as voice and video conference in delivering substantial education.

Despite these challenges experienced in teaching, teachers and students can utilize their innovativeness to ensure that education is emphasized and important (Tokareva et al., 2019). Providing supplementary learning materials such as printed materials and extensive consultations on learners' difficulties explicitly helps address the gaps in learning. Pecoraro (2020) claims that access to high-quality education and resources allows students to understand their academic courses better. Thus, it increases their motivation to learn, resulting in more excellent classroom performance. He also added that a good learning strategy would help students comprehend more information. Thereby preparing students to be self-sufficient both within and outside of the classroom.

### **Sub – theme 1.2: Managing Virtual Learning Environment**

Virtual learning environment management can be challenging since it suggests that SHS teachers must assume an authoritative position as managers (Rehn et al., 2018). While this may appear to be effective, teachers should strive to strike a balance between establishing procedures for the virtual classroom and being flexible and acting as a facilitator to support the idea of increasing student freedom and ownership of learning. SHS teachers must set boundaries and schedules for remote or blended learning and set changeable expectations based on students' academic and social-emotional requirements. Teachers highlighted,

*“During my online classes/ consultations, students find it difficult to follow the schedule of my virtual classes, so I am giving my students a leeway to attend my other online classes where they can attend for those who can't.” (P1)*



*“Students find ways to work on the tasks given to them, but we cannot be sure if what they are doing is the proper thing to achieve the desired objective/s. We would ask them to document what they are doing to see if they are on track, but not all students have the resources, and we cannot force them to give/show it to us, for we know everyone is struggling (no gadgets, financial problems). SHS students are mostly working students. When there are online sessions, we hold to reinforce their learning, though still some of them cannot attend due to differences with the schedule.” (P7)*

Lathifah et al. (2020) accentuated that teacher should give time to set up virtual class rules and allow students to get used to them until these rules become a class routine. In this new learning platforms in teaching which requires tools and dedication to learning. Almost all teachers are facing unprecedented challenges specifically in establishing connections among students and adapting new strategies that fits the curriculum for distance learning delivery. A participant says,

*“It’s a bit hard to make a genuine connection to your students because you only interact virtually. Also, factors like slow internet connectivity and not a well-planned curriculum for online classes add to the problems of the teacher to provide quality education to students.” (P10)*

Although, SHS teachers are explicitly having trouble in doing virtual classroom management. The challenge is how to create a balance between relevant basic competencies for the students to acquire and the teachers’ desire to achieve the intended outcomes of the curriculum (Gachago et al., 2018). Also, the learners’ engagement in the teaching-learning process needs to be considered in the context of flexibility (Dayagbil et al., 2021). Moreover, these challenges are viewed as an opportunity to become flexible facilitators of learning, thereby promoting strong interpersonal relationships between students and teachers in the teaching and learning process.

## **Theme 2: Teaching and learning in the new normal**

The contemporary reality necessitates an online learning environment, and this is where the issue arises – it came as a surprise. Online learning involves organization, preparation, diligence, and a certain level of knowledge for the teacher and the enabling support systems. Because online learning is now mandatory, teachers migrate their face-to-face learning strategies to the online environment. This new method will necessitate a mindset shift. A participant expressed,

*“Everything is new; our approaches and the way we conduct the teaching-learning process. As teachers, we should be adaptive to different situations, especially the online class/modular class setup changes from time to time.” (P11)*

In developing connection and engagement toward a rich learning environment, today’s teachers must adapt smartly with a high sense of sensitivity and embrace technology considering the best and worst-case scenarios (Dayagbil et al., 2021). In spite of this optimistic approach, Callo and Yazon (2020) reported that teachers and students are quite familiar with some online platforms (e.g., *Facebook classroom, google classroom, screencastify, loom, flip-grid, screencast-o-matic, and webinar*); however, they are not yet capable of using it as a medium of teaching and learning, mainly due to the lack of skills training in distance learning education platforms. Moreover, learning requires modifying the written curriculum, capacitating teachers, and upgrading technology infrastructure to respond to the changing conditions amid and beyond the pandemic. In addition, new adopters will have to deal with steep learning curves.

### Sub – theme 2.1: Flexibility in teaching

SHS teachers in basic education have had a challenging year, considering using technology to keep students safe and engaged in the teaching and learning process during a pandemic. Meanwhile, teachers now give students more options for completing tasks, more chances to modify and resubmit their work, and more methods to participate in class discussions nonverbally. Thus, flexibility should be considered an attribute of both learners and educators and can also be understood as a characteristic of institutional and educational strategies (Ryan & Tilbury, 2013). Participants mentioned,

*“Teaching Science is a challenge in this pandemic since we adopt new learning delivery modalities like online and blended learning instructions. As a science teacher, I worry so much if my students could grasp the content since concepts are best understood when demonstrated before them, followed by hands-on activities. In line with this, I provide them with video demonstrations to supplement learning and ample time to submit requirements on my subject.” (P8)*

*“I am able to learn and to create new strategies in teaching Science with the use of online applications like NEO LMS and Google classrooms that enables participation where students can still modify their works if they wanted to.” (P10)*

Despite the difficulties in science teaching, the abrupt instructional changes can be considered positive because students now have more methods to demonstrate what they know. With the development of video lessons and distance learning applications, teachers recognized improvement in their remote instructions. It has a significant impact on students since teachers can evaluate their tasks without seeing them face to face (ONVU Learning, 2021). Furthermore, teachers' strategies are becoming more robust, flexible, and innovative, making it reasonable to expect better student learning while reducing anxiety and stress (Cardona et al., 2022; Goh & Sigala, 2020; Tan, 2021). On the contrary, both the teachers and students viewed inefficiency in teaching psychomotor skills, resource intensiveness, mismanaged decorum during classes, difficulty in maintaining academic integrity (Mukhtar, 2020), lack of confidence and difficulty in the topic completion, and lack of motivation (Singal et al., 2021). Therefore, school administrators should also take immediate actions and measures with all these challenges in the distance learning modality.

### Sub – theme 2: Synchronous and asynchronous learning

The pandemic ushered in a major shifting to online course delivery, which presented issues for SHS teachers. However, a few major advantages have emerged: teaching and learning do not have to take place at the same time or in the same place. Online delivery is more convenient, as it can provide vibrant and dynamic teaching and learning environment (Mohammed et al., 2020). In fact,

*“Online learning has certain conveniences: one can accomplish it at home, with all the preparation completed with the resources one has.” (P4)*

Meanwhile, teachers recognize that characteristics such as student comprehension and teachers' inventiveness in teaching were just a few of the areas put to the test in online learning delivery. Teacher,

*“When I am hosting online lecture and it seems that the students find it difficult to understand, I tried developing assignments and gave reading materials to put emphasis on the lesson.” (P7)*

Classes conducted within a virtual learning environment are as good as those conducted in a regular face-to-face setting (Cortez, 2020). Thus, both synchronous and asynchronous approaches to distant learning have advantages and disadvantages. Key

concerns in the creation of effective online learning environments, according to Carrillo and Flores (2020), include an exact pedagogical approach, relevant and authentic assignments, and appropriate tools and technology. Moreover, just because one design is more effective in one setting does not indicate it is the best for all learning situations. In addition, effective learning occurred when students were focused, prepared, self-motivated, had appropriate assistance, and made meaningful remarks that encouraged engagement and quality interaction (Muir et al., 2019).

### **Sub – theme 3: Self-regulated learning**

Self-regulated learning requires learners to think about how they learn (Harris et al., 2020). With the advent of new learning modalities, allowing students to make small choices that do not have heavy consequences, teachers empower them to take an active role in their learning. Participant mentioned,

*“The SHS students can do tasks without much supervision and find solutions to their own struggles much on their own. They only seek help from teachers when they don’t have resources or cannot really understand the tasks on their own. The teacher will simply follow up the students if they are doing the right thing.” (P7)*

Exploration by students is at the very heart of learning. Such findings are similar to the study of Cortez (2020), wherein a majority of the students are capable of virtual self-learning, such as attending lectures or watching videos and tutorials with lesser supervision from their teachers. Furthermore, making discoveries from work assigned by the teacher that they are interested in, finding it a challenge, and the sensation they get from self-regulation is an incredible life skill for students. A participant stated,

*“Students will know the importance of learning by themselves and can work more independently. This encourages a globally competitive products it is because they had learned not only in the classroom, exploring a lot of things by their own and will make them lifelong learners.” (P2)*

Cai et al., 2020, emphasized that learners can set their own learning goals, determine content and progress, choose skills and methods, monitor the entire process, and conduct self-assessments. Students with a higher level of SRL can optimize the digital learning environment and be more progressive in academic achievement (Barnard-Brak et al., 2010; Wang et al., 2013; Zimmerman & Schunk, 2012). SRL affects academic emotions, which impacts increasing academic achievement (Pekrun et al., 2002). However, students’ self-regulated learning can be appropriately built if an interaction exists between students in a particular group (Huang, 2019; DeLuca et al., 2020; Ge et al., 2020; Tuada et al., 2020; Zainuddin et al., 2020).

### **Theme 3: Teaching as a Vocation**

As a multifaceted profession and vocation, teaching provides a quality learning environment to the students. The teacher inspires and encourages students to strive for greatness, live to students' most significant potential, and see the best in the students. Even during the pandemic, teachers play a vital role in the teaching process and can create a substantial impact on student performance.

*“Even in this pandemic, I must continue to light the candle of my learners, and take these pieces of advice, “love your students from the bottom of your heart the same on how you love yourself, communicate with them because they need you, be kind, and be generous.” (P1)*

Most importantly, the SHS teacher admires, inspires, and learns through life's adversities with commitment and excellence.

*"When we love what we do, no matter what challenges may come, we keep moving forward." (P5)*

As the workplace environment has shifted due to the pandemic, science teachers are not fazed and learn how to adapt to the situation with utmost dedication to learning. Although teachers face challenges in managing activities (Bao, 2020), they strive to work in pursuit to access to education. These teachers considered teaching as a vocation responded to the strong feeling, calling, and service to the school.

### **Sub-theme 3.1. The Resourceful and Compassionate Teacher**

Due to the pandemic, the rapid transition in teaching format gives rise to many challenges, especially in science teaching, where most of the activities require research and laboratory activities. Science teaching in distance learning requires different approaches in the teaching-learning process. Nevertheless, instructors have tried to maintain high-quality teaching using various virtual platforms for class and office hours (Qiang et al., 2020). The global pandemic unlocks innovation in K-12 instruction (Arnett, 2021). As a matter of fact, the teachers sought and utilized the resources very well to provide students with meaningful learning. It is critical to consider various factors when selecting the finest materials for students.

*"I needed to be resourceful about teaching activities and materials by applying adaptive learning design, where students can access the course material and participate meaningfully." (P3)*

Resourcefulness among educators was extensively tested to continue the delivery of instructions of what remains for the school year. However, with the resourcefulness of the teacher and administrative support for the technological infrastructure, science can weather this storm. Teachers consider learning new techniques and ways to give their students more exciting activities. Thus, alternative learning resources and media were utilized (Imamah & Susanti, 2021; Suryani & Drahati, 2021). Resourcefulness in times of pandemic, being creative in designing task materials and maximizing our capacity by involving our learners in making possible solutions. Go deep with their experiences, background knowledge, and culture.

*"It's a challenge and opportunity at the same time. It is an opportunity for every teacher to work in unfamiliar circumstances. I can explore new strategies in teaching science using online platforms." (P6)*

However, some teachers are forced to learn digital tools that would help deliver science lessons. In fact, one teacher says,

*"I am forced to equip myself with the different digital tools in teaching. I get to learn more teaching strategies, especially online strategies." (P10)*

Due to these scenarios, teachers received training to equip them with the necessary tools and equipment for teaching, especially technical skills. Technical skills are essential in the distance learning modality when adopting technology in science teaching to provide effective learning. Al-Senaidi et al. (2009), Bingimlas (2009), and Goktas et al. (2009) revealed that practical teacher training is one of the critical factors which influenced the integration of ICT. Further, technical skills training enhances the acceptance of the technology. According to Drent and Meelissen (2008) and Al-Zaidiyeen et al. (2010), successful implementation of ICT strongly depends on teachers' positive attitudes. Thus, when teachers were not trained with ICT, it would be problematic to utilize ICT in an innovative way of teaching within a curriculum-oriented perspective (Coll et al., 2009).

As the teachers are challenged in the delivery of the lesson, they can teach empathy, enabling students to achieve personal success while contributing to society's benefit even in the middle of the pandemic. Besides, students can thrive best in an environment where

teachers can show affection, care, and understanding towards them through making conversations (Lathifah et al., 2020). Participants,

*"For every situation, as a teacher, we always consider that students are from different situations and that they are in different circumstances." (P7)*

*"For me, teaching Science during this time of pandemic is very important. I get to also share some inputs about how we can protect ourselves and others from getting infected of Covid." (P11)*

Teacher preparation has been viewed as a paradoxical cure for enhancing school curriculum, teaching, and learning while being subjected to criticisms questioning its usefulness in educating high-quality teachers for the twenty-first century. Thus, Etiubon (2015) found out that students achieved significantly better when resourceful teachers taught with e-education instructional tools. Moreover, the study of Klassen et al. (2018) revealed that the most important non-cognitive qualities for effective teaching are: empathy and communication, organization and planning, and resilience and adaptability.

### **Sub-theme 3.2. The Science Advocate Teacher**

Teaching out of a textbook can ignite a student's interest in science. Science perhaps is most keen on responding to the flux in the educational landscape. This pandemic makes science class relevant. It has prompted many people to learn more about the viruses and other aspects as science (Zucker & Noyce, 2020). One teacher says,

*"Teaching science in the SHS in this time of pandemic is about making them see the meaning and importance of learning concepts and ideas to make them relevant to student's lives in the current situation and its usefulness to the near future." (P4)*

The pandemic highlights the importance of scientific culture development. It has also revealed its importance for the well-being of global populations, and advances in these fields are necessary not only to recover better from the crisis but also to address other global challenges, such as poverty, inequality, and climate change (United Nations, 2021) The scientific spirit is shown in fighting the pandemic. A participant explicitly affirms this,

*"Science is all about aspiring to perfection and adapting to what reality throws at it. It is continuous knowledge. Just look at the beauty of teaching in this pandemic time, and it will be made you succeed. Science should teach them that in this time of crisis, people should learn to hone their adaptive skills." (P5)*

Teachers can serve as learning partners in helping students to build ideas and become lifelong science learners. The formation of the scientist in students is a benefit that teachers enjoy that no one else can take away because students link their scientific character to their science teachers (Sheldrake et al., 2017). An effective inquiry-oriented science teacher possesses more than the skills of teaching through investigation and addresses teaching practices from limited cognitive perspectives, leaving unexplored the shifts in identity that may accompany teachers along their journey to becoming skilled in inquiry-oriented instruction (Bryce & Bellino, 2016). However, several challenges in science education were encountered in the 21st century concerning cultural, economic, political, pedagogical, and social issues impacting and influencing instructional methodology and recognizing the impact of science education as it affects individual, social, organizational, and societal progress and functions (McFarlane, 2013). An action-oriented and issues-based curriculum should be advocated as the key to renewing and activating scientific literacy to increase students' performance (McFlare, 2011). May these challenges serve as an opportunity for the school and teachers for scientific literacy.

The challenges, struggles, and teachers' perseverance in the face of this unexpected calamity brought on by the epidemic were genuinely able to usher in a new era in our lives.

The knowledge that we still need to learn new things, improve our skills, and look forward to favorable consequences motivates us to keep going and live a purpose-driven life as a teacher.

### **Implications of the Study**

The study showed that science teachers faced challenges and struggles in implementing the distance learning modality in the new normal. The study's findings have implications for the following entities: school administrators, teachers, parents, and students.

School administrators should be mindful in benchmarking the needs of both the teachers and the students. In this light, the persistent desire for quality education is inherently addressed by identifying potential solutions. A feasible solution that an administrator can provide can be intensive technical assistance among teachers struggling in the implementation of a distance learning modality. Such assistance may be in the form of training, seminars, and workshops which would aid in addressing the challenges experienced by teachers (e.g., online learning preparations, assessments, and pedagogical practices). With all the pervasive support to capacitate teachers and achieve systematic change amidst the pandemic, attainment of the educational goals may not be far at hand. Meanwhile, the insights gained from the study can help to revisit the existing policy frameworks by designing new strategies and technical structures to help teachers successfully embrace the new normal.

Meanwhile, for teachers, the findings can provide them with meaningful and valuable information that can guide them to reinforce effective teaching and learning activities for the students to be more competent in science amidst uncertainties. This may help them consider new ways to prepare, organize, deliver, and assess learning materials for distance learning. In addition, the teachers can develop innovative pedagogical approaches and techniques for students' better understanding and the smooth execution of instruction and assessment.

With all the challenges school administrators and teachers face, parents should take accountability in making follow-ups with their children's learning progress. Parental support is vital in the learning process, especially in this time of pandemics. Furthermore, this acquaints the parents on the importance of supporting their children's cognitive and affective aspects to grow holistically with success and achievements throughout their lives despite physical separation from their teachers.

As for the students, this can facilitate and respond to the needs of the students in this time of adversity. This may help the students be more competitive in embracing the world of technology, especially when dealing with the sudden change in the educational system where online teaching and learning are applied through the proper guidance of their teachers, who are always ready to embrace the change.

Lastly, the study will benefit future researchers with results that provide substantive knowledge as a baseline for new studies. Also, this may serve as an eye-opener to be up to date on the current educational drifts to help the teachers and students succeed in their future endeavors and enhance the transition of the teaching-learning process.

### **Conclusion and Recommendation**

The study was conducted to investigate the lived experiences of Senior High School (SHS) science teachers in the new normal education. The themes derived from the analysis of responses are essential in filling the gap in the literature that sought to explore the lived experienced teachers in the new normal.

The study revealed that despite the effort in the continuity of teaching and learning amid the pandemic, teachers experienced challenges and struggles in developing an engaging

and interesting discussion in the new normal. In addition, students experienced' lack of gadgets during online classes affected the delivery of the lesson, and students had difficulty following the schedule on virtual classes. Therefore, a strategic analysis should be done in the curriculum and instruction, student involvement, and ICT integration in the continuity of teaching and learning.

In the new normal, teachers were able to develop connection and engagement towards the students in the virtual classroom and embrace technology and a high sense of sensitivity. Teachers gave students more options to complete the tasks, more chances to modify and resubmit their work, and more ways to participate in class discussions. Teaching and learning do not have to take place at the same time or in the same place. While learning from home, students were able to make discoveries from work assigned by the teacher. They found it challenging and made self-regulation an incredible life skill.

As the workplace environment has shifted due to the pandemic, science teachers are not fazed and learn how to adapt to the situation with utmost dedication to learning. Teachers strive to work in pursuit to access to education. These teachers considered teaching as a vocation responded to the strong feeling, calling, and service to the school.

The contemporary reality necessitates an online learning environment, and this is where the issue arises – it came as a surprise. Online learning involves organization, preparation, diligence, and a certain level of knowledge for the teacher and the enabling support systems. Because online learning is now mandatory, teachers migrate their face-to-face learning strategies to the online environment. This new method will necessitate a mindset shift.

The study was limited to determining lived experiences of science teachers in the new normal. Future research may deal with the practices of science teachers in terms of their preparation, teaching-learning process, and practices in the distance learning modality. These perspectives may lead to the generation of a model or theory that manifests the teacher's coping mechanism in the new normal education. A mixed method can be employed to understand discrepancies between quantitative and qualitative findings. Reflects the participants' viewpoints, gives study participants a voice, and ensures that study results are based on their experiences.

### **Conflict of Interest**

The authors declare that there was no conflict of interest in the completion of this research project.

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