TEACHERS' PRACTICES ON DELIVERY OF LESSONS IN SCIENCE IN THE ELEMENTARY GRADES UNDER THE NEW NORMAL

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the Faculty of the College of Graduate Studies

SAMAR COLLEGES, INC.

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In Partial Fulfillment

of the Requirements for the Degree

MASTER OF ARTS IN EDUCATION

(Elementary Education)

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NESSA D. SABUSAP

May 2023

APPROVAL SHEET

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This study determined the teachers' practices on delivery of lessons in Science in the elementary grades under the new normal in the District of Zumarraga, Schools Division of Samar during the School Year 2022-2023.

Adopting a descriptive-correlation design with comparative analysis, the study evaluated the personal characteristics of the teacher-respondents in terms of their age and sex, civil status, highest educational attainment, performance rating based on the latest IPCRF, number of relevant in-service training and attitude toward teaching Science.

The findings showed that the teachers' practices on delivery of lessons in Science in the elementary grades under the new normal were evaluated by the teacher-respondents as significant along with instructional materials used and the assessment process.

In addition, in correlation between the average Science performance of classes handled by the teacher-respondents as their profile variates, it was found significant in terms of the performance rating based on the latest IPCRF.

Keywords: teachers' practices; delivery of lessons; attitude; new normal

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Chapter 1

THE PROBLEM AND ITS BACKGROUND

Introduction

Science is one of the major subjects in the elementary schools which have the highest units when it comes to grading systems compared to English, Mathematics, and Filipino. However, learning Science is relatively difficult for both successful and unsuccessful students for it is dogmatic and its content has an abstractness that makes it tough. Teachers' practices in teaching Science can also contribute to expand the learning skills of students in Science which help improve their academic performance.

Science teaching in elementary schools, or the lack thereof, continues to be an area of concern and criticism. Elementary teachers' lack of confidence in teaching Science is a major part of this problem (Avery & Meyer, 2012). A large body of literature illustrates that many elementary teachers are reluctant to teach Science and confess a lack of confidence to teach it. Nevertheless, there are a few cases of elementary teachers who do well in Science and offer rare examples of enthusiastic elementary teachers (Avraamidou, 2013).

Science teaching in the elementary grades focuses on teacher preparation which includes Science content, Science methods, in-service; time spent; and attitudes toward teaching Science in terms of confidence in the ability and preference of teachers. It indicates inadequate preparation, lack of self-confidence, and little preference for teaching Science (Manning, 2012). Good-

quality teachers, with up-to-date knowledge and skills, are the foundation of any system of formal Science education. Systems to ensure the recruitment, retention, and continuous professional development of such individuals must be a policy priority (Alake et al., 2012).

In the previously described context, traditional teaching (sometimes based excessively on expositive methods) generates passivity among students, who are placed in the hypostasis of being mere consumers of already fabricated knowledge, their only effort being to acknowledge, memorize them (often in a mechanic manner) and subsequently to reproduce them in an evaluative context. Such teaching practices cannot have an effect, but a "surface", shallow learning, the results of which are inconsistent and usable only in immediate instructional contexts (Gorghiu et al., 2015).

According to Teo & Pua (2021), Science teaching delivery of lessons practices are frameworks that capture fundamental teaching processes and teaching areas that can be applied and integrated to other subjects and all levels, constituting a core component. They are categorized into four areas: a) assessment and feedback, (b) positive classroom culture, (c) lesson enactment, and (d) lesson preparation. The pedagogical practices are not subject or student-specific; they can be adapted craftily by teachers even if they are focused on teaching the disciplinary content. Teachers are expected to adopt pedagogical practices to address their students' needs.

Although Science instruction may be limited in elementary school, it has been shown that effective teaching practices can help to overcome Science

achievement issues, and improving elementary teachers' confidence in teaching Science is key to effectiveness for the Science delivery of lessons. Conversely, neglecting to teach Science at the elementary level results in a large gap for students that frequently cannot be undone through future schooling. However, the transformation of content knowledge into teaching practice is not automatic but can be fostered deliberately through Science content courses (Milner et al., 2012).

Elementary teachers face increasing demands to engage children in authentic Science processes and arguments while simultaneously preparing them with knowledge of Science facts, vocabulary, and concepts. This reform is particularly challenging due to concerns that elementary teachers lack adequate Science background to teach accurately (Nowicki et al., 2012). Although there has been some success in helping Science teachers develop their understanding of the nature of Science, it is challenging to help those Science teachers transfer such understanding to their teaching practice in the delivery of lessons (Akerson et al., 2015).

When teaching Science, elementary school teachers are confronted with a variety of student explanations for natural phenomena. Often, these explanations conflict with scientifically adequate views. Indeed, the provision of learning opportunities that address student conceptions, foster conceptual change, and, finally, achieve the levels of students' scientific understanding called for in educational reform documents is a daunting endeavor. It includes an adequate diagnosis of student thinking, the design of challenging and meaningful learning

situations, and providing the adaptive guidance and support needed, for instance, in student discussions about scientific investigations (Kleickmann et al., 2019).

However, in many countries, elementary school teachers are generalists, often not well prepared to teach Science. Sometimes sharing their students' misconceptions, they tend to lack the Science content-related knowledge necessary to create appropriate learning opportunities (Heller et al., 2012). As with any specialized field, implementation Science has its terminology and concepts (Michie & Johnston, 2017). In recent years, efforts have been made to increase the standardization of inconsistent terminology to further the effectiveness, efficiency, usability, and timeliness of knowledge generation and synthesis (Michie & Johnston, 2017).

The K to 12 science curriculum will provide learners with a repertoire of competencies important in the world of work and in a knowledge-based society. It envisions the development of scientifically, technologically, and environmentally literate and productive members of society who are critical problem solvers, responsible stewards of nature, innovative and creative citizens, informed decision makers, and effective communicators. This curriculum is designed around the three domains of learning science: understanding and applying scientific knowledge in local settings as well as global context whenever possible, performing scientific processes and skills, and developing and demonstrating scientific attitudes and values. The acquisition of these domains is facilitated using the following approaches: multi/interdisciplinary approach, science

technology-society approach, contextual learning, problem/issue-based learning, and inquiry-based approach. The approaches are based on sound educational pedagogy namely, constructivism, social cognition learning model, learning style theory, and brain-based learning (K to 12 Science Curriculum Guide August 2016:2)

In addition, Science content and science processes are intertwined in the K to 12 Curriculum. Without the content, learners will have difficulty utilizing science process skills since these processes are best learned in context. Organizing the curriculum around situations and problems that challenge and arouse learners' curiosity motivates them to learn and appreciate science as relevant and useful. Rather than relying solely on textbooks, varied hands-on, minds-on, and hearts-on activities will be used to develop learners' interests and let them become active learners.

According to Mustacisa (2016), the Philippines Constitution Article XIV Sections 10 to 13 emphasize that Science and Technology are essential for national development and progress, that the congress provides incentives, and scholarship grants and protect and secure the exclusive rights of citizens with special interests in Science. But, it is a sad note that, up to this time despite the various programs and projects implemented in all levels of education for academic improvement, the performance record of students' academic achievement particularly in Science revealed to be very poor as measured by the National Achievement Test (NAT) given every year by the National Educational Testing and Research Center (NETRC).

In the 2018 Programme for International Student Assessment (PISA), results revealed that Filipino students achieved an average score of 357 points in Science, which was significantly lower than the Organization for Economic Cooperation and Development (OECD) average of 489 points. This report covers the cognitive results of the PISA 2018. Supplemental reports analyzing contextual variables will be released in the coming year to deepen understanding of student performance and provide further insights into DepEd's push for education quality (PISA 2018 National Report in the Philippines, 2019).

Many evidence-based practices have not achieved their potential to broadly impact student outcomes as schools struggle with their adoption and implementation. This costly and consequential implementation gap must be addressed within the school through the focused study of implementation processes and outcomes. Implementation Science is a multidisciplinary, translational field focused on increasing the usage and implementation of evidence-based practices into typical practice to improve outcomes (Sanetti& Collier-Meek, 2019).

In the District of Zummaraga, the Schools Division of Samar has been experiencing an abrupt decline in their NAT results in the subject of Science over the past three years. In the school year 2013-2015, the NAT Mean Performance Score (MPS) of the school was pegged at 49.97, for the school year 2013-2014 it diminished by 12.47 points which resulted in 37.50, and for the school year 2014-2015 it decreases to 34.48. Maybe these results could be affected by the involvement of parents in school and the family structure the students' belonged

to DepEd Samar Division, Planning Office Report, 2023- Quarter 2).

The above-mentioned situations motivated the researcher to conduct the study to determine the teachers' practices on the delivery of lessons in Science in the elementary grades under the new normal in the District of Zummaraga, Schools Division of Samar during the School Year 2022-2023.

Statement of the Problem

This study identified teachers' practices on delivery of lessons in Science in the elementary grades under the new normal in the District of Zumarraga, Schools Division of Samar, during the School Year 2022-2023.

Specifically, this study sought answers to the following questions:

1. What is the profile of teacher-respondents as to:

    1.1 age and sex;

    1.2 civil status;

    1.3 highest educational attainment;

    1.4 performance rating based on the latest IPCRF;

    1.5 number of relevant in-service training;

    1.6 Attitude toward teaching Science?

2. What are the practices for the delivery of lessons in Science in the elementary grade as to:

    2.1 modality;

    2.2 instructional materials used, and

    2.3 assessment process?

3. What is the average Science performance of classes handled by the

teacher-respondents?

4. Is there a significant relationship between the practices on delivery of lessons in Science in the elementary grades of the teacher-respondents and each of their profile variates.

5. Is there a significant relationship between the average Science performance of classes handled by the teacher-respondents and each of the profile variates?

6. Is there a significant association between the average Science performance of classes the teacher-respondents handled and their practices on the delivery of lessons in Science as to:

6.1 modality;

6.2 instructional materials used, and

6.3 assessment process?

7. What intervention scheme may be derived based on the findings of the study?

Hypotheses

The following hypotheses were tested in the study:

1. There is no significant relationship between the practices on delivery of lessons in Science in the elementary grades of the teacher-respondents and each of their profile variates.

2. There is no significant relationship between the average Science performance of classes handled by the teacher-respondents and each of the profile variates.

3. Is there a significant association between the average Science performance of classes the teacher-respondents handled and their practices on the delivery of lesson in Science as to:

3.1 modality;

3.2 instructional materials used, and

3.3 assessment process.

Theoretical Framework

This study was anchored on the Inquiry-Based Learning Theory by Slavin (1996), Social Cognitive Theory (1997), and Self Efficacy Theory (1998) both proposed by Bandura. Likewise, this study is anchored on the Constructivism Theory of Driver et al. (1994). Their brief descriptions of constructs and relevance to the study are discussed here.

The Inquiry-based Learning (IBL) Theory by Slavin (1996). This is a learning approach in Science designed to increase student engagement with the scientific method. The instructional value of IBL is that it allows one to discover answers to problems or issues through personal, hands-on experiments, involving the development of a relevant question for developing a way to test the hypothesis, collecting and recording data from the experimental design, analyzing the data and evaluating it against the original inquiry question, and then sharing this information with others to increase knowledge.

This study used Social Cognitive Theory and the Psychosocial Construct of Self-Efficacy Theory (SE) by Bandura (1997). Confidence, a term used by previously mentioned literature, does not specify whether one believes his

actions resulted in success or failure. In contrast, SE is defined by Bandura (1997) as confidence that one can act successfully. Increased Science SE in teachers leads to increased time devoted to teaching Science, responsiveness to students, willingness to creatively teach the content, and motivation to innovate and try new teaching strategies.

Two dimensions emerged from Bandura's (1997) construct of SE. First, "Personal efficacy" (PE) is the belief in one's ability to perform in a particular situation. The conviction that one can teach Science effectively serves as an example for PE. Second, "Outcome Expectancy" (OE) is defined as the belief that one's actions can influence the outcome of a situation. For example, if one teaches Science effectively, this can result in higher Science achievement in the classroom, overcoming barriers that might exist. Bandura (1997) suggested that an effective way to promote the development of SE is to provide them with opportunities for mastery experiences, vicarious experiences, verbal persuasion, and physiological and emotional reactions.

Therefore, it seemed imperative that teacher education programs make increasing the performance of Science SE a priority and embed this goal within the objectives of the program itself to improve the delivery of lessons practices in Science. The theory was a good anchorage since the delivery of lessons effectively affects the self-efficacy of teachers. Their confidence in the use of approaches to carry over practices impacts students’ performance in Science. The delivery of lessons by Science educators at all elementary levels played as models of effective or ineffective Science pedagogy.

Similarly, this study was anchored on the Constructivism Theory of Driver et al. (1994), Constructivist teaching in Primary Science sees learning as a dynamic and social process in which learners actively construct meaning from their own experience in connection with their prior understanding and the social setting. Across the early stage of teaching, teachers seemed to value students' ideas and existing knowledge and acted as facilitators for students to construct knowledge. This theory was very much relevant to the research at hand as it emphasized that the delivery of lessons should follow the social setting and constructive experience of the learners themselves for them to relate to Science lessons, These must be taken into consideration to see closer the needs of the students.

Conceptual Framework

Figure 1 presents the conceptual framework of the study. The process of the schematic diagram is from the bottom to the top.

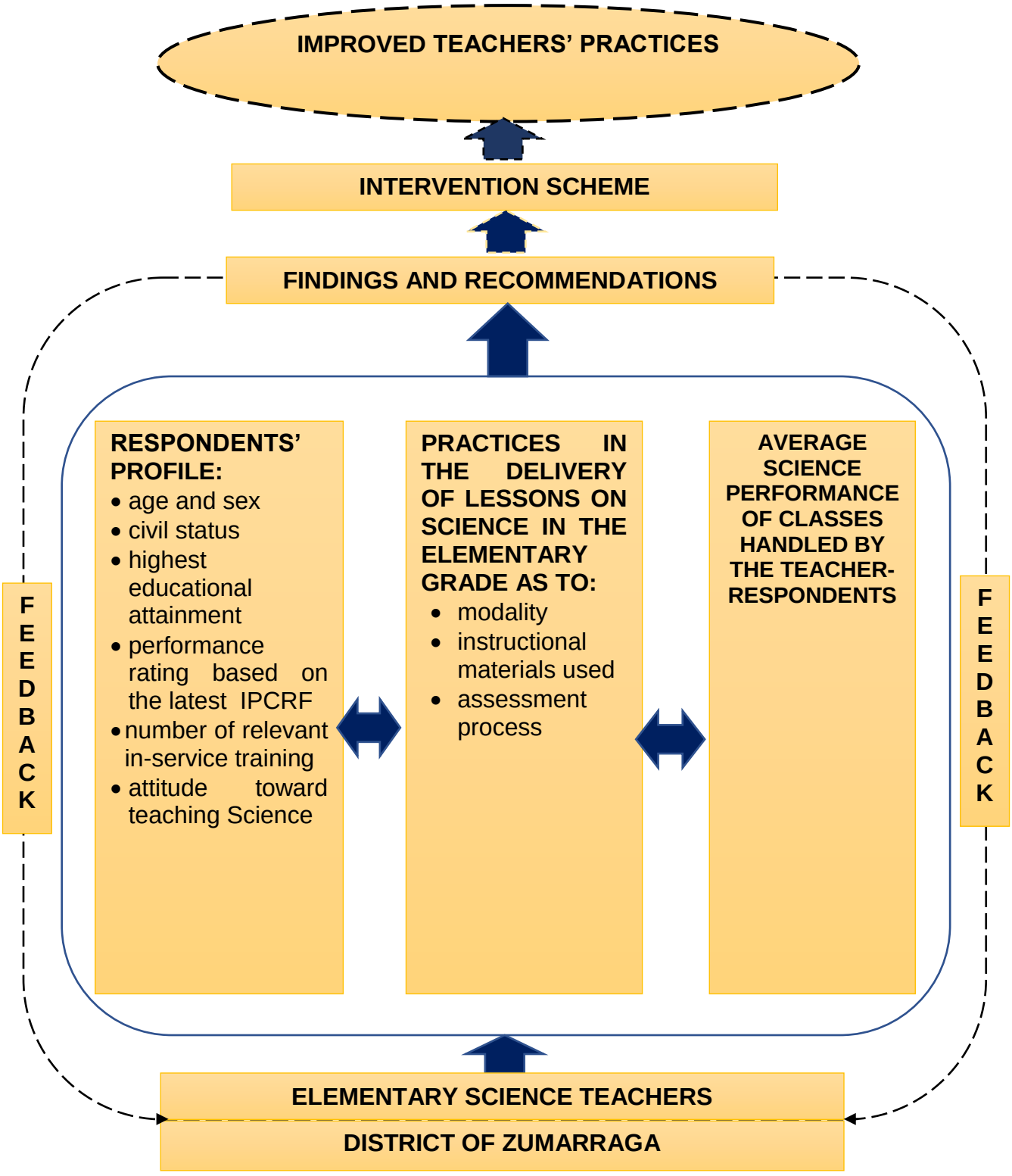
The bottom frame shows the respondents of the study who are the Science teachers of the elementary grades in the District of Zumarraga, Schools Division of Samar during the School Year 2022-2023. Connecting the bottom frame is a big frame enclosing the major variables of the study.

Inside the big frame are three boxes, The left box displays the respondents' profile in terms of age and sex, civil status, highest educational attainment, performance rating based on the latest IPCRF, number of relevant in-service training, and attitude toward teaching Science.

The middle box hemmed on practices in the delivery of lessons in Science

Figure 1

The Conceptual Framework of the Study



in the elementary grade as to modality; instructional materials used, and assessment process. While the right frame presents the average Science performance of classes handled by the teacher-respondents.

Meanwhile, these three boxes are connected by the two-way arrows which indicate a correlation between paired variables, to wit: (1) respondents' profile and their practices in the delivery of lessons in Science in the elementary grade; (2) respondents' profile and the average Science performance of classes handled by them, and (3) respondents' practices in the delivery of lessons in Science in the elementary grade and the average Science performance of classes handled by teacher-respondents.

At the center are the parameters on the practices in the delivery of lessons on Science in the elementary grade as to modality along with learning resources, internet connectivity and computer access, instructional materials used, and assessment process. This was correlated with the average Science performance of classes handled by the teacher-respondents.

This big frame enclosing the variables is connected to an upper box representing the results and findings of the study which is further connected by a broken arrow to the base of the schema indicating the feedback mechanism. It is again, connected to an upper frame representing the ultimate goal of the study which is to improve teachers' practices delivery of lessons in Science in the elementary grades under the new normal.

Significance of the Study

This study would benefit the elementary teachers, elementary students, school/district Science coordinators, school administrators, division Science

supervisor, DepEd key officials, curriculum planners, and future researchers, are discussed as follows:

To the Elementary Teachers. This study would benefit the elementary teachers in Science since they would be able to find out common practices on the delivery of lessons, and how it correlates to Science performance. Practices with a direct correlation to Science performance can be retained and introduced among them and even shared with other elementary teachers in the district.

To the Elementary Students. This study would be of great help to students since the appropriateness of practices for the delivery of lessons for Science would be in-placed. It would help them improve their Science performance especially as to catering the individual differences of the students.

To the School/ District Science Coordinators. The school or district Science coordinator would benefit from this study because they can align the future programs, projects, and activities of their district to appropriate practices for the delivery of lessons for elementary grades.

To the School Administrators. This study would be helpful to the School Administrators since they would be able to identify the most appropriate delivery of lessons in Science and purchase relevant materials that would be utilized for the successful practices and Science performance of both the students and teachers.

To the Division Science Supervisors. This study would be of help to the Division Science Supervisor as to the monitoring of preparations of lessons. Once the study is completed and appropriate practices in the delivery of lessons

in Science are identified, they would be able to suggest what approach would be used for a specific topic or lesson to be undertaken towards the Science progress of students and mean performance of the school.

To the DepEd Key Officials. This study would benefit the DepEd key officials for they would be able to contemplate appropriate training for those teachers who are less oriented on effective practices for the delivery of Science lessons in the elementary grades. They can even adopt peer teaching and collaboration in schools under their jurisdiction.

To the Curriculum Planners. This study would be helpful to curriculum planners especially in the Schools Division of Samar to further recommend the most appropriate practices for the delivery of Science Lessons especially those that impact the academic performance of students, in one way or another make intervention and plan-out monitoring on the use of identified practices.

To the Future Researchers. This study would be a great source of information to suffice future research undertakings relative to the research at hand which focused on practices in the delivery of Science lessons in the elementary grade. The recommendations of the study that would not be pursued could also be the benchmark for another investigation aiding for the improvement of Science education.

Scope and Delimitation

This study determined the teachers' practices on delivery of lessons in Science in the in the elementary grades under the new normal in the District of Zumarraga, Schools Division of Samar for School Year 2022-2023.

The teachers' profiles served as variables such as age and sex, civil status, highest educational attainment, performance rating based on the latest IPCRF, number of relevant in-service training, and attitude toward teaching Science.

The variables on the practices in the delivery of lessons in Science in the elementary grades of the teacher-respondents along with modality, instructional materials used, and assessment process would also form part of this study. This would correlate with the average Science performance of classes handled by the teacher respondents.

This study was conducted during the School Year 2022-2023.

Definition of Terms

For a common frame of references, the following terms used in the study were herein conceptually and operationally defined:

Assessment Process. This term refers to gathering and discussing information from multiple and diverse sources to develop a deep understanding of what students know, understand, and can do with their knowledge as a result of their educational experiences; the process culminates in progress (Westminster College, 2022). The same context is used in this study; it is one of the variables to be measured using a questionnaire as to the practices in the delivery of Science lessons under the new normal.

Average Science Performance. This term refers to the results or scores in scientific literacy through answering questions, acquiring knowledge, and explaining scientific phenomena (IGI Global, 2022). Operationally, it referred to the same context to which it refers to the mean score of the entire class based on

on applied practices in the delivery of lessons in Science.

Delivery of Lesson. This term refers to knowledge of and ability to develop lesson plans according to the teaching objectives and deliver daily lessons using various teaching methods and strategies (University of Florida, 2022). The same context was used in this study, however, this variable can be measured through a survey questionnaire and with specific areas of modality, assessment process, and the use of instructional materials.

Instructional Material. This term refers to any collection of materials including animate and inanimate objects and human and non-human resources that a teacher may use in teaching and learning situations to help achieve desired learning objectives (Lewis, 2019). Operationally, this refers to objects or things used to deliver lessons, especially in Science, It is one of the components to be measured along with the effectiveness of practices through the use of a questionnaire.

Intervention Scheme. This term refers to making a change – or intervening - to study the outcome of what has been changed. An intervention is introduced immediately after the baseline period to affect an outcome. (Cambridge Dictionary, 2022). Operationally, this was the output-based plan from the research and it was based on the implications and results of the study.

IPCRF. Conceptually, this term refers to the Individual Performance Commitment and Review Form which provides a venue for agreement on standards of performance and behaviors that lead to professional and personal growth in the organization. This form is divided into four parts: PART I

Accomplishments of KRAs and Objectives - Each employee plays a vital part in the achievement of his/her department's objectives (teacherph,2015). Operationally, this was one of the variables used in this study.

Modality. This term refers to the sensory channels or pathways through which individuals give, receive, and store (Claudia, 2022). As used in the study it referred to the different ways of conveying information to deliver the teaching-learning process under the new normal.

New Normal. This term refers to the modern teaching approach that combines face-to-face or traditional classroom learning with online learning or e-learning (STI, 2022). The same context was used in this study.

Practice. This refers to the actual application or use of an idea, belief, or method, as opposed to theories relating to it (Cambridge Dictionary, 2022). As used in this study, it referred to the various activities conducted by the teachers under the new normal context.

Self-Efficacy. Self-efficacy refers to an individual's belief in his or her capacity to execute behaviors necessary to produce specific performance attainments. Self-efficacy reflects confidence in the ability to exert control over one's own motivation, behavior, and social environment (Bandura, 1977, 1986, 1997). As used in the study, this was one of the variables to be tested.

Chapter 2

REVIEW OF RELATED LITERATURE AND STUDIES

This chapter presents the ideas taken from books, journals, and other published materials and excerpts of theses and dissertations that are found relevant to the present study.

Related Literature

In this section is literature that is deemed necessary to expound the idea of the research. It included aspects of the nature of Science and the reason for the need to identify the various types of delivery of Science lessons in the elementary grades.

Science has areas of inquiry, these areas focus on scientific ideas learned during the Science investigation. The concepts were particularly tricky or surprising, and the logic behind Science ideas. The implications as well for what students should learn and how the Science content should be taught (Heller, 2012). Ironically, despite the good intentions of reforming Science education at the national level, the success of reforms is dependent on the changes that occur at the classroom level (Milner et al., 2012).

The teaching of Science in primary and early childhood settings has been an area of concern for many years. The poor quality of delivery of Science has been raised in different fora and the professional education of teachers in this area consequently became a priority in primary Science education emphasizing conceptual learning through a variety of learning processes, including hands-on investigations and group learning (Appleton, 2019).

Science education involves students in a scientific investigation. The scientific investigation includes thinking, attitude, and steps in 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 (Geverola et al., 2022). 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).

Science teachers are involved in a yearlong technology integration initiative planned to enact technological, pedagogical, and content practices in Science lessons. The Science teachers engaged in an initiative to integrate educational technology in inquiry-based Science lessons (Pringle et al., 2015). To build a stronger knowledge base about links among professional development, teacher knowledge, practice, and student achievement, researchers have called for study designs that allow for causal inferences, that isolate treatment effects by systematic comparison of closely related versions of professional development interventions, and that explicitly examine relationships between teacher and student learning (Heller, 2012).

Science teaching undergoes seamless transition for both teachers and students during this time of the COVID-19 pandemic. The continuous rise of pandemic patients affects all education sectors in the world (UNESCO, 2020).

In the Philippines, the Department of Education implemented the Basic Education Learning Continuity Plan (BE-LCP), which adapted multiple learning modalities such as online learning, modular learning, and blended learning

(Deped,2020). Online teaching poses advantages, online learning improves student success and satisfaction (Means et al., 2013). However, it also poses a challenge to science teachers, especially in learning activities.

Teaching online requires different methods and strategies compared to the traditional classroom. This conveyed the importance of teachers adapting and developing online teaching skills in both online and modular modalities and emphasizing the making of learning materials effective and engaging to students. Studies were conducted and revealed the importance, opportunities, challenges, and guidelines in dealing with online learning challenges during the pandemic (Shivangi, 2020).

At times, Science teachers have viewed these aspects as problematic or outside the realm of their roles as Science teachers, and therefore may not have opportunities to engage in Science learning activities (Hestness et al., 2014). This study underscored the multiplicity of ways by which Science teachers and approached in elementary classroom settings. It is suggested that a more sophisticated understanding of how to systematically engage young students with Science texts can help elementary teachers effectively integrate reading with Science instruction, meet literacy requirements of current Science education policies, and recognize that Science reading transcends passive reception of facts (Oliveira, 2015).

Some ways to alleviate the frustration of choosing books that are appropriate for Science instruction are using checklists, selection criteria, rubrics, evaluation scales, and bibliographies. Many samples of these are widely available to evaluate fiction and nonfiction children's books for Science Education

(Mahzoon-Hagheghi et al., 2018). Scientific practices that are relevant to school learning include activities such as designing investigations, developing explanations, and arguing from evidence. Based on recent scholarship, viewing Science as engagement in practice is a more authentic alternative to the common notion of "Science as the accumulation of knowledge" (Windschitl & Calabrese, 2016).

The reviews of literature provided information that many practices had been introduced for the Science delivery of lessons, this includes incorporating reading, training for teachers, technology inclusion, and the like. These practices up to this present era were used however, changes due to the so-called new normal are importantly evolved and these practices might not be as effective as before. At present, the lessons were related to face-to-face modality, synchronous, and asynchronous with various approaches which were emphasized in the research instrument of the study.

Related Studies

This section provided related studies that were taken from published and unpublished materials that shed light on the possible outcomes of the study. After each presentation of the results of the study, it has succeeding descriptions of the review studies that are similar or differ in their context.

The study by De Los Reyes and Bagona (2022) entitled, "Translanguaging in Teaching and Learning Science in Selected Multilingual Elementary Classrooms in the Philippines" depicted that the use of a mother tongue has reported positive results among students who share a common language. However, in highly multilingual places, mother tongue use poses a challenge to

students whose mother tongues differ from the one used in the classrooms. It reveals that the participants used translanguaging in accomplishing communicative functions needed in teaching and learning Science.

The study by Bereczki and Karpati (2021) entitled, “Technology-Enhanced Creativity: A Multiple Case Study of Digital Technology-Integration Expert Teachers' Beliefs and Practices", disclosed the findings that teachers' epistemic beliefs about creativity influenced their technology-based creativity-fostering practices, with beliefs about assessment constituting a considerable barrier. Participants valued and implemented six overarching technology-based creativity-fostering approaches across the curriculum: igniting students’ creativity, supporting idea development, creating digital products, scaffolding students’ creative process, augmenting creative collaboration among students, and facilitating the evaluation of students' outcomes.

The previous research provides insights regarding the technology-based approach to the teacher's practices in the delivery of the lessons that improved the performance of the teachers of which the same aspect of the present study was conducted. However, the previous study of Bereczki and Karpati highlighted the technology-based creativity-fostering approaches as teachers practice in the delivery of the lessons in teaching Science across the curriculum, igniting teachers’ creativity, supporting idea development, creating digital products, scaffolding teachers’ creative process, and augmenting creative collaboration among students. The present research focused only on reading skills through an interactive multimedia approach to teaching reading. However, the previous

study was a case study whereas, the present research was merely a descriptive type of research.

The above-cited study is similar to the present study in the sense that both studies delve into the delivery of teaching and learning Science in the elementary grades. However, the two studies differ in the locale where the study was conducted. The previous study used the mother tongue in teaching Science in the classroom while the present study focused on teachers' practices in the delivery of lessons in Science in the District of Zumarraga, Schools Division of Samar.

The study by Newton et al., (2020) entitled, "Building Undergraduate STEM Majors' Capacity for Delivering Inquiry-based Mathematics and Science Lessons: An Exploratory Evaluation Study" found that early development of Science learning resulted in good Science teaching. Teachers who are familiar with inquiry which is the basis for various scientific and technological discoveries tend to deliver the Science lessons well compared to those who are not. What has not been brought to the forefront is the need for an explicit integration of how inquiry pedagogy can be utilized to teach Science content. Teachers' practices of conducting inquiry and reflecting explicitly on how inquiry can be used to teach secondary content are important and beneficial.

The aforementioned study was relevant to the research at hand for they both explored the practices used in Science teaching through inquiry and reflect explicit approaches and how they contribute to improve teaching performance in Science. However, the two studies differ in terms of the scope of the study,

teacher-respondents in the previous study involved secondary levels while the present study focused on elementary teachers in the District of Zumarraga.

A study conducted by Lansangan and Gonzales (2020) entitled, "Science Teachers' Voices in the New Normal Teaching: A Phenomenological Study" has relevant results, findings uncovered seven emerging emotional themes capped as Hard-working and dedicated; Optimistic amidst uncertainty; Problematic yet reflective; Evenhandedness in responsibilities; Frightened but ready; Undisruptive desire to reach; and Life-long learner. Despite the evident uncertainties of the situation, this paper describes the experiences of the Science teachers in their response to their mission of shaping today's generation towards undisruptive education.

The studies of Lansangan and Gonzales (2020) were related to each other for both emphasized the delivery of lessons in teaching Science occurred in the new normal education through emphasizing the hard work made by Science teachers. The present study focused on teachers' practices in the delivery of lessons in Science in the elementary grades in the new normal in the District of Zumarraga, Schools Division of Samar.

The study by Paul and Jefferson (2019) entitled, "A Comparative Analysis of Student Performance in Online vs. Face-to-Face Environmental Science Courses from 2009 to 2016", The study revealed that students found the traditional classroom modality restrictive, inflexible, and impractical. In this age of technological advancement, schools can now provide effective classroom teaching via the Web. This shift in the pedagogical medium is forcing academic institutions to rethink how they want to deliver their course content. However, no

significant difference in student performance between online and face-to-face (F2F) learners overall, concerning gender, or class rank was found.

The above-cited study was relevant to the present research as it emphasized the different modalities used in the delivery of lessons in teaching Science. These pedagogical media were similar to how it was assessed for the present study; they are part of the criteria for inclusion. However, the two studies differ in the focus of the study. The previous study focused more on the online delivery of lessons in teaching Science while the present study emphasized the teachers' practices in the delivery of lessons in Science during the new normal education.

The study of Orbe et al., (2018) entitled, "Teaching Chemistry in a Spiral Progression Approach: Lesson from Science Teachers in the Philippines" is related to the current study. Their study results revealed that e teacher's content, pedagogy, and assessment in chemistry are problematic; specifically, challenges such as instruction-related factors, teacher competence, in-service training sufficiency, job satisfaction, support from upper management, laboratory adequacy, school resources, assessment tools, and others influence teacher success in teaching chemistry. These identified challenges greatly affected the ultimate beneficiaries of education, which is the learner.

The study cited above was more or less similar aside from the fact that it was also conducted in the Philippines, the areas to be measured for teaching practices were also discussed such as modality, assessment tools, and instructional materials in the form of learning resources. The findings of the study helped validate the results of the present study that if there is proper utilization of

key areas it will improve learners' Science performance in the classroom. However, the two studies differ in the focus of the study. The previous study focused more on the challenges in teaching Science while the present study focused on teachers' practices in the delivery of lessons in teaching Science subjects.

A study relevant to the research at hand was by Harvey et al., (2017) entitled, "A Review of Intensive Mode of Delivery and Science Subjects in Australian Universities". In this study review, they found out that when the review honed into Science subjects, only a few publications were located. While intensive delivery subjects are offered by the majority of universities across countries, published research that provides empirical and pedagogical support for this practice is almost absent. The learning and teaching risk was that the intensive delivery mode is too often adopted as an end in itself rather than a tool to facilitate a specific pedagogical approach.

The study of Harvey et al., is in parallel with the present study in the sense that both studies delve into the delivery of lessons in teaching Science which includes pedagogical practices for an intensive delivery mode which is one of the main goals of the study, that is to arrive with the modality that was best acquired and increased Science performance of students and teachers. The previous study differs as to scope since it was conducted abroad as well and they also differed in the content of the study the previous study focused on teaching and learning delivery in Science while the current study focused on the teachers' practices in the delivery of Science subject in the new normal.

The study by Smith (2015) entitled, "The Impact of a Professional Development Programme on Primary Teachers' Classroom Practice and Pupils' Attitudes to Science" is also related to the research at hand. The study revealed that teachers' approaches to Science changed and their pupils' attitude towards Science learning improved by advocating practices on hands-on, inquiry-based approaches to teaching Science, teachers must be taught inquiry methods to be able to use the same pedagogy in their own Science classrooms. In this study, a hands-on activity is taken to mean any practical work or investigation in which the pupils handle the equipment. Such approaches probe pupils' ideas about a Science concept they have been investigating and offer them support to optimize their learning in inquiry-learning environments.

The study of Smith was related to the present research as it emphasized different practices in teaching Science in the elementary grades such as the inquiry method, hands-on minds-on, and optimization of learning delivery through Science investigation. However, it differed from the present study since the current study focused more on the aspect of the delivery of lessons as to modality, assessment process, and instructional materials used under the new normal.

In the study of Anderson (2015) entitled, "The Nature and Influence of Teacher Beliefs and Knowledge on the Science Teaching Practice of Three Generalist New Zealand Primary Teachers", results showed that the influence of beliefs on Science learning opportunities teacher knowledge and beliefs in a range of dimensions were observed to impact on these primary teachers' classroom practice in Science. Knowledge and beliefs in some dimensions

simply acted to promote learning, influencing the way teachers taught; beliefs in other dimensions acted to determine the kind of learning opportunities that were provided and therefore students' experience of Science. Other strong influences in all cases were beliefs about Science itself, the teachers' general educational aims for their students, beliefs about vertical curriculum, and beliefs about students and how they learn in Science.

The study of Anderson had to bear with the present study since the topic delves into the Science teaching practices in the delivery of the lessons. However, they differ in the angle to which the study is focused. The former study focused on the impact on the primary teachers’ classroom practice in Science such as knowledge and beliefs, promoting learning, influencing teachers, and beliefs in other dimensions, and determined the kind of learning opportunities that were provided to students' experience of Science while the present study focused on teachers’ practices in the delivery of the lessons in teaching Science to the performance of elementary schools in the District of Zumarraga, Schools Division of Samar.

Also, the study of Almario (2015) entitled, "Science Process Skills Development through Innovation in Science Teaching" was related to this research at hand which focused on instructional packages based on standard tertiary-level General Biology courses employing multiple representations to be delivered through collaborative teaching and learning approach was designed and compared against the traditional approach to teaching. Results showed significantly higher scores in the Science process skills of students exposed to the multiple representations and collaborative learning approach. Prior Science

knowledge was found to have no significant correlation with Science process skills. Students' Science process skills were also found to differ across genders.

The study of Almario has a bearing on the present study which is obvious. Both studies delved into the delivery of lessons in teaching Science. However, it differs in terms of the focused of the study, the present study focused on the delivery of Science lessons through teachers' practices in the new normal education while the current study focused on the collaborative teaching-learning approach which was in a form of face-to-face modality. It also differed when it came to other aspects such as evaluating the assessment process and instructional materials used.

All the reviews of related studies have bearings to the research at hand as this validates and support possible findings that were used to improve the practices on delivery of Science lessons in the elementary grades especially that under the new normal the teaching-learning process in Science shifted to hybrid education.

Chapter 3

METHODOLOGY

This chapter describes the various processes to attain the research objectives, this includes a research design, instrumentation, validation of the instrument, sampling procedure, data gathering procedure, and statistical treatment of data.

Research Design

This study utilized a quantitative research approach in the form of a descriptive-correlation design. The descriptive aspect of the study helped answer descriptive questions posted in the statement of the problem such as the respondents' profile as to age and sex, civil status, highest educational attainment, performance rating based on the latest IPCRF, number of relevant in-service training, and attitude toward teaching Science.

The correlation aspect of the study helped answer inferential questions starting with the significant correlation posted in the statement of the problem such as a profile of the teacher-respondents and the practices in the delivery of lessons in science in the elementary grade as to modality, instructional materials, and assessment process; profile of the teacher-respondents and the average Science performance of the classes they handled, and the average Science performance of the classes the teacher respondents handled and their practices in the delivery of lesson in science as to modality, instructional materials, and assessment process.

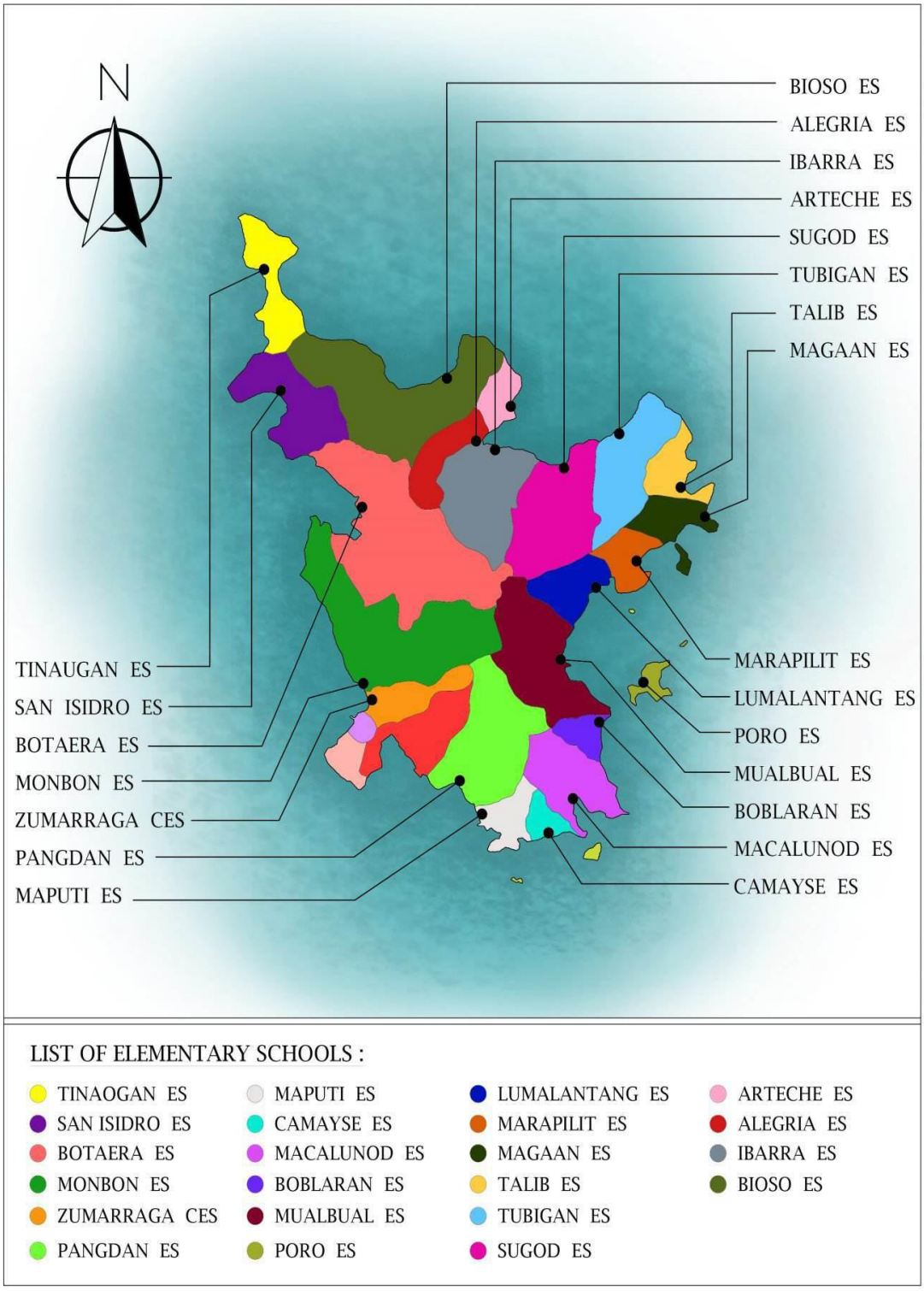
Descriptive and inferential statistical tools, both parametric and non-parametric will be utilized in the analysis of data, which include Frequency Count, Percentage, Median, Mean Average Deviation, Mode, Weighted Mean, Mann-Whitney U-Test or the U-Test for Independent Samples, Cramers V-Test, Spearman's Rank Coefficient of Correlation or the Spearman's Rho, and the Fisher's t-Test.

Locale of the Study

Figure 2 presents the map showing the locale of the study. This study was conducted in the district of Zumarraga, Schools Division of Samar involving its elementary Schools. Zumarraga district had twenty-six (26) elementary schools including: Alegria Elementary School, Arado Elementary School, Arteche Elementary School, Boblaran Elementary School, Botaera Elementary School, Buntay Elementary School, Camayse Elementary School, Canwarak Elementary School, Ibarra Elementary School, Lumalantang Elementary School, Macalunod Elementary School, Maga-an Elementary School, Maputi Elementary School, Monbon Elementary School, Mualbual Elementary School, Pangdan Elementary School, Poro Elementary School, San Isidro Elementary School, Sugod Elementary School, Talib Elementary School, Tinaugan Elementary School, Tubigan Elementary School, Zumarraga Central School, Marapilit Elementary School, and Igpit opol Elementary School. The three (3) high schools are Zumarraga National High School, San Isidro National High School, and Bioso Integrated School. Zumarraga has a history that extends back to the Spanish era. According to accounts, the town started with a small settlement of a few

Figure 2

The Map Showing the Locale of the Study



villagers who came with their families on their fishing trips and were overtaken by a storm. They anchored and took refuge in the place then known as “Rawis". They found the place pleasing due to the presence of bamboo. When they returned to settle, they named the place 'Kawayan". These early settlers became prosperous because of the abundance of fish in the waters surrounding the island. This attracted many people from the neighboring places. News of this rich fishing village soon reached the knowledge of Moro pirates who pillaged Visayan waters. The village became the target of Moro raids so the natives built strong fortifications on top of a hill overlooking the town to guard them from this attack. These fortifications (Kampanaryo and Santa Barbara) still stand today as relics for generations to behold.

No one could tell the exact date when the Spaniards came to the island, but in 1848, a Spanish friar set foot on the place. However, even before the coming of the Spanish friars, the natives were found to have organized their local governing body and obeyed and followed the rules of the village. The name of the place was "Buad” derived from the local dialect “Binuwaran”, a term used to mean the diggings made by a wild pig or boar. This was later officially changed to “Zumarraga” in memory of the birthplace of the first Spanish priest of the town, Rev. Fr. Marten de Yepes, Zumarraga is a town in Spain, where the Spanish friar was born.

On March 13, 1863, the town became an independent parish by the decree from the king of Spain. Consequently, a Diocesan decree was issued on October 12, 1865, confirming the town as a parish under a diocese. The parish

priest had original jurisdiction over the islands of Buad and Daram, including Parasan.

The Spanish friars provided the educational, spiritual, and moral upliftment of the natives. The people aspired for proper education, lived peaceful Christian lives, and continually struggled for genuine happiness and dignity in life through farming and fishing.

The town of Zumarraga has been known for a quite number of years before some other towns in Samar were recognized because of its, then, flourishing fishing industry which attracted people from neighboring towns and provinces such as the Zetas from Palo, Leyte; The Astorgas from Barugo, Leyte; the Villaflors from Carigara, Leyte; the Dazas, the Magas, the Narios from Catbalogan, Samar; the Carcellars, Castillos, Costos, Versozas, and Zosas from different localities (http://www.philatlas.com/visayas/r08/samar/zumarraga)

Instrumentation

The researcher used a questionnaire as the main instrument in the collection of pertinent data for this study. However, for the average Science performance, the researcher used the school forms.

The researcher prepared one set of questionnaires only for the teacher respondents. It was composed of two parts. The first part of the teacher-respondents questionnaire was on personal profile while the second part was based on the attitude toward teaching Science which was rated using a 5 point-Likert scale: 5 for Strongly Agree (SA), 4 for Agree (A), 3 for Uncertain (U), 2 for Disagree (D), and 1 for Strongly Disagree (SD).

The third part of the questionnaire captured the practices on delivery of lessons in Science in the elementary grades which was rated using a 5 point-Likert scale: 5 for Always (A), 4 for Frequently (F), 3 for Sometimes (So), 2 for Seldom (Se), and 1 for Never (N).

School Forms/MPS. This data on the Average Science Performance of handled classes was collected by providing a communication letter to the data holder or person with authority to release the needed data in the study. Once approved, it was tallied and analyzed appropriately to reflect commonalities among the results of the respondents.

Validation of Instrument

The questionnaire was adapted from the modifications effected to suit this particular study. Therefore, it underwent a validation process through expert validation focusing on the following areas, namely: face, content, construct, pragmatic, and convergent-discriminant validity with consideration of the cognitive, and situational perspectives of the respondents.

Comments and suggestions for improvement of the questionnaire from the experts were considered in the revision of the questionnaire and the finalized form was reproduced for field data collection.

Sampling Procedure

This study utilized the total enumeration in choosing the teacher-respondents. That is, all 62 Science elementary teachers in the District of Zumarraga were considered respondents of the study.

Table 1

The Number of Teacher-Respondents Per School

School	No. of Science Teachers
Alegria Elementary School	4
Arteche Elementary School	7
Bioso Elementary School	7
Boblaran Elementary School	4`
Botaera Elementary School	4
Camayse Primary School	1
Ibarra Elementary School	4
Lumalantang Elementary School	4
Macalunod Elementary School	7
Magaan Elementary School	4
Maputi Elementary School	7
Marapilit Elementary School	4
Mombon Primary School	1
Mualbual Elementary School	4
Pangdan Primary School	1
Poro Elementary School	4
San Isidro Elementary School	7
Sugod Elementary School	7
Talib Elementary School	4
Tubigan Elementary School	4
Zumarraga Central Elementary School	10
Total	**99**
Response Rate	**100%**

Data Gathering Procedure

Before the conduct of the study, the researcher sought authorization from the Superintendent of the Schools Division of Samar through the channel for the conduct of the study. Likewise, the same authority was sought from the Public Schools District Supervisor of the District of Zumarraga for proper courtesy. Then, the same permission was sought from the respective school administrators of each school to conduct the study involving themselves and their teachers. The researcher personally administered the questionnaire intended for the teacher-respondents. Considering that the situation was under the new normal, observation of the minimum health protocol was strictly followed by the researcher.

Manual editing and coding were followed after the data collection to check the consistency of the information in preparation for the data analysis, and these were followed by the machine processing through encoding of the data in the system using the statistical software package known as JASP version 0.16 and the generation of the statistical information in tabular form for the analysis and interpretation of data was the final phase.

Statistical Treatment of Data

Right after gathering the relevant information in the study, data analysis immediately followed using appropriate statistical tools, both parametric and non-parametric, if the approximate normality of the distribution is not satisfied, will be utilized in the analysis of data, which includes Frequency Count, Percentage,

Median, Mean Absolute Deviation, Mode, Weighted Mean, Cramer's V-Test, pearman's Rank Coefficient of Correlation or the Spearman's Rho, and the Fisher's t-Test.

Frequency Count. This tool was used to determine the personal characteristics of the teacher-respondents in terms of the magnitude of occurrences.

Percentage. This measure was used to convert the magnitude of occurrence of each variable concerning the total respondents using the following formula (Sevilla et al., 1992:200):

$$P = [f/N] \times 100$$

where: P refers to the percentage;

f refers to the number of occurrences; and

N refers to the total number of samples.

Median. This statistical tool was used to express the middlemost point of some of the identified characteristics of the respondents specifically on the not normally distributed ratio and interval scale data. The following formula (Ferguson & Takane, 1989:35) was used:

$$M_d = \left(\frac{[1/2N - F]}{F}\right) i$$

where: M_d refers to the middlemost point of an array of observations;

N refers to the total observations;

F refers to the accumulated frequencies equal to or less than 1/2 of the total observations; and

f refers to the number of occurrences in the assumed midpoint step distribution.

Mean Absolute Deviation. This tool was used to describe the extent to which not normally distributed data varied. The following formula (Ferguson & Takane, 1989:35) was used:

$$MAD = \frac{\sum /X_i - \mu/}{n}$$

where: MAD refers to the mean average deviation;

$/X_i-\mu/$ refers to the absolute difference between the observation and the mean; and

n refers to the number of observations.

Mode. This tool was used to calculate the most frequent occurring observation which was determined by the highest registered frequency in the step distribution (Walpole, 1989:207).

Weighted Mean. This statistic was employed to determine the collective appraisal of the school administrator- and teacher-respondents regarding their attitude and the extent of implementation of SBM in terms of the identified areas.

The formula (Pagoso, 1997:111) that will be employed is as follows:

$$\mu_w = \frac{\Sigma f_i X_i W_i}{n}$$

where: μ_w refers to the weighted mean;

f_i refers to the frequency of a category of variable;

X_i refers to the identified category of a variable;

W_i refers to the weights that are expressed in a five--point scale; and,

n refers to the sample size.

In interpreting the weighted mean for the attitude toward teaching Science, the following set of five-point scales was used:

Range	**Interpretation**	
5	Strongly Agree	(SA)
4	Agree	(A)
3	Uncertain	(U)
2	Disagree	(D)
1	Strongly Disagree	(SD)

Furthermore, in interpreting the weighted mean for the practices on delivery of lessons in Science in elementary grades, the following five-point scale was used:

Range	**Interpretation**	
4.50-5.00	Always	(A)
3.50-4.49	Frequently	(F)
2.50-3.49	Sometimes	(So)
1.50-2.49	Seldom	(Se)
1	Never	(N)

Cramer's V- Test. This was used to determine the relationship between nominal dependent variables using the following formula (Walpole,1989:

$$X^2 = \sum \frac{(O_i - E_i)}{E_i}$$

where: O refers to the observed frequency; and

E refers to the expected frequency.

Spearman's Rank Coefficient of Correlation. The Spearman's Rho was employed to associate linear relationship between two variables that are in a not normal distribution using the following formula (Walpole, 1997:460):

$$\rho = 1 - \frac{6\sum D^2}{N^3 - N}$$

where: ρ refers to the coefficient of linear association between paired ranks assigned to individual scores on two variables;

D refers to the deviation between paired ranks; and

N refers to the total number of paired observations.

Fisher's t-Test. This statistical tool was used to test the significance of the coefficient of linear association between a set of paired variables. The formula (Best & Khan, 1998:402-403) applied in this case is as follows:

$$t_f = r_{xy} \sqrt{\frac{N - 2}{1 - r_{xy}^2}}$$

where:

t_f refers to the Fisher's t-test value;

r_{xy} refers to the value of the Pearson r;

n-2 refers to the degree of freedom; and

n refers to the sample population.

To test the normality of the distribution in a parametric test, the Shapiro Wilk test (Goss-Sampson, 2020:30) was employed using the following formula:

$$\omega = \frac{(\sum^{n}_{i=1}\alpha_i x_{(i)})^2}{\sum^{n}_{i=1}(x_i - \mu)^2,}$$

where the $x_{(1)}$ is the smallest ordered sample value and α_1 is the constant value generated from the mean, variance, and covariance of the order statistics of a sample size n from a normal distribution. The higher the value of ω than the chosen alpha level, the normal the distribution is.

Furthermore, in all cases in the testing the hypotheses, the decision whether the null hypothesis would be accepted or rejected, the following decision rule served as guide: accept the null hypothesis if and when the computed value turned lesser than the critical or tabular value or the p-value turned greater than the α; on the other hand, reject the null hypothesis if and when the computed value turned equal or greater than the critical or tabular value or the p-value will turn equal or lesser than the α.

Finally, the hypotheses testing assumed the level of significance equals to α=0.05 in a two-tailed test. Available statistical software or packages were utilized for accuracy and precision in the data processing.

Chapter 4

PRESENTATION, ANALYSIS, AND INTERPRETATION OF DATA

This chapter presents the findings of the study with the corresponding analysis and interpretation of the presented data. Included in this chapter is the profile of the teacher-respondents, practices by the teacher-respondents in the delivery of lessons in Science in the elementary grade, the relationship between the delivery of lessons in Science in the elementary grades of the teacher-respondents based on the average Science performance of the students handled by the teachers.

Profile of Teacher-Respondents

This chapter presents the profile of the teacher-respondents in terms of age and sex, civil status, highest educational attainment, performance rating based on the latest IPCRF, number of relevant in-service training, and attitude toward teaching Science.

Age and Sex. Table 2 presents the age and sex disaggregation of the teacher-respondents.

It can be gleaned from the table that the teacher-respondents ranged from 24 to 63 years old with a number of them, that is, 27 or 27.27 percent were aged 29-33 years old. Nineteen of them or 19.19 percent were aged 34-38 years old while 12 or 12.12 percent were aged 39-43 years old, 11, or 11.11 percent were aged 24-28 years old, and the rest were distributed to the other identified age ranges. However, there were eight, or 8.08 percent who did not disclose their ages for unknown reasons.

Table 2

Age and Sex Distribution of Teacher-Respondents

Age Range	Sex			Total	%
	Male	Female	Not Stated		
59-63	1	0	0	1	1.01
54-58	2	2	0	4	4.04
49-53	2	6	0	8	8.08
44-48	3	6	0	9	9.10
39-43	4	8	0	12	12.12
34-38	2	17	0	19	19.19
29-33	4	23	0	27	27.27
24-28	1	10	0	11	11.11
Not Stated	0	0	8	8	8.08
Total	**19**	**72**	**8**	**99**	**100.00**
%	**19.19**	**72.73**	**8.08**	**100.00**	
Mode	**31 years old**				

The modal age of the teacher-respondents was posted at 31 years old which signified that they were relatively young in their early 30s. They were at the prime of their age and fit to discharge their duties and responsibilities as classroom teachers.

Moreover, the majority of the teacher-respondents belonged to the female sex accounting for 72 or 72.73 percent. The male counterpart was composed of 19 or 19.19 percent and eight or 8.08 percent did not give information on their sexes.

The data revealed female dominance among the teacher-respondents. This was expected considering more of this sex group took up Teacher Education Courses in college and therefore most of them embraced teaching as their chosen profession.

Civil Status. Table 3 shows the civil status of the teacher-respondents.

Table 3

Civil Status of Teacher-Respondents

Civil Status	f	%
Single	28	28.28
Married	66	66.67
Widowed	3	3.03
Not Stated	2	2.02
Total	**99**	**100.00**

From the table, it can be noted that the majority of the teacher-respondents were married accounting for 66 or 66.67 percent while 28 or 28.28 percent were still single, and the rest were distributed to the other identified civil statuses.

The data signified that the teacher-respondents opted to enter into the marital state to establish their own families under their care and supervision.

Highest Educational Attainment. Table 4 contains the information on the highest educational attainment of the teacher-respondents.

The table shows that the majority of the teacher-respondents were with units in masters accounting for 70 or 70.71 percent. Eleven of them or 11.11 percent were with college degrees and the rest were distributed to the other educational levels.

The data signified that the teacher-respondents were qualified for the teaching position having earned the required teacher education degree. Most of them did not settle as college degree holders, but proceeded to take up advanced education by enrolling in master's degree programs in prestigious higher education institutions for professional and personal development.

Table 4

Highest Educational Attainment of the Teacher-Respondents

Educational Level	f	%
Doctorate's Degree Holder	1	1.01
Master's Degree Holder	4	4.04
With Units in Masters	70	70.71
With Diploma/Certificate in Teaching	5	5.05
With College Degree	11	11.11
Not Stated	8	8.08
Total	**99**	**100.00**

Performance Rating Based on the Latest IPCRF. Table 5 reveals the performance rating of the teacher-respondents based on the latest IPCRF.

From the foregoing information, it can be gleaned that a number of the teacher-respondents, that is, 46 or 46.47 percent obtained a rating of 5 (outstanding) while 42 or 42.42 percent got a rating of 4 (very satisfactory), one or 1.01 percent was rated with 3 (satisfactory), and the 10 or 10.10 percent did not give information regarding the foregoing.

The data suggested that the teacher-respondents performed exemplary performance during the school year based on the rating they received based on

Table 5

Performance Rating of the Teacher-Respondents Based on the Latest IPCRF

Rating	f	%
5 (Outstanding)	46	46.47
4 (Very Satisfactory)	42	42.42
3 (Satisfactory)	1	1.01
Not Stated	10	10.10
Total	**99**	**100.00**

the latest IPCRF. This meant that they were able to accomplish all their targets which they committed at the beginning of the school year.

Relevant In-Service Training. Table 6 presents the relevant in-service training of the teacher-respondents.

The table shows that the teacher-respondents always attended relevant in-service training at the school level with a weighted mean of 3.69 while they oftentimes attended district and division-level training with weighted means of 3.41 and 2.56, respectively, and they never attended regional, national, and international level trainings.

The foregoing data signified that the teacher-respondents regularly attended local training provided by the division, district, and school to be updated with the current trends of the different programs or curricula of the DepEd.

Table 6

Relevant In-Service Training of the Teacher-Respondents

Level	Weighted Mean	Interpretation
International	1.10	Never
National	1.16	Never
Regional	1.48	Never
Division	2.56	Oftentimes
District	3.41	Oftentimes
School	3.69	Always

Legend:

3.50-4.00	Always
2.50-3.49	Oftentimes
1.50-2.49	Sometimes
1.00-1.49	Never

Attitude Toward Teaching Science. Table 7 presents the appraisal of the teacher-respondents on their attitude toward teaching science. There were 10 attitude statements assessed by the respondents.

Table 7

Attitude Toward Teaching Science of the Teacher-Respondents

Attitude Statement	WM	I
1. I am sure that I can learn and teach Science.	4.48	A
2. I am interested to learn more about science teaching.	4.53	SA
3. Knowing Science will help me earn a living.	4.39	A
4. I'll need Science for my future work.	4.43	A
5. I am sure of myself when I do Science.	4.26	A
6. Science is a worthwhile, necessary subject to teach.	4.47	A
7. I will use Science in many ways as a teacher and as an adult.	4.23	A
8. Studying and teaching science boosts my confidence.	4.27	A
9. I am sure that I can do well in science as my teaching discipline.	4.24	A
10. I teach Science because I know that it is useful to my students' daily activities.	4.49	A
Grand Weighted Mean	**4.38**	
Interpretation		**Agree**

Legend:			
	4.50-5.00	Strongly Agree	(SA)
	3.50-4.49	Agree	(A)
	2.50-3.49	Uncertain	(U)
	1.50-2.49	Disagree	(D)
	1.00-1.49	Strongly Disagree	(SD)
		Weighted Mean	(WM)
		Interpretation	(I)

From the table, it can be noted that the student-respondents strongly agreed on one attitude statement while they agreed on the remaining nine attitude statements with weighted means ranging from 4.23 to 4.53. The attitude statements that obtained the highest and the least weighted means, respectively, corresponded to the statements stating: "I am interested to learn more in science teaching" and "I will use Science in many ways as a teacher and as an Adult".

Taken as a whole, the teacher-respondents agreed on their attitude toward teaching science being shown by the grand weighted mean of 4.38. This signified

that the teacher-respondents manifested a highly favorable attitude toward science teaching in the elementary grades under the Basic Education Curriculum.

Practices on the Delivery of Lessons in Science in the Elementary Grades

This part contains the appraisal of the teacher-respondents on their practices on the delivery of lessons in science in the elementary grades as to modality, instructional materials used, and assessment process.

Modality. Table 8 presents the appraisal of the teacher-respondents on their practices on the delivery of lessons in science in the elementary grades as to modality. There were four indicators assessed by the respondents.

Table 8

Practices on the Delivery of Lessons in Science in the Elementary Grades of Teacher-Respondents as to Modality

Indicator	WM	I
1. Face-to-Face	4.82	A
2. Synchronous Online	1.53	Se
3. Asynchronous Offline	1.43	N
4. Asynchronous Online	1.45	N
Grand Weighted Mean	**2.31**	
Interpretation	**Seldom**	

Legend:			
	4.50-5.00	Always	(A)
	3.50-4.49	Frequently	(F)
	2.50-3.49	Sometimes	(So)
	1.50-2.49	Seldom	(Se)
	1.00-1.49	Never	(n)
		Weighted Mean	(WM)
		Interpretation	(I)

The table shows that the teacher-respondents considered one indicator as always while they considered one indicator as seldom and two indicators as never with weighted means ranging from 1.43 to 4.82. Of these indicators, "face-to-face”

and “asynchronous offline”, obtained the highest and the least weighted means, respectively.

Taken as a whole, the teacher-respondents considered their practices on the delivery of lessons in science in the elementary grades as to modality as seldom being supported by the grand weighted mean of 2.31. This meant that they practiced face-to-face modality more often and seldom they used the other identified modalities.

Instructional Materials Used. Table 9 presents the appraisal of the teacher-respondents on their practices in the delivery of lessons in science in the

Table 9

Practices on the Delivery of Lessons in Science in the Elementary Grades of Teacher-Respondents as to Instructional Materials Used

Indicator	WM	I
1. Textbooks	4.67	A
2. Pamphlets	2.82	So
3. Handouts	3.49	So
4. Study Guides	3.25	So
5. Laboratory manuals	2.53	So
6. Learning Packets	2.47	Se
7. Self-directed Modules	3.17	So
8. CDs/Audio Recordings/Cassettes	2.09	Se
9. Multimedia	3.03	So
10. Videos	3.00	So
11. Podcast	1.90	Se
12. Slides Presentation	3.31	So
13. Films	2.34	Se
14. Computers/Tablets	2.68	So
15. Graphic Calculator	1.80	Se
16. Expert blogs	1.69	Se
17. Supplementary materials (e.g. flashcards and charts)	3.66	F
Grand Weighted Mean	**2.82**	
Interpretation	**Sometimes**	

Legend:	4.50-5.00	Always	(A)
	3.50-4.49	Frequently	(F)
	2.50-3.49	Sometimes	(So)
	1.50-2.49	Seldom	(Se)
	1.00-1.49	Never	(n)
		Weighted Mean	(WM)
		Interpretation	(I)

elementary grades as to instructional materials used. There were 17 indicators assessed by the respondents.

From the table, the teacher-respondents considered one indicator as always practiced while another one was considered as frequently practiced by them, nine were considered sometimes practiced, and the remaining six indicators were seldom practiced by the teacher-respondents with weighted means ranging from 1.69 to 4.67. The indicators with the statements stating, “textbooks” and **“**expert blogs” obtained the highest and the least weighted means, respectively.

Taken as a whole, the teacher-respondents considered their practices on the delivery of lessons in science in the elementary grades as to instructional materials used as sometimes being indicated by the grand weighted mean of 2.82. This meant that they always used textbooks with supplementary materials in teaching science. Although there were other instructional materials, however, they sometimes used them only.

Assessment Process. Table 10 presents the appraisal of the teacher-respondents on their practices in the delivery of lessons in science in the elementary grades as to the assessment process. There were four indicators assessed by the respondents.

From the table, it can be gleaned that the teacher-respondents considered one indicator as always while they considered the two as frequently and the remaining one indicator as sometimes with weighted means ranging from 3.23 to

4.52. Of these indicators, the statements stating, “summative assessment” and “ipsative assessment”, respectively.

Table 10

Practices on the Delivery of Lessons in Science in the Elementary Grades of Teacher-Respondents as to Assessment Process

Indicator	WM	I
1. **Diagnostic assessment**	4.39	F
2. **Formative assessment**	4.40	F
3. Summative assessment	4.52	A
4. Ipsative assessment	3.23	So
Grand Weighted Mean	**4.14**	
Interpretation	**Frequently**	

Legend:			
	4.50-5.00	Always	(A)
	3.50-4.49	Frequently	(F)
	2.50-3.49	Sometimes	(So)
	1.50-2.49	Seldom	(Se)
	1.00-1.49	Never	(n)
		Weighted Mean	(WM)
		Interpretation	(I)

Taken as a whole, the teacher-respondents considered their practices on the delivery of lessons in science in the elementary grades as to the assessment process as frequently being indicated by the grand weighted mean of 4.14. This meant that they frequently use diagnostic and formative assessments in evaluating the teaching in science. Although there were other assessment processes, however, they sometimes used them only.

Average Science Performance of Classes Handled by the teacher-respondents

Table 11 reveals the average Science performance of classes handled by the teacher-respondents.It can be gleaned from the table, a number of the classes handled by the teacher-respondents, that is, 32 or 32.33 percent got a rating of 84

while 20 or 20.20 percent obtained a rating of 86, 16 or 16.16 percent got a rating of 83, 14 or 14.14 percent obtained a rating of 85, and the rest were distributed to

Table 11

Average Science Performance of Classes Handled by the Teacher-Respondents

Academic Rating	Weighted Mean	Interpretation
90	4	4.04
88	8	8.08
87	5	5.05
86	20	20.20
85	14	14.14
84	32	32.33
83	16	16.16
Total	**99**	**100.00**
Median	**85**	
MAD	**1 point**	

ω=ρ=0.001>0.05, not normal distribution

the other identified academic ratings. It can be gleaned from the table, a number of the classes handled by the teacher-respondents, that is, 32 or 32.33 percent got a rating of 84 while 20 or 20.20 percent obtained a rating of 86, 16 or 16.16 percent got a rating of 83, 14 or 14.14 percent obtained a rating of 85, and the rest were distributed to the other identified academic ratings.

The median academic science performance of the classes handled by the teacher-respondents was posted at 85 with a MAD of 1 point. This signified that the classes handled by the teachers performed very satisfactory performance in science which denoted that the teaching was somewhat effective.

Relationship Between the Practices on Delivery of Lessons in Science in the Elementary Grades of the Teacher-Respondents and Their Profiles Variates

Table 12 presents the relationship between the practices on delivery of lessons in science in the elementary grades of the teacher-respondents and their

profile variates in terms of age, sex, civil status, highest educational attainment, performance rating based on the latest IPCRF, number of years in teaching, number of relevant in-service training, and attitude toward teaching Science.

Table 12

Relationship Between the Practices on Delivery of Lessons in Science in the Elementary Grades of the Teacher-Respondents and Their Profile Variates

Variate	Association		Fisher's t-Value	p-Value @ α=.05	Evaluation/ Decision
	Coefficient	Degree			
Age	ρ = -0.032	Very Weak	0.315	0.761	NS / Accept Ho.
Sex	*V* = 0.100 (X^2 = 3.897; df = 4)	Very Weak	0.990	0.420	NS / Accept Ho.
Civil Status	*V* = 0.070 (X^2 = 4.322; df = 8)	Very Weak	0.691	0.827	NS / Accept Ho.
Highest Educational Attainment	ρ = -0.012	Very Weak	0.118	0.907	NS / Accept Ho.
Performance Rating Based on the Latest IPCRF	ρ = -0.004	Very Weak	0.039	0.967	NS / Accept Ho.
Relevant In-Service Training	ρ = -0.041	Very Weak	0.404	0.684	NS / Accept Ho.
Attitude Toward Teaching Science	ρ = 0.144	Very Weak	1.433	0.155	NS / Accept Ho.

ω=*p*=<.001<.05 pairwise normality deviated from the norm
Fisher's t-Critical = ±1.984, df = 97

S = Significant
NS = Not Significant

Age. In looking into the linear association between the practices on delivery of lessons in science in the elementary grades of the teacher-respondents and their age, it can be noted that the correlation between the two variables was very

weak (*ρ*= -0.032). Fisher's t showed that the age of the teachers did not influence significantly their practices on the delivery of lessons in science in the elementary grades (F(97)=0.315, p=0.761, ω=<.001).

Sex. In associating the linear relationship between the practices on delivery of lessons in science in the elementary grades of the teacher-respondents and their sex, the Cramer's V between the two variables was very weak (*V*= 0.100). Fisher's t showed that the sex of the teachers did not influence significantly their practices on the delivery of lessons in science in the elementary grades (F(97)=0.990, p=0.425, ω=<.001).

Civil Status. In associating linear relationship between the practices on delivery of lessons in science in the elementary grades of the teacher-respondents and their civil status, the Cramer's V between the two variables was very weak (*V*= 0.070). Fisher's t showed that the civil status of the teachers did not influence significantly their practices on the delivery of lessons in science in the elementary grades (F(97)=0.692, p=0.827, ω=<.001).

Highest Educational Attainment. In looking into the linear association between the practices on delivery of lessons in science in the elementary grades of the teacher-respondents and their highest educational attainment, it can be noted that the correlation between the two variables was very weak (*ρ*= -0.012). Fisher's t showed that the highest educational attainment of the teachers did not influence significantly their practices on the delivery of lessons in science in the elementary grades (F(97)=0.118, p=0.907, ω=<.001).

Performance Rating Based on the Latest IPCRF. In looking into the linear association between the practices on delivery of lessons in science in the elementary grades of the teacher-respondents and their performance rating based

on the latest IPCRF, it can be noted that the correlation between the two variables was very weak (ρ= -0.004). Fisher's t showed that the performance rating of the teachers based on the latest IPCRF did not influence significantly their practices on the delivery of lessons in science in the elementary grades (F(97)=0.039, p=0.967, ω=<.001).

Relevant In-Service Training. In looking into the linear association between the practices on delivery of lessons in science in the elementary grades of the teacher-respondents and their relevant in-service training, it can be noted that the correlation between the two variables was very weak (ρ= -0.041). Fisher's t showed that the relevant in-service training of the teachers did not influence significantly their practices on the delivery of lessons in science in the elementary grades (F(97)=0.404, p=0.684, ω=<.001).

Attitude Toward Teaching Science. In looking into the linear association between the practices on delivery of lessons in science in the elementary grades of the teacher-respondents and their attitude toward teaching science, it can be noted that the correlation between the two variables was very weak (ρ= 0.144). Fisher's t showed that the attitude of the teachers toward teaching science did not influence significantly their practices on the delivery of lessons in science in the elementary grades (F(97)=1.433, p=0.155 ω=<.001).

In summary, none of the teacher-related profile variates posed a significant influence on the practices of delivery of lessons in science in the elementary grades.

Correlation Between the Average Science Performance of Classes Handled by the Teacher-Respondents and Their Profile Variates

Table 13 presents the correlation between the average science performance of classes handled by the teacher-respondents and their profile variates in terms of age, sex, civil status, highest educational attainment, performance rating based on the latest IPCRF, number of years in teaching, number of relevant in-service training, and attitude toward teaching Science.

Table 13

Correlation Between the Average Science Performance of Classes Handled by the Teacher-Respondents and Their Profile Variates

Variate	Association		Fisher's t-Value	p-Value @ α=.05	Evaluation/ Decision
	Coefficient	Degree			
Age	ρ = 0.016	Very Weak	0.158	0.881	NS / Accept Ho.
Sex	V = 0.100 (X^2 = 6.348; df = 6)	Very Weak	0.990	0.385	NS / Accept Ho.
Civil Status	V = 0.120 (X^2 = 17.740; df = 12)	Very Weak	1.190	0.124	NS / Accept Ho.
Highest Educational Attainment	ρ = -0.031	Very Weak	0.305	0.771	NS / Accept Ho.
Performance Rating Based on the Latest IPCRF	ρ = 0.223	Weak	2.253	0.036	S / Reject Ho.
Relevant In-Service Training	ρ = -0.055	Very Weak	0.543	0.588	NS / Accept Ho.
Attitude Toward Teaching Science	ρ = 0.063	Very Weak	0.622	0.533	NS / Accept Ho.

ω=*p*=<.001<.05 pairwise normality deviated from the norm
Fisher's t-Critical = ±1.984, df = 97

S = Significant
NS = Not Significant

Age. In looking into the linear correlation between the average science performance of classes handled by the teacher-respondents and their age, it can be noted that the correlation between the two variables was very weak (ρ= 0.016). Fisher's t showed that the age of the teachers did not influence significantly the average science performance of classes they handled (F(97)=0.315, p=0.761, ω=<.001).

Sex. In associating a linear correlation between the average science performance of classes handled by the teacher-respondents and sex, the Cramer's V between the two variables was very weak (V= 0.100). Fisher's t showed that the sex of the teachers did not influence significantly the average science performance of classes they handled (F(97)=0.990, p=0.420, ω=<.001).

Civil Status. In associating the linear correlation between the average science performance of classes handled by the teacher-respondents and civil status, Cramer's V between the two variables was very weak (V= 0.120). Fisher's t showed that the civil status of the teachers did not influence significantly the average science performance of classes they handled (F(97)=1.1990, p=0.124, ω=<.001).

Highest Educational Attainment. In looking into the linear correlation between the average science performance of classes handled by the teacher-respondents and their highest educational attainment, it can be noted that the correlation between the two variables was very weak (ρ= -0.031). Fisher's t showed that the highest educational attainment of the teachers did not influence significantly the average science performance of classes they handled (F(97)=0.305, p=0.771, ω=<.001).

Performance Rating Based on the Latest IPCRF. In looking into the linear correlation between the average science performance of classes handled by the teacher-respondents and their performance rating based on the latest IPCRF, it can be noted that the correlation between the two variables was weak (ρ= 0.223). The Fisher's t showed that the performance rating of the teachers based on the latest IPCRF influenced significantly the average science performance of classes they handled (F(97)=2.253, p=0.036, ω=<.001). This indicated that the teachers with higher performance ratings based on the latest IPCRF turned the classes they handled to manifest higher average science performance than the classes handled by the teachers with lower performance ratings.

Relevant In-Service Training. In looking into the linear correlation between the average science performance of classes handled by the teacher-respondents and their relevant in-service training, it can be noted that the correlation between the two variables was very weak (ρ= -0.055). Fisher's t showed that the relevant in-service training of the teachers did not influence significantly the average science performance of classes they handled (F(97)=0.543, p=0.588, ω=<.001).

Attitude Toward Teaching Science. In looking into the linear correlation between the average science performance of classes handled by the teacher-respondents and their attitude toward teaching science, it can be noted that the correlation between the two variables was very weak (ρ= 0.063). Fisher's t showed that the attitude of the teachers toward teaching science did not influence significantly the average science performance of classes they handled (F(97)=0.622, p=0.533, ω=<.001).

In summary, of the teacher-related profile variates, only the performance rating based on the latest IPCRF proved to significantly influence the average

science performance of classes they handled. The other identified profile variates showed no significant influence on it.

Association Between the Average Science Performance of Classes Handled by the Teacher-Respondents and Their Practices on the Delivery of Lessons in Science

Table 14 presents the association between the average science performance of classes handled by the teacher-respondents and their practices on the delivery of lessons in science as to modality, instructional materials used, and assessment process.

Table 14

Association Between the Average Science Performance of Classes Handled by the Teacher-Respondents and Their Practices on the Delivery of Lessons in Science

Parameter	Association		Fisher's t-Value	p-Value @ α=.05	Evaluation/ Decision
	Coefficient	Degree			
Modality	ρ = 0.059	Very Weak	0.582	0.561	NS / Accept Ho.
Instructional Materials Used	ρ = 0.273	Weak	2.795	0.006	S / Reject Ho.
Assessment Process	ρ = 0.337	Weak	3.525	0.000	S / Reject Ho.

ω=*p*=<.001<.05 pairwise normality deviated from the norm
Fisher's t-Critical = ±1.984, df = 97

S = Significant
NS = Not Significant

Modality. In looking into the linear association between the average science performance of classes handled by the teacher-respondents and their practices on the delivery of lessons in science as to modality, it can be noted that the correlation between the two variables was very weak (*ρ*= 0.059). Fisher's t showed that the practices on the delivery of lessons in science as to modality did

not influence significantly the average science performance of classes they handled (F(97)=0.582, p=0.561, ω=<.001).

Instructional Materials Used. In looking into the linear association between the average science performance of classes handled by the teacher-respondents and their practices on the delivery of lessons in science as to instructional materials used, it can be noted that the correlation between the two variables was weak (*ρ*= 0.273). Fisher's t showed that the practices on the delivery of lessons in science as to instructional materials used influenced significantly the average science performance of classes they handled (F(97)=2.795, p=0.006, ω=<.001). This signified that the teachers who frequently used instructional materials in the delivery of science lessons turned the classes they handled to performance very satisfactorily than the teachers who seldom used instructional materials in teaching science.

Assessment Process. In looking into the linear association between the average science performance of classes handled by the teacher-respondents and their practices on the delivery of lessons in science as to the assessment process, it can be noted that the correlation between the two variables was weak (*ρ*= 0.337). Fisher's t showed that the practices on the delivery of lessons in science as to assessment process influenced significantly the average science performance of classes they handled (F(97)=3.525, p=0.000, ω=<.001). This signified that the teachers who frequently used the assessment process in the delivery of science lessons turned the classes they handled to performance very satisfactorily than the teachers who seldom used the assessment process in teaching science.

In summary, of the practices on the delivery of lessons in science, instructional materials used and assessment process showed significant influence

on the average science performance of classes they handled while modality did not pose significant influence to it.

Chapter 5

SUMMARY OF FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

This chapter presents the summary of findings with the corresponding conclusions drawn from it and the recommendations based on the conclusions drawn from the findings of the study.

Summary of Findings

The following were the salient findings of the study:

1. The modal age of the teacher-respondents was posted at 31 years old with the majority of them belonging to the female sex accounting for 72 or 72.73 percent.

2. The majority of the teacher-respondents were married accounting for 66 or 66.67 percent while 28 or 28.28 percent were still single.

3. The majority of the teacher-respondents were with units in masters accounting for 70 or 70.71 percent.

4. A number of the teacher-respondents, that is, 46 or 46.47 percent obtained a rating of 5 (outstanding) while 42 or 42.42 percent got a rating of 4 (very satisfactory).

5. The teacher-respondents always attended relevant in-service training at the school level with a weighted mean of 3.69 while they oftentimes attended district and division-level trainings with weighted means of 3.41 and 2.56, respectively.

6. The teacher-respondents agreed on their attitude toward teaching science being shown by the grand weighted mean of 4.38.

7. The appraisal of the teacher-respondents on their practices on the delivery of lessons in science in the elementary grades was: as to modality, seldom; as to instructional materials used, sometimes; and as to assessment process, frequently.

8. The median academic science performance of the classes handled by the teacher-respondents was posted at 85 with a MAD of 1 point.

9. In looking into the relationship between the practices on delivery of lessons in science in the elementary grades of the teacher-respondents and their profile variates, it was not significant in terms of age, sex, civil status, highest educational attainment, performance rating based on the latest IPCRF, number of years in teaching, number of relevant in-service training, and attitude toward teaching Science.

10. In looking into the correlation between the average Science performance of classes handled by the teacher-respondents and their profile variates, it was significant in terms of performance rating based on the latest IPCRF only and it was not significant in terms of age, sex, civil status, highest educational attainment, number of years in teaching, number of relevant in-service training, and attitude toward teaching Science.

11. In looking into the association between the average Science performance of classes handled by the teacher-respondents and their practices on the delivery of lessons in Science, it was significant as to instructional materials

used, and the assessment process.

Conclusions

The following were the conclusions drawn from the findings of the study:

1. The teacher-respondents were relatively young in their early 30s and at the prime of their age fit to discharge their duties and responsibilities as classroom teachers. Furthermore, they were dominated by the female sex which was expected considering more of this sex group took up Teacher Education Course in college and therefore most of them embraced teaching as their chosen profession.

2. The teacher-respondents opted to enter into the marital state to establish their own families under their care and supervision.

3. The teacher-respondents were qualified for the teaching position having earned the required teacher education degree. Most of them did not settle as college degree holders but proceeded to take up advanced education by enrolling in master's degree programs in prestigious higher education institutions for professional and personal development.

4. The teacher-respondents performed exemplary performance during the school year based on the rating they received based on the latest IPCRF. This meant that they were able to accomplish all their targets which they committed at the beginning of the school year.

5. The teacher-respondents regularly attended local training provided by the division, district, and school to be updated with the current trends of the different programs or curricula of the DepEd.

6. The teacher-respondents manifested a highly favorable attitude toward science teaching in the elementary grades under the Basic Education Curriculum.

7. The teacher-respondents practiced face-to-face modality more often and seldom do they use the other identified modalities. Furthermore, they always use textbooks with supplementary materials in teaching science. Although there were other instructional materials, however, they sometimes used them only. Moreover, they frequently use diagnostic and formative assessments in evaluating the teaching of science. Although there were other assessment processes, however, they sometimes used them only.

8. The classes handled by the teachers performed very satisfactory performance in Science which denoted that the teaching was somewhat effective.

9. None of the teacher-related profile variates posed a significant influence on the practices of delivery of lessons in Science in the elementary grades.

10. Of the teacher-related profile variates, only the performance rating based on the latest IPCRF proved to significantly influence the average science performance of classes they handled. The other identified profile variates showed no significant influence on it.

11. Of the practices on the delivery of lessons in science, instructional materials used and assessment process showed significant influence on the average Science performance of classes they handled while modality did not pose significant influence to it.

Recommendations

Based on the conclusions drawn from the findings of the study, the following recommendations are offered:

1. As it was found out that instructional materials used and assessment process served as correlates to the academic performance in Science of the classes handled by the teachers, these practices should be continued and sustained.

2. The school head must include the provision of instructional materials in the school's Annual Implementation Plan (AIP) or Work and Financial Plan (WFP).

3. The teachers should explore other areas of the foregoing practices to improve their Science teaching.

4. The Curriculum Implementation Division (CID) must conduct a training workshop in developing contextualized instructional materials to supplemental materials in teaching.

5. Considering that the performance of the teachers significantly influenced the Science academic rating of the classes handled by them, school administrators should provide support to them by giving them opportunities to attend relevant in-service training at other levels aside from the local training provided by them.

6. An intervention program may be provided to the teachers to enhance their appreciation of the practices in teaching science particularly on modality so that they could adopt the other means of the delivery of the lessons in teaching science.

7. Another study may be conducted in other educational units to validate the findings of the study.

Chapter 6

INTERVENTION

This Chapter presents the intervention of the study to improve the practices of teachers on the delivery of lessons in Science in the elementary grades in the District of Zumarraga, Schools Division of Samar.

Rationale

The teacher-directed instruction is an authentic strategy that is positively associated with students' Science performance regardless of school situation and available resources. Adaptive teaching is positively correlated with Science performance in the majority of countries, particularly in countries known for the use of personalized learning approaches, while teacher feedback is weakly but positively associated with Science performance once students' achievement in Mathematics and reading is accounted for. In general, all teaching strategies have the potential to foster enjoyment of and interest in Science, and students' epistemic beliefs, self-efficacy in Science, and expectations of a career in Science.

The findings of the study affirmed that the practices on the delivery of the lessons in Science in the elementary grades as evaluated by the teacher-respondents were very significant along with performance ratings based on the latest IPCRF, instructional materials used, and assessment process.

In associating linear association between the average Science performance of classes handled by the teacher-respondents and their practices on the delivery of lessons in Science, it was not significant as to the modality.

Objectives

This Intervention Program desires to improve the teachers' practices on the delivery of lessons in Science in the elementary grades in the District of Zumarraga, Schools Division of Samar.

Specifically, it is expected to:

1. Improve teachers' practices on the delivery of lessons in Science.

2. Develop a positive attitude toward teaching Science subjects.

3. Enhance teaching pedagogies of elementary grade teachers in teaching Science.

4. Improve students' academic performance in Science quarterly based on their average mean grades.

5. Apply different approaches to the delivery of lessons in Science in the elementary grades.

Strategy of Implementation

Many things need to be considered before the Intervention Program can be implemented which include: 1) seek approval from the school's district supervisor based on the matrix of the program presented; 2) seek approval from the school head based on the matrix of the program presented; 3) teacher-school head and other stakeholders conferences to seek support and commitment; and 4) implementation of intervention program as stated on the matrix.

Monitoring and Evaluation

To assist the teacher's practices on the delivery of lessons in Science of Grade 3 elementary grade teachers and enhance their skills and teaching pedagogies.

The school head should closely monitor the performance of teachers in the delivery of lessons in Science and evaluate the student's progress by monitoring students' academic performance based on their average quarterly mean grades.

To intensify the application of different strategies to improve teachers' practices on the delivery of lessons in Science, varied strategies should be utilized in teaching-learning delivery, internet connectivity and computer access, learning support, availability of learning resources, and technical support.

Parts of the Intervention Program

The intervention program consists of the following areas: 1) Objectives; 2) methods/strategies; 3) resources; 4) responsible persons; 5) time frame; and 6) success indicator.

DELIVERY OF LESSONS IN SCIENCE INTERVENTION PLAN

General Objectives:

a. To improve teachers' practices on the delivery of lessons in Science.

b. To develop a positive attitude toward teaching Science subjects.

c. To enhance teaching pedagogies of elementary grade teachers in teaching

Plan of Activities

Objectives	Methods/ Strategies	Resources	Persons Involved	Time Frame	Success Indicator
a. To Enhance teaching practices and pedagogies in the delivery of lessons in Science subject	• Conduct monthly School Learning Action Cell	Laptop & LCD	School head LAC Leaders Master Teachers EPSs in Science	Monthly	Improved teaching practices and pedagogies in the delivery of lessons in Science subject
b. To upskill teachers competencies in developing Self Instructional Materials (SIM) in teaching Science	• Conduct capability building for teachers during the mid-year break of students	Laptop & LCD	School head LAC Leaders Master Teachers EPSs in Science	Mid-year break	Enhanced teaching competencies in developing Self Instructional Materials (SIM) in teaching Science
c. To develop contextualized Science learning	• Conduct monthly School	Laptop & LCD	School head, LAC Leaders, Master	Monthly	Developed contextualized Science learning materials as supplemental references

materials as supplemental references in teaching-learning of the Science subject	Learning Action Cell		Teachers, EPSs in Science		in teaching-learning of the Science subject
d. To strengthen instructional supervision by school heads to ensure the proper delivery of the lessons in teaching Science subject	• Conduct at least 15 instructional supervision per month	Monitoring tool	Science teachers School Heads PSDS EPS in Science	Monthly	Improved teacher's and students performance
e. Improve quarterly academic performance of elementary grade students in Science subject	• Quarterly grade assessment	Bond paper, computer ink, and printer for the reproduction of test papers	Science teachers, School Heads, PSDS, and EPS in Science Supervisor	Quarterly	Attained at least 75% quarterly MPS
f. Awards and Recognition	• Recognize teachers during the Annual Search for Most Outstanding teachers who show outstanding performance in teaching Science subject	Certificates	School head, & Teachers	Quarterly	Activity completion report

Funding Source

Funding for this intervention plan may come from the following sources:

1. School MOOE;
2. LGU/SEF Funds;
3. Proceeds from the GPTA organization; and
4. Donations or voluntary support from LGU and/or NGOs such as Plan Philippines and other private donors.

Budgetary Requirements

In implementing this program, the following budgetary requirements would be entailed.

Supplies and materials .....…	P 25,000
Snacks and meals during the capability Building on different practices for delivery of lessons in Science . . .	35,000
Other Incidental Expenses	10,000
	P 70,000

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APPENDICES

APPENDIX A

REQUEST FOR APPROVAL OF RESEARCH TITLE

SAMAR COLLEGE
COLLEGE OF GRADUATE STUDIES
City of Catbalogan

July 25, 2022

DR. NIMFA T. TORREMORO
Dean, College of Graduate Studies
Samar College
City of Catbalogan

Madame:

The undersigned will enroll in thesis writing this First Semester, School Year 2022-2023. In this regard, she would like to present the following proposed thesis titles; preferably number **1**, for your evaluation, suggestions, and recommendations

1. **Teachers' Practices on Delivery of Lessons in Science in the Elementary Grades in the New Normal**
2. Teachers' Distant Factor: A case study on the use of modular approach in Elementary.
3. Level of implementation of solid waste management program in Elementary Schools in the District of Zumarraga: A proposal Improvement Plan.

(SGD.) NESSA D. SABUSAP
Researcher

Recommended Title No.

1 **(SGD.) MICHELLE L. MUSTACISA, PhD**
Evaluator
1 **(SGD.) ELENA S. DE LUNA, PhD**
Evaluator
1 **(SGD.) GUILLERMO D. LAGBO, DPA**
Evaluator

Approved Title No.: # 1

(SGD.) NIMFA T. TORREMORO, PhD
Dean, College of Graduate Studies

APPENDIX B

Republic of the Philippines
Commission on Higher Education
Region VIII
SAMAR COLLEGE
COLLEGE OF GRADUATE STUDIES
City of Catbalogan

ASSIGNMENT OF ADVISER

NAME	**:**	NESSA D. SABUSAP
COURSE	**:**	Master of Arts in Education
SPECIALIZATION	**:**	Educational Management
TITLE OF THESIS PROPOSAL	**:**	Teachers' Practices on Delivery of Lessons in Science in the Elementary Grades in the New Normal
NAME OF ADVISER	**:**	IMELDA M. UY, EdD

(SGD.) NESSA D. SABUSAP
Researcher

CONFORME:

(SGD.) IMELDA M. UY, EdD
Adviser

APPROVED:

(SGD.) NIMFA T. TORREMORO, PhD
Dean, College of Graduate Studies

APPENDIX C

QUESTIONNAIRE
(For Teacher-Respondent)

Republic of the Philippines
Commission on Higher Education
Region VIII
SAMAR COLLEGE
COLLEGE OF GRADUATE STUDIES
City of Catbalogan

25 July 2022

Dear Respondent,

The undersigned is currently conducting a study entitled, “Teachers’ Practices On Delivery Of Lessons In Science In The Elementary Grades under the New Normal." One of the requirements for the degree is, a Master of Arts in Education (MAEd) major in Elementary Education with the College of Graduate Studies Samar College, City of Catbalogan.

As a potent source of information the undersigned requests your cooperation in answering the attached questionnaire.

Rest assured that any information given in this questionnaire will be held in strict confidentially and shall be used solely for this study.

Thank you very much for your cooperation.

Very truly yours,

(SGD.) NESSA D. SABUSAP
Researcher

PART I. PROFILE OF RESPONDENT

Direction: Kindly supply the information asked for by writing in the space provided or by checking the appropriate box.

1. Name: _____

2. Age: _____ 3. Sex: Male ☐ Female ☐

3. Civil Status: Single ☐ Live-in ☐
Married ☐ Separated ☐
Widowed ☐ Annulled ☐

4. Highest Educational Attainment:

☐ Doctorate Degree Holder ☐ Master's Level

☐ Doctorate Level ☐ Baccalaureate Degree Holder

☐ Master's Degree Holder

5. Performance Rating Based on the Latest IPCRF:

Numerical Rating : _____

Adjectival Rating : _____

6. Number of Relevant In-Service Training:

Training Level	No. of Training Attended
International	
National	
Regional	
Division	
District	

PART II. ATTITUDE TOWARD TEACHING SCIENCE

Direction: Kindly check the column to which degree you agree for each statement using this Five-Likert Scale:

5- Strongly Agree (SA)
4- Agree (A)
3- Uncertain (U)
2- Disagree (D)
1- Strongly Disagree (SD)

Statement	5 (SA)	4 (A)	3 (U)	2 (SD)	1 (SD)
1. I am sure that I can learn and teach Science.					
2. I am interested in learning more about Science teaching.					
3. Knowing Science will help me earn a living.					
4. I'll need Science for my future work.					
5. I am sure of myself when I do Science.					
6. Science is a worthwhile, necessary subject to teach.					
7. I will use Science in many ways as a Teacher					

and as an Adult.					
8. Studying and teaching science boosts my confidence.					
9. I am sure that I can do well in Science as my teaching discipline.					
10. I teach Science because I know that it is useful to my student's daily activities.					

Part 2- Practices on Delivery of Lessons in Science in the Elementary Grades

DIRECTION: Using the Five-Likert Scale below, score or rate how frequently you practice the provided indicators by putting a check (/) mark on the appropriate column.

5- Always (A)
4- Frequently (F)
3- Sometimes (So)
2- Seldom (Se)
1- Never (N)

INDICATORS	5 (A)	4 (F)	3 (So)	2 (Se)	1 (N)
A. Modality					
1. Face-to-Face					
2. Synchronous Online					
3. Asynchronous Offline					
4. Asynchronous Online					
B. Instructional Materials					
5. Textbooks					
6. Pamphlets					
7. Handouts					
8. Study Guides					
9. Laboratory manuals					
10. Learning Packets					
11. Self-directed Modules					
12. CDs/Audio Recordings/Cassettes					
13. Multimedia					
14. Videos					
15. Podcast					
16. Slides Presentation					
17. Films					
18. Computers/Tablets					
19. Graphic Calculator					

20. Expert blogs					
21. Supplementary materials (e.g. flashcards and charts)					
C. Assessment Process					
22. Diagnostic assessment					
23. Formative assessment					
24. Summative assessment					
25. Ipsative assessment					

Thank You . . .

The Researcher

APPENDIX D

REQUEST LETTER TO THE SCHOOL DIVISION SUPERINTENDENT TO CONDUCT THE STUDY

Republic of the Philippines
Commission on Higher Education
Region VIII
SAMAR COLLEGE
COLLEGE OF GRADUATE STUDIES
City of Catbalogan

25 July 2022

CARMELA R. TAMAYO, Ed.D., CESO V
Schools Division Superintendent
Samar Division
Catbalogan City, Samar, Philippines

Dear Madame,

The undersigned is a College of Graduate School student of Samar College and would like to ask permission from your good office to conduct a gathering procedure in your school for the completion of a graduate thesis titled, **"Teachers' Practices on Delivery of Lessons in Science in the Elementary Grades Under the New Normal"**.

With this regard, the undersigned requests your permission to field the questionnaire at the District of Zumarraga.

Your positive response in this regard will highly be appreciated. Thank you and more power.

Thank you very much for the usual cooperation.

Very truly yours,

(SGD.) NESSA D. SABUSAP
Researcher

Approved:

(SGD.) CARMELA R. TAMAYO, EdD
Schools Division Superintendent, Samar Division

APPENDIX E

REQUEST LETTER TO THE PUBLIC SCHOOLS DISTRICT SUPERVISOR TO CONDUCT THE STUDY

Republic of the Philippines
Commission on Higher Education
Region VIII
SAMAR COLLEGE
COLLEGE OF GRADUATE STUDIES
City of Catbalogan

25 July 2022

THE PUBLIC SCHOOLS DISTRICT SUPERVISOR
District of Zumarraga
DepEd Schools Division of Samar
Zumarraga Samar

Dear Madame,

The undersigned is a College of Graduate School student of Samar College and would like to ask permission from your good office to conduct a gathering procedure in your school for the completion of a graduate thesis titled, **Teachers' Practices on Delivery of Lessons in Science in the Elementary Grades Under the New Normal"**.

The procedure is for you to answer the attached survey questionnaire. Rest assured that all the documents collected will be treated with utmost confidentiality and anonymity.

Your positive response in this regard will highly be appreciated. Thank you and more power.

Very truly yours,

(SGD.) NESSA D. SABUSAP
Researcher

APPENDIX F

REQUEST LETTER TO THE SCHOOL ADMINISTRATOR TO FIELD THE QUESTIONNAIRE

Republic of the Philippines
Commission on Higher Education
Region VIII
SAMAR COLLEGE
COLLEGE OF GRADUATE STUDIES
City of Catbalogan

25 July 2022

THE SCHOOL ADMINISTRATOR
District of Zumarraga
DepEd Schools Division of Samar
Zumarraga Samar

Dear Madame,

The undersigned is a College of Graduate School student of Samar College and would like to ask permission from your good office to conduct a gathering procedure in your school for the completion of a graduate thesis titled, **Teachers' Practices on Delivery of Lessons in Science in the Elementary Grades Under the New Normal"**.

The procedure is for you to answer the attached survey questionnaire. Rest assured that all the documents collected will be treated with utmost confidentiality and anonymity.

Your positive response in this regard will highly be appreciated. Thank you and more power.

Very truly yours,

(SGD.) NESSA D. SABUSAP
Researcher

CURRICULUM VITAE

NAME	**:**	**NESSA SABUSAP-OCENAR**
BIRTH DATE	**:**	December 10, 1993
BIRTH PLACE	**:**	Zumarraga, Samar
CIVIL STATUS	**:**	Married
PRESENT POSITION	**:**	Elementary School Teacher III
STATION	**:**	District of Zumarraga Schools Division of Samar
DEGREE PURSUED	**:**	Master of Arts in Education (MAEd)
SPECIALIZATION	**:**	Elementary Education

EDUCATIONAL BACKGROUND

ELEMENTARY	:	Macalunod Elementary School Zumarraga, Samar 2001-2007
SECONDARY	:	Zumarraga Integrated School Zumarraga, Samar 2007-2011
TERTIARY	:	Bachelor of Elementary Education (BEEd) Samar State University Catbalogan, City 2011-201
GRADUATE STUDIES	:	Samar College City of Catbalogan 2016-present

ELIGIBILITY

Licensure Examination for Teachers	:	September 27, 2015 Tacloban City Rating: 78.06%

WORK EXPERIENCE

Teacher I	:	Department of Education Schools Division of Samar 2016-2019
Teacher III	:	Department of Education Schools Division of Samar 2019-present

TRAININGS, SEMINARS, WORKSHOPS AND CONVENTIONS

Job Orientation for Newly Hired Elementary Teachers conducted by the DepEd Schools Division of Samar on March 23-25, 2017.

District Campus Journalism Training and District Press Conference conducted by the DepEd Zumarraga District, Schools Division of Samar on October 22-24, 2018.

District Roll-Out on the Philippine Professional Standards for Teachers (PPST) and Result-Based Performance Management System (RPMS) conducted by the DepEd Zumarraga District, Schools Division of Samar on March 1-3, 2019.

DepEd Computerization Program (DCP) Orientation Cum ICT Literacy conducted by the DepEd Schools Division of Samar on October 21-23, 2019.

School Capacity Building on Psychological First Aid conducted by the DepEd Schools Division of Samar on May 20, 2021.

District Seminar on Legal Matters, Ethics, and Accountability conducted by the DepEd Zumarraga District, Schools Division of Samar on March 29-31, 2021.

Conduct of Online Orientation on Data Requirements and Data Gathering Forms for School Year 2020-2021 conducted by the DepEd Schools Division of Samar on April 23, 2021.

District Echo Training-Workshop on the Administration of New Beginning Reading Assessment Tools: EGRA and CRLA conducted by the DepEd Zumarraga District, Schools Division of Samar on June 20-22, 2021.