Challenges in Implementing Modern Education for Science Teacher at Marawi City National High School

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ABSTRACT

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This study investigated the challenges in implementing modern education for Science teacher at Marawi City National High School during the school year 2023-2024. This is focus on the use of technology and customized learning. The study employed a descriptive approach using quantitative data collection and analysis methods. A survey was conducted among 40 Science teachers at Marawi City National High School, which aimed to gather data on their demographic profile, teaching experience and perceived challenges in implementing modern education. To arrive at the accurate results of this study, frequency, and percentage, weighted mean and standard deviation were utilized. The results of the study indicated that Science teachers at Marawi City National High School face a range of challenges in implementing modern education, including limited access to technology and infrastructure, a lack of training and support, and inadequate resources. The study also found that Science teachers who had implemented modern education in their classrooms reported feeling overwhelmed and stressed due to the increased workload and responsibilities associated with using technology and customized learning. The findings of this study have significant implications for education policy and practice thus it suggests that policymakers and educators need to prioritize the provision of adequate resources and support for Science teachers, including training and infrastructure in order to enable them to effectively implement modern education. Additionally, the study highlights the importance of providing Science teachers with adequate time and resources to develop their skills and expertise in using technology and customized learning. Overall, this study provides valuable insights into the challenges faced by Science teachers in implementing modern education and highlights the need for policymakers and educators to work together to address these challenges and provide a high-quality education for students.

KEYWORDS: Challenges, Implementing, Modern Education, and Science Teachers

INTRODUCTION

Modern education refers to the condition of educational practices, methodologies, and technology as of right now. It also highlights the significance of customized learning, which is adjusting education to each student's particular requirements and learning preferences and using technology to make this process easier (Kozma, 2012). The method used to teach students now to get ready for the future is

referred to as modern education. It entails enhancing educational experiences with the use of modern technology. It also places a strong emphasis on imparting critical thinking abilities so that students may work through issues independently. Personalized learning is important in today's classrooms, as teachers adjust their lessons to each student's requirements.

The implementation of modern education for Science requires significant challenges for Science teachers due to various factors such as the accessibility of learning, the availability of information and also the students. The extensive use of technology in education has greatly improved students' access to learning resources (OECD, 2019). This has given student's unparalleled access to a wide range of educational resources, but it has also presented new difficulties for Science teachers. The spread of false information and fake news has also been brought about by the availability of information, and this may be especially troublesome when it comes to Science education. Science teachers also face a great deal of difficulty when it comes to accommodating the diverse learning styles of their students. While some students may have little prior Science knowledge, others may have misconceptions or misunderstandings about scientific concepts; all of these factors can make it difficult to create inclusive and successful Science lessons.

Furthermore, Science education emphasizes the integration of Science inquiry and Science understanding. As a result, scientific education fulfills three functions. For starters, it prepares students for higher-level Science studies. Second, it prepares students for entry into the labor force, vocations, and careers. Third, it teaches them how to be more scientifically educated citizens (Staver, 2007). Similarly, Science teachers should be wary of overusing Science in their teaching because they should strive to be vivid, fascinating, and successful when teaching. According to Balce (2007) teacher should employ the Science process skills of observing, explaining (verbally, in writing, and by drawing), inferring, and building a model to teach Science concepts. According to Halimi (2011) one of the most fascinating components of teaching Science is explaining how it is done and engaging students in their own journey of discovery.

The purpose of the study is to identify and examine the problems that Science instructors confront while adopting modern education, to give insights into the reasons that impede the effective implementation of modern education and to propose potential solutions to overcome these barriers. This study also investigated Science teachers' accessibility of learning, availability of information and the students. This helps to improve knowledge of the present condition of scientific education and will guide future researchers in the area of Marawi City National High School.

METHODOLOGY

This chapter deals with the setting and procedures that were used by the researcher in gathering and analyzing data. It includes the research design, locale of the study, and respondents of the study, date gathering procedure, research instrument and statistical tools.

Research Design

The research method used in this study was descriptive method. Since it aimed to describe the existing situation and the challenges that were faced by the Science teachers in implementing curriculum in modern education, the descriptive method was the best tool for describing the data gathered in order to establish the profile and perception of the teachers towards implementing curriculum in modern education.

Locale of the Study

This study was conducted in Marawi City, represented by Marawi National High School located at Brgy. Datu Saber, Marawi City.

Marawi City National High School is a public educational institution in Marawi City. It was founded in 1980 and offers education for high school.

Marawi National High School is located in Marawi City, Autonomous Region of Muslim Mindanao, Philippines.

Marawi City is bounded on the north by the municipalities of Kapai and Saguiran, on the south by Lake Lanao, on the east by the municipalities of Bubong and Ditsaan Ramain, and on the west by the municipalities of Marantao and Saguiran.

Marawi City is a Muslim city in the province of Lanao del Sur, Philippines. It is the capital city of Lanao del Sur in Mindanao. It is located on the shores of Lake Lanao and straddles the area where the Agus River starts. It has a total area of 87.55- kilometers square.

Respondents of the Study

The respondents of the study were the Science teachers of the Marawi National High School in Marawi City. The school and the actual number of the Science teachers in school were given in table 1, where there were 40 respondents.

Table 1

Distribution of the Respondents
Research Instrument
The major instrument used in this study was one set of questionnaires for each teacher. The set of questionnaires was composed of two parts. The first part represented the respondent's profile in terms of age, sex, civil status, highest educational attainment and length of teaching service.

The second part reflected the challenges in implementing modern education for Science teachers.

Data Gathering Procedure

In gathering the necessary data for the study, the researchers asked permission from the heads of the school through a letter that stated they were obliged to do a survey at their school and gather some information to help the researchers study the challenges that the Science teachers were facing in implementing curriculum in modern education at MCNHS. Then, after approval, the questionnaires were distributed to every respondent.

The gathered data was employed to analyze the data of the study using the following techniques:

Statistical Tools
Percentage. This was used to describe the profile distribution of the respondents in terms of age, sex, civil status and ethnicity. Professional profile of the respondents in terms of their highest educational attainment and length of service.

Below is the formula:

Formula: $P = f/n \times 100\%$

Where: P= percentage
F= frequency
N= number of observation

Weighted Mean (WM). This was used to determine the result of the study.

Formula:
$xw = n/z \ fxi$

$\underline{i\text{-}1}$
 N

Where: f= frequency
Xi
N= total number of observations

Results and Discussion
Part I .Respondent's profile in terms of gender, age, civil status, highest educational attainment and length of teaching experience.

Table 2
Frequency and Percentage Distribution of the Respondent's in Terms of Age

Table 2 presents the frequency and percentage distribution of the respondents' age in years. Based on the findings, majority of respondents which is thirty percent (30.0%) are between the ages of 20 to 25, twenty five percent (25.0%) were belong between the ages of 26 to 30 years old. twenty percent (20.0%)of the participants were between the ages of 31 to 35, with seventeen point five percent (17.5%) fell between the ages of 36 to 40. The remaining participants were evenly split between the ages of 41 to 45 (5.0%) and 46 to 50 (2.5%).

The respondents' age distribution may have an impact on the study's findings and generalization. The fact that the majority of the participants were young as 20-30 years old, which it may suggest that the survey is more typical of the experiences and opinions of newer Science instructors.

This finding may also be relevant to the challenges and opportunities in implementing modern education for Science teachers, as younger teachers may be more familiar with new technologies and pedagogies. On the other hand, older teachers may have more experience and knowledge, but may also be more resistant to change. This is true to the study conducted by Sumugat and Talaboc (2006) that age is considered as one of the contributing factors in the competence of the teacher since age determines how active and energetic the teacher is. They may also be that idealistic and innovative for they are new teachers.

Table 3
Frequency and Percentage Distribution of the Respondents' in terms of Sex

The table 3 shows the frequency and percentage distribution of the respondents' sex. It shows that majority of the participants (80.0%) were female, while 20.0% were male. This distribution is quite skewed towards females, indicating that the study population may have a predominantly female composition.

The research participants' sex distribution may have an impact on the study's conclusions and generalization because majority of the participants were female, the findings may be more typical of the experiences and opinions of female Science instructors. However, this implies that the study may not be representative of male Science instructors' experiences and viewpoints. Ampatua's (1979) study entitled Teacher's Profile as cited by Sumugat and Talaboc (2006) relates to their teaching job performance, in which it reported that majority of the teachers were female and few were male. Moreover, there is less frequency of male involved in teaching

profession. Probably, most of them are in other fields such as engineering, commerce, etc. This finding conforms to the present investigation because majority of the teachers are female and only few are male.

Table 4
Frequency and Percentage Distribution on the Respondents' Civil Status

The findings suggest in table 4 that the majority of participants (67.5%) were married, with 32.5% were single. There were no participants who were widowed, separated, or classified as "others." The distribution of civil status among research participants may have an impact on the study's findings and generalization. The fact that the majority of the participants were married may suggest that the study is more typical of married Science instructors' experiences and viewpoints.

This study may also have implications for the problems and possibilities of adopting contemporary education for Science instructors, since married teachers may have distinct obligations and priorities that impact their teaching methods and attitudes. For example, married teachers may have a more stable family life and be able to concentrate on their profession, whereas single instructors may have more flexible schedules and be able to take on more duties.

But according to Didatar (1998) and as cited by Sumugat and Talaboc (2006) that being married is also an advantage to the teacher, since most married people are already exposed to different situations and with these experiences, it will be easy for them to adjust to different students' behaviors.

Table 5
Frequency and Percentage Distribution on the Respondents' Highest Educational Attainment

Table 5 presents the frequency and distribution of the respondents' highest educational attainment. The findings show that the majority of participants (47.5%) have finished master's units, while 45.0% were bachelor's degree (BS). There are also a few individuals who have finished doctoral units (7.5%) and a few numbers who are doctorate degree (3.5%). There were no individuals who had a Master's degree or were classified as "others".

The distribution of educational attainment among research participants may have an impact on the study's findings and generalization. The fact that the majority of the participants possess bachelor's degrees or master's units suggests that the study is more reflective of the experiences and viewpoints of

instructors who have finished their undergraduate or graduate studies.

This insight may also be important to the problems and possibilities of adopting contemporary education for Science instructors, as higher-level educators may be better prepared to deal with new technology and pedagogies. Master's and doctoral degree holders, for example, may be more conversant with research-based teaching approaches and more equipped to adapt to changing curriculum. A study by Goldstein (2008) found that teachers who have completed higher-level education programs (such as master's or doctoral degrees) tend to be more effective in the classroom and have higher student achievement outcomes. This finding suggests that higher-level educators may be more equipped to adapt to changing curriculum and demands.

Table 6
Frequency and Percentage Distribution on the Respondents' Length of Teaching Service

The table 6 findings indicate that the majority of participants (55.0%) had been teaching for 5 to 10 years, with 37.5% teaching for 4 years or less. Only 7.5% of participants had been teaching for 11 years or more.

The length of teaching service distribution among research participants may have an impact on the study's findings and generalization. The fact that the majority of the participants were mid-career teachers (5–10 years) may suggest that the study is more typical of the experiences and viewpoints of teachers who are established but still in their early careers. This finding may also be relevant to the challenges and opportunities in implementing modern education for Science teachers, as experienced teachers may have developed a variety of teaching practices and attitudes, whereas inexperienced teachers may be more open to new approaches and technologies. A study by Darling-Hammond (2000) found that teachers who receive on-going professional development are more likely to adopt new teaching practices and stay updated with the latest research and developments in their field. This finding suggests that mid-career teachers may benefit from professional development opportunities to help them stay current with the latest advancements in Science education.

Part II Challenges in Implementing Modern Education in Science

Table 7
Weighted Mean Rating Value on the Respondents' Challenges in Implementing Modern Education for Science in terms of Accessibility of Learning

Legend: Poor (1.00 – 1.44), Unsatisfactory (1.45 – 2.44), Satisfactory (2.45 – 3.44), Very Satisfactory (3.45 – 4.44), Outstanding (4.45 – 5.00)

The table 7 section gives the findings on the problems that respondents face while adopting modern scientific education in terms of learning accessibility. The findings indicate that respondents usually evaluate the indicators as "very satisfactory" (average weighted mean rating value of 3.86). Indicators 2 ("Students in my classes are receptive to using technology as part of their learning experience.") and 5 ("Students in my classes are ready and familiar with modern educational tools") received the highest ratings, with 4.40 and 4.00 respectively. These data indicate that respondents feel kids are typically open to embracing technology and conversant with current instructional tools. The indicator 4 ("I have ample time for planning and preparation to integrate modern education methods into my science lessons") received the lowest rating of 3.10, indicating that respondents may struggle to find enough time to plan and prepare for incorporating modern education methods into their Science lessons.

In line with the findings on accessibility of learning, respondents feel that students are typically open to using technology and are conversant with current educational tools. However, teachers may have difficulty finding enough time to plan and prepare for implementing new educational approaches in their scientific classes. These findings have consequences for teachers' professional growth and support. Teachers, for example, may benefit from training and materials on how to successfully incorporate technology into scientific lectures, as well as time management skills to meet the demands of modern education. A study by Ingersoll (2003) found that teachers often struggle with time management and feel overwhelmed by their workload, which can make it difficult for them to plan and prepare for incorporating new educational approaches into their teaching practices. This finding supports the idea that respondents may struggle to find enough time to plan and prepare for implementing new educational approaches in their scientific classes.

Table 8
Weighted Mean Rating Value on the Respondents' Challenges in Implementing Modern Education for Science in Terms of Availability of Information

Legend: Poor (1.00 – 1.44), Unsatisfactory (1.45 – 2.44), Satisfactory (2.45 – 3.44),Very Satisfactory (3.45 – 4.44), Outstanding (4.45 – 5.00)

Table 8 section reports on the respondents' obstacles in adopting contemporary scientific education in

terms of information availability. The findings indicate that respondents usually evaluated the indicators as "Very Satisfactory" (average weighted mean rating value of 3.45). Indicator 1 ("I find it challenging in teaching science to access relevant textbook and educational materials to deliver comprehensive lesson") received the highest rating of 4.20, indicating that respondents believe that accessing relevant textbooks and educational materials is a significant challenge.

The lowest rating was given to indicator 4 ("The availability of digital libraries and database enhances my accessibility to information for teaching Science") with a rating of 2.10, indicating that the respondents are not satisfied with the availability of digital libraries and databases.

The findings on information availability indicate that respondents had difficulty accessing appropriate textbooks, educational resources, scientific publications, and research papers. However, they do not appear to be pleased with the availability of digital libraries and databases. These findings have consequences for teachers' professional growth and support. Teachers, for example, may benefit from training and materials on how to successfully access and use digital libraries and databases, as well as ways to stay up-to-date on the newest developments in their profession. Guskey (2002) found that teachers often face challenges in accessing relevant textbooks and educational materials, which can hinder their ability to deliver effective science lessons. This finding supports the idea that respondents believe that accessing relevant textbooks and educational materials is a significant challenge.

Table 9
Weighted Mean Rating Value on the Respondents' Challenges in Implementing Modern Education for Science in Terms of Students

Legend: Poor (1.00 – 1.44),Unsatisfactory (1.45 – 2.44), Satisfactory (2.45 – 3.44),Very Satisfactory (3.45 – 4.44), Outstanding (4.45 – 5.00)

The table 9 presents the findings on the problems that respondents face while adopting contemporary Science instruction for learners. The findings suggest that respondents typically assessed the indicators as "satisfactory" (average weighted mean rating of 3.06). Indicator 3 ("Students gained knowledge and skills") had the highest grade of 4.03, indicating that respondents feel pupils learned information and skills from their scientific lectures. Indicator 1 ("Students are interested in learning Science subject.") had the lowest grade of 2.33, suggesting that respondents do

not feel that students in general are interested in learning science.

The findings on students suggest that the respondents face challenges in motivating students to learn Science, but they are generally satisfied with the level of interaction between students and teachers and the students' confidence and self-reliance. These findings have implications for teacher professional development and support. For example, teachers may benefit from training and resources that focus on strategies for engaging students in science learning, such as hands-on activities and project-based learning. According to Mulford et al. (2004) found that students' interest in Science is often influenced by their teachers' enthusiasm and passion for the subject. This finding supports the idea that respondents do not feel that students are generally interested in learning Science.

Conclusion Thus, the findings of this study have significant implications for the whole education system. The findings show that a more holistic approach to Science education is required, one that tackles the obstacles that both instructors and students encounter. The study's findings emphasize the need to offer instructors on-going professional development and support, as well as tools and materials relevant to their teaching techniques.

Furthermore, the study's findings indicate the need for more inventive and engaging approaches to scientific teaching that address students' different needs and interests. This might include adding additional hands-on activities, project-based learning, and technology-based resources to the curriculum. Ultimately, the study's findings underscore the need for a collaborative approach to Science education that involves not only teachers and students but also parents, policymakers, and other stakeholders. By working together to address the challenges faced by Science education, we can create a more effective and engaging learning environment that prepares students for success in an increasingly complex and interconnected world.

Contribution of Authors
Based on the study's findings, conclusion and implications of the study, the following are suggested:

Teachers should develop engaging and interactive teaching methods. They should be given training and materials on how to engage students in scientific learning through hands-on activities and project-based learning. They should have continual assistance and professional development opportunities to keep up with the newest innovations in scientific education and improve their teaching skills. They should be given training and materials on ways for increasing student interest and motivation in scientific learning, such as emphasizing the relevance and use of science education. Teachers should have access to relevant textbooks and educational materials that are relevant to their teaching practices. The school administrator should provide the needs of the Science teachers so it enhances the modern and scientific education.

In summary, the study's findings indicate that Science instructors experience obstacles in inspiring learners to learn Science, but they are typically pleased with the amount of student learning and skill development. Science instructors may improve their teaching techniques while also encouraging student learning and engagement in Science education by addressing these problems through professional development, greater teacher support, and more access to educational materials.

Findings
The study's findings were organized into three main categories. Firstly the students were interested in learning Science subjects. Respondents reported a low level of interest in learning Science among students, with a rating of 2.33. This indicates that teachers face challenges in motivating students to learn Science. Second, students gained knowledge and skills.This reported a high level of student learning and skill acquisition, with a rating of 4.03 that indicates that teachers are generally satisfied with the level of student learning and skill acquisition. Lastly, teachers' needs professional development and support. The respondents reported a moderate level of satisfaction with teachers' professional development and support, with a rating of 3.15. This indicates that while teachers may receive some support, there is still room for improvement in terms of professional development and resources.

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