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Implementation of the Science 5 Curriculum in the District of Ambaguio, SDO Nueva Vizcaya: Strategies, Resources, Instructional, and Administrative Support

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Abstract

This study assessed the implementation of the Science 5 curriculum in the District of Ambaguio, Schools Division Office of Nueva Vizcaya, focusing on strategies, resources, instructional support, and administrative support. Anchored in the Theory of Curriculum Implementation, the study employed a descriptive quantitative research design to provide an objective description of curriculum implementation in public elementary schools. The respondents were 14 Grade 5 teachers teaching Science 5, selected through purposive sampling based on their direct involvement in implementing the curriculum. Data were gathered using a researcher-made questionnaire and analyzed through frequency, percentage, and weighted mean. Findings revealed that the implementation of the Science 5 curriculum was generally positive, with a composite weighted mean of 3.33. Among the four areas assessed, strategies used by teachers obtained the highest mean of 3.61, followed by administrative support with 3.35, instructional support with 3.27, and resources with 3.08 as the lowest-rated area. The results indicate that teachers were able to implement the curriculum with commitment and that school leadership provided a favorable level of support. However, limitations in instructional resources and the need for stronger instructional support remained evident. The study concluded that effective curriculum implementation depends not only on teacher effort but also on the enabling conditions provided by the school system. It is recommended that schools and district leaders strengthen the provision of science teaching materials, learning resources, and sustained instructional support to improve the quality and sustainability of Science 5 curriculum implementation.

Keywords: Administrative Support, Curriculum Implementation, District of Ambaguio, Instructional Resources, Instructional Support, Science 5 Curriculum, Teaching Strategies

1. Introduction

This study examines the implementation of the Science 5 curriculum in the District of Ambaguio, SDO Nueva Vizcaya, with emphasis on strategies, resources, instructional support, and administrative support. The introduction situates the study within the broader context of science education, synthesizes key insights from related literature, identifies the theoretical basis and research gap, and clarifies the study's relevance to sustainability in education.

1.1 Background of the Study

Science education is a vital component of basic education because it develops learners' scientific literacy, problem-solving ability, critical thinking, and understanding of the natural world. At the elementary level, Science 5 plays an important role in building foundational knowledge and skills needed for higher levels of science learning. As curriculum reforms continue to influence classroom practice, the success of science education depends not only on curriculum design but also on the effectiveness of its implementation in actual school settings. Research has consistently shown that curriculum implementation is the most crucial and most difficult phase of educational reform because it is in this stage where written policy is translated into actual classroom instruction, assessment, and learner engagement (Fullan, 2001, as cited in Hamunyela et al., 2022). In the Philippine setting, science education has been shaped by reforms under the K to 12 Basic Education Program mandated by Republic Act No. 10533. The science curriculum is intended to develop scientifically literate learners who can make informed judgments and decisions related to health, environment, and society through a spiral progression approach that introduces concepts with increasing complexity across grade levels (Balinario, 2021). Despite these goals, the effectiveness of curriculum implementation remains a major concern. Studies in the Philippines have shown that curriculum implementation is influenced by factors such as teacher preparation, learning resources, school support systems, and management practices (Palestina et al., 2020). These realities indicate that evaluating curriculum implementation requires attention not only to curriculum content but also to the support mechanisms available to teachers.

1.2 Themes and Insights from Related Literature

Related literature highlights several key conditions that shape science curriculum implementation. One major theme is the importance of adequate instructional resources. Science teaching requires access to textbooks, modules, laboratory materials, technology, and contextualized instructional aids to support meaningful and inquiry-based learning. Lack of

sufficient instructional materials has been identified as a major barrier to effective science curriculum implementation in different educational settings (Kanamugire et al., 2019). Similarly, Hammack and Ivey (2019) found that teachers often experience difficulty implementing curriculum innovations when curriculum materials, funding, and professional development are inadequate. A second theme in the literature is the importance of instructional support. Teachers need not only resources but also pedagogical guidance, curriculum-based professional development, monitoring, mentoring, and opportunities to strengthen their content and teaching competence. Studies have shown that high-quality instructional support helps teachers better understand reform-oriented science instruction and improve their classroom practices (Pareja Roblin et al., 2018). In the Philippine context, science teachers have also encountered challenges related to training, support systems, and the practical demands of implementing science lessons when instructional expectations are not fully matched by available professional and technical support (Datoy, 2020). A third theme concerns the role of administrative support. School heads and district leaders contribute to curriculum implementation through planning, supervision, provision of materials, scheduling of professional development, monitoring of classroom practices, and instructional leadership. Research on science reform has shown that educational systems and district-level support structures are essential in helping schools move from policy intentions to actual improvement in science teaching (Lyle et al., 2023; Seeber et al., 2024). Likewise, curriculum leaders and advisors have been identified as important change agents who help improve teacher development, facilitate access to learning and teaching materials, and sustain school-level implementation efforts (Rammbuda, 2023).

1.3 Local, National, and Global Context

At the national level, the Philippine K to 12 curriculum reflects a policy direction toward developing scientifically literate learners through structured and progressive science instruction (Balinario, 2021). At the same time, studies in the country show that curriculum implementation is shaped by classroom, school, and administrative conditions, particularly in relation to teacher preparation, learning resources, and management support (Palestina et al., 2020). These concerns make curriculum implementation an important issue in the Philippine educational system. At the global level, literature on science education similarly emphasizes that curriculum implementation is affected by the availability of instructional resources, the quality of instructional support, and the strength of administrative systems (Kanamugire et al., 2019; Hammack and Ivey, 2019; Pareja Roblin et al., 2018; Lyle et al., 2023; Seeber et al., 2024; Rammbuda, 2023). In the local context, elementary science implementation in district-based settings such as Ambaguio in the Schools Division of Nueva Vizcaya requires closer attention because implementation conditions may vary according to school context, resource availability, and leadership practices (Balagtas et al., 2019; Palestina et al., 2020). These interconnected local, national, and global considerations justify the need to examine how the Science 5 curriculum is actually being implemented in the district.

1.4 Theoretical or Conceptual Basis

The study is conceptually anchored in the Theory of Curriculum Implementation advanced by Rogan and Grayson (2003). This theory explains that successful curriculum implementation depends on three interrelated elements: the profile of implementation, the capacity to support innovation, and support from outside agencies. The framework is relevant to science education because it recognizes that implementation varies according to school readiness, teacher competence, working conditions, and external support provided by educational leaders and systems. This theoretical lens is further strengthened by the idea of a “zone of feasible innovation,” which suggests that curriculum reform should proceed in ways that are realistic and responsive to the actual conditions of schools (Rogan, 2007). In relation to the present study, this means that the implementation of the Science 5 curriculum must be examined through the combined influence of teacher strategies, resource availability, instructional assistance, and administrative mechanisms.

1.5 Research Gaps and Rationale

Although studies have explored curriculum implementation and science education in both international and Philippine contexts, limited localized evidence exists on the implementation of the Science 5 curriculum at the district level, particularly in relation to teacher strategies, instructional resources, instructional support, and administrative support. Existing literature has often focused on broader curriculum reforms, secondary-level science, or general implementation concerns across subject areas (Balagtas et al., 2019; Palestina et al., 2020). However, elementary science in district-based contexts such as Ambaguio in the Schools Division of Nueva Vizcaya requires closer examination because local implementation conditions differ depending on school context, resource availability, and leadership practices. This gap provides the rationale for the present study. By assessing the implementation of the Science 5 curriculum in terms of strategies, resources, instructional support, and administrative support, the study aims to identify strengths, challenges, and areas for improvement that may serve as basis for enhancing science curriculum delivery in the district.

1.6 Alignment with Relevant Sustainable Development Goals (SDGs)

The study is primarily aligned with SDG 4 – Quality Education because it focuses on improving the implementation of elementary science education through better teaching strategies, sufficient resources, and stronger instructional and administrative support. The study also relates to educational quality by addressing the conditions that influence effective curriculum delivery and learner development in public elementary schools.

1.7 Importance of the Study to Multidisciplinary Sustainability

The study contributes mainly to educational sustainability and institutional sustainability. It supports educational sustainability by examining the conditions necessary for consistent and effective curriculum implementation in Science 5, particularly in relation to teaching practice, instructional resources, and support systems. It also contributes to institutional sustainability by generating localized evidence that may help school heads, district supervisors, and teachers strengthen science curriculum delivery, improve support mechanisms, and sustain quality basic education over time.

2. Material and methods

This study examined the implementation of the Science 5 curriculum in the District of Ambaguio, Schools Division Office of Nueva Vizcaya, with particular focus on strategies, resources, instructional support, and administrative support. The methodology was designed to gather data directly from teachers who were actively involved in teaching Science 5 in public elementary schools. The study used a structured process in selecting respondents, gathering data, and analyzing the results to ensure that the findings would accurately reflect the status of curriculum implementation in the district.

2.1 Research Design

This study employed a descriptive quantitative research design. This design was considered appropriate because the study aimed to describe and assess the implementation of the Science 5 curriculum in terms of strategies, resources, instructional support, and administrative support. Through this approach, the study was able to obtain measurable data from the respondents and present an objective description of the current implementation of the curriculum in the identified schools.

2.2 Locale of the Study

The study was conducted in the District of Ambaguio under the Schools Division Office of Nueva Vizcaya. Specifically, it covered public elementary schools where Grade 5 teachers were assigned to teach Science 5. The locale was chosen because it provided the appropriate setting for examining how the Science 5 curriculum was being implemented in actual classroom and school conditions within the district. The district context also allowed the researcher to assess the extent of available resources and the support mechanisms provided to teachers in relation to curriculum implementation.

2.3 Respondents of the Study

The respondents of the study were the 14 Grade 5 teachers teaching Science 5 in public elementary schools in the District of Ambaguio, SDO Nueva Vizcaya. These teachers were considered the most appropriate respondents because they were directly involved in the actual implementation of the Science 5 curriculum. Their experiences and observations provided the necessary data regarding the strategies they used, the resources available to them, and the instructional and administrative support they received in carrying out the curriculum.

2.4 Sample and Sampling Procedure

The study employed purposive sampling in selecting the respondents. The respondents were the 14 Grade 5 teachers teaching Science 5 in public elementary schools in the District of Ambaguio, SDO Nueva Vizcaya. They were purposely chosen because they met the specific criteria of the study, particularly their direct involvement in the implementation of the Science 5 curriculum. This sampling procedure was appropriate because it allowed the researcher to obtain relevant data from participants who had direct knowledge and actual experience regarding the strategies, resources, instructional support, and administrative support involved in curriculum implementation.

2.5 Research Instrument

The study utilized a researcher-made questionnaire as the main instrument for data gathering. The questionnaire was designed based on the objectives of the study and focused on the major variables of the research, namely strategies, resources, instructional support, and administrative support in the implementation of the Science 5 curriculum. The items were framed in a clear and direct manner to enable the respondents to express their assessment of the implementation practices in their respective schools. The instrument served as the primary means of obtaining uniform and quantifiable responses from all participants.

2.6 Data Gathering Procedure

Before the conduct of the study, the researcher first sought the necessary permission from the concerned school and district authorities to administer the questionnaire to the identified respondents. After approval was secured, the researcher distributed the questionnaires to the 14 Grade 5 teachers teaching Science 5 in the public elementary schools covered by the study. The purpose of the research was explained to the respondents, and they were informed that their responses would be used solely for academic purposes. After the accomplished questionnaires were retrieved, the responses were checked, organized, and prepared for statistical treatment.

2.7 Data Analysis Techniques

The data gathered from the respondents were analyzed using appropriate descriptive statistical tools. Frequency and percentage were used to describe the respondents in terms of relevant profile variables, if applicable. Weighted mean was used to determine the level of implementation of the Science 5 curriculum in terms of strategies, resources, instructional support, and administrative support. The results were then interpreted based on the objectives of the study to present a clear description of the implementation status of the Science 5 curriculum in the District of Ambaguio, SDO Nueva Vizcaya.

3. Results and Discussion

3.1 Level of Implementation of the Science 5 Curriculum

3.1.1 Strategies Used by Teachers

The data showed that the strategies used by teachers in implementing the Science 5 curriculum obtained the highest assessment among the four variables, with an overall weighted mean of 3.61. This indicates that the respondents generally demonstrated a strong level of implementation in the use of teaching strategies. The result suggests that Grade 5 teachers were able to apply appropriate classroom approaches in teaching Science 5 and were actively engaged in delivering the curriculum in their respective schools. This finding implies that teachers remained committed to implementing the Science 5 curriculum despite the varying conditions in their schools. The result supports the view that teachers are the frontline implementers of curriculum reform and that their classroom practices largely determine whether the intended curriculum is translated into meaningful learning experiences. This is consistent with the observation that curriculum implementation is shaped by the teacher's actual enactment of instruction in the classroom (Fullan, 2001, as cited in Hamunyela et al., 2022). It also aligns with the idea that the success of curriculum implementation depends not only on written standards but also on the ability of teachers to operationalize them through appropriate pedagogical strategies (Rogan and Grayson, 2003).

3.1.2 Availability of Resources

The findings revealed that resources obtained the lowest mean among the variables, with an overall weighted mean of 3.08. Although the result still reflects a generally acceptable level of implementation, it indicates that the availability of instructional resources was less strong compared with teacher strategies, instructional support, and administrative support. This suggests that the respondents experienced limitations in the materials and resources needed for effective Science 5 instruction. The result indicates that while teachers were able to implement the curriculum, the adequacy of resources remained a challenge. Science instruction requires access to textbooks, modules, manipulative materials, laboratory supplies, and other learning resources that support inquiry-based and activity-centered teaching. The lower rating in this area is consistent with findings that lack of sufficient instructional materials constrains curriculum implementation in science education (Kanamugire et al., 2019). The result also supports the observation of Hammack and Ivey (2019) that curriculum innovations are often difficult to implement when materials, funding, and professional support are inadequate. In this case, the implementation of Science 5 in the district appears functional but still constrained by resource-related limitations.

3.1.3 Instructional Support

The data showed that instructional support obtained an overall weighted mean of 3.27. This indicates that the respondents generally received a positive level of instructional assistance in implementing the Science 5 curriculum. The finding suggests that teachers were provided with a fair degree of guidance, supervision, and professional support in carrying out science instruction, although the level was not as strong as the strategies they personally employed. This finding suggests that instructional support was present but still had room for improvement. Effective curriculum implementation is strengthened when teachers receive continuous pedagogical guidance, curriculum-based mentoring, and opportunities for professional development. The result supports the view that instructional support enhances teachers' understanding of reform-oriented science teaching and improves classroom practice (Pareja Roblin et al., 2018). At the same time, the rating also reflects the continuing need to strengthen professional and technical support mechanisms, which is consistent with the findings of Datoy (2020) that science teachers often encounter implementation difficulties when training and support systems are not fully matched with curriculum expectations.

3.1.4 Administrative Support

Administrative support registered an overall weighted mean of 3.35, indicating a generally favorable level of support from school leadership and administrative structures. This result shows that the respondents perceived school heads and related administrators as supportive of Science 5 curriculum implementation. Compared with resources and instructional support, administrative support was rated higher, which suggests that leadership support was one of the stronger dimensions of implementation in the district. This finding implies that administrative structures in the district contributed positively to the implementation of the Science 5 curriculum. School heads and educational leaders play an important role in curriculum execution through monitoring, planning, resource facilitation, and instructional leadership. The positive rating in this area is consistent with studies showing that district and school-level support systems are essential in moving science education

reforms from policy into practice (Lyle et al., 2023; Seeber et al., 2024). It also supports the position of Rammbuda (2023) that curriculum leaders and support personnel are important in sustaining implementation efforts and helping teachers respond to instructional demands.

3.2 Overall Implementation Status

The overall results showed that the implementation of the Science 5 curriculum in the District of Ambaguio obtained a composite weighted mean of 3.33. This indicates that the curriculum was generally implemented at a positive level across the four dimensions examined. Among the indicators, strategies used by teachers received the highest mean, followed by administrative support, instructional support, and resources. The pattern of findings suggests that teacher effort and school leadership were relatively strong, while resource availability remained the least developed area. The result shows that Science 5 curriculum implementation in the district was generally functional but uneven across support dimensions. The stronger ratings in strategies and administrative support indicate that teachers and school leaders were able to sustain implementation efforts, while the lower rating in resources points to structural constraints that may affect the depth and quality of science instruction. This pattern supports the Theory of Curriculum Implementation, which explains that successful curriculum enactment depends on both classroom-level practice and the broader capacity to support innovation (Rogan and Grayson, 2003). The finding also reflects the argument of Rogan (2007) that curriculum reform should proceed within a realistic "zone of feasible innovation," where implementation depends on the actual conditions of schools rather than on policy expectations alone.

3.3 Priority Area for Improvement

A closer look at the findings showed that resources emerged as the weakest area of implementation, while instructional support also obtained a lower rating than strategies and administrative support. This means that the main implementation concern was not the willingness of teachers to teach Science 5, but the level of material and instructional conditions that supported their work. The results therefore point to the need for improvement in the provision of teaching materials, science-related resources, and sustained professional support for teachers. This pattern is important because curriculum implementation cannot be sustained by teacher effort alone. Even when teachers display strong instructional initiative, the absence of adequate materials and consistent instructional support may limit the quality and effectiveness of science learning experiences. This result is supported by studies in the Philippines showing that curriculum implementation is influenced by training, learning resources, school support systems, and management conditions (Palestina et al., 2020). It also affirms that elementary science implementation in local contexts must be examined not only in terms of teacher performance but also in terms of the enabling conditions provided by the school system (Balagtas et al., 2019). Overall, the findings suggest that the Science 5 curriculum in the District of Ambaguio was being implemented with commitment, but further strengthening of resources and instructional support is necessary to improve the quality and sustainability of implementation.

4. Conclusion & Recommendations

The study concluded that the implementation of the Science 5 curriculum in the District of Ambaguio, SDO Nueva Vizcaya was generally positive, as reflected in the composite weighted mean of 3.33. Among the four areas assessed, strategies used by teachers obtained the highest mean of 3.61, followed by administrative support with 3.35, instructional support with 3.27, and resources with 3.08 as the lowest-rated area. These findings indicate that Grade 5 teachers were able to implement the Science 5 curriculum with commitment and that school leadership provided a generally favorable level of support. However, limitations in instructional resources and the need for stronger instructional support remained evident. Overall, the findings show that effective curriculum implementation depends not only on teacher effort but also on the enabling conditions provided by the school system.

Based on the findings, it is recommended that schools and district leaders strengthen the implementation of the Science 5 curriculum by prioritizing the provision of adequate instructional resources and enhancing instructional support for Grade 5 teachers. Since resources emerged as the weakest area and instructional support also obtained a lower mean than strategies and administrative support, efforts may be directed toward improving access to science teaching materials, learning resources, and sustained professional support mechanisms. At the same time, the strong ratings for teacher strategies and administrative support may be maintained and further reinforced to sustain the positive level of implementation already observed.

This study was limited to the assessment of the implementation of the Science 5 curriculum in the District of Ambaguio, SDO Nueva Vizcaya, and involved only the 14 Grade 5 teachers teaching Science 5 in public elementary schools in the district. The inquiry focused only on four variables, namely strategies, resources, instructional support, and administrative support, using a researcher-made questionnaire and descriptive quantitative analysis. As such, the findings reflect only the perceptions of the identified respondents within the specified locale and scope of the study.

Compliance with ethical standards

The study was conducted in accordance with accepted ethical standards in research. Permission was obtained from the concerned authorities prior to data gathering, and participation of the respondents was voluntary. Informed consent was observed, and all information gathered was treated with confidentiality and used solely for academic purposes. The researcher ensured honesty, objectivity, and respect throughout the conduct of the study, with no conflict of interest involved.

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