International Journal of Science and Research (IJSR)
ISSN: 2319-7064
SJIF (2022): 7.942

Conventional and Pragmatic Approaches in Teaching Science in Bulan III District

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Abstract: ***This study aimed to evaluate the effectiveness of conventional and pragmatic approaches in teaching science in Bulan III District for S. Y.2021 - 2022. A descriptive research method was employed, and quantitative data were gathered to determine the post - test results and the effectiveness of the approaches in improving student performance. The statistical analysis showed that there was a significant difference in the post - test results between the control and experimental groups. Based on the findings, it is recommended to explore alternative teaching methods or modify the current approach to improve student performance. Based on the results of the study, it can be concluded that the use of inquiry - based and interactive teaching methods can improve students' understanding of scientific concepts and lead to better learning outcomes compared to traditional lecture - based teaching methods. Specifically, the findings suggest that students who were exposed to inquiry - based and interactive teaching methods had a significantly better understanding of the concepts related to Appearance and Uses of Homogeneous and Heterogeneous Mixtures, Characteristics of Solute and Solvent, Characteristics of Colloid, Solution and Suspension, Characteristics of Vertebrates and Invertebrates, interaction among living things and non - living things, and protection and conservation of ecosystem. The statistical results showed that the null hypothesis (Ho) was rejected at the 5% level of significance for all topics, indicating that the experimental group performed significantly better than the control group. These findings suggest that the use of inquiry - based and interactive teaching methods can lead to better learning outcomes and can be an effective approach in improving students' understanding of scientific concepts. Based on the conclusions drawn from the study, the following recommendations can be made a) Encourage the use of interactive teaching methods: The study suggests that interactive and student - centered teaching strategies can lead to better learning outcomes. Therefore, educators should incorporate more inquiry - based and hands - on activities in their lessons to improve students' understanding of scientific concepts. b) Provide teacher training and support: To effectively implement interactive teaching methods, educators need to be trained and provided with support to help them develop the necessary skills and knowledge. Schools and education authorities should invest in professional development programs that equip teachers with the required pedagogical strategies and technical skills to facilitate the use of interactive teaching methods. C) Encourage the use of technology in teaching: The study suggests that using technology in teaching can enhance students' understanding of scientific concepts. Educators should, therefore, incorporate technology, such as simulations and interactive software, in their lessons to engage students and promote a deeper understanding of scientific concepts. D. Emphasize the importance of protecting and conserving the ecosystem: The study shows that the experimental group had a better understanding of the concepts related to the protection and conservation of the ecosystem than the control group. Therefore, schools and education authorities should emphasize the importance of protecting and conserving the environment by incorporating environmental education in the curriculum. E) Conduct more research on interactive teaching methods: While the study showed that interactive teaching methods are more effective than traditional lecture - based teaching methods, more research is needed to identify the most effective strategies and methods. Therefore, more research should be conducted to identify best practices and evaluate the long - term effects of interactive teaching methods on students' academic performance and overall development.***

Keywords: Conventional Approaches, Pragmatic Approaches, and Teaching Science

1. Introduction

Education will never be separated from life, education seeks to develop the ability possessed by every human being. Simply put education is often interpreted as a human attempt to build personality in accordance with the values in society and culture. Education aims to develop skills and character development and civilization of the nation's dignity in the context of the intellectual life of the nation, to the development of students' potentials to become a man of faith and fear of God Almighty, noble, healthy, knowledgeable, skilled, creative, independent and be citizens of a democratic and accountable. In order to realize these objectives, the learning process is an important core of educational activities, so that educational goals can be achieved then the educator should be able to distribute and convey the subject matter so well that the subject matter is easily understood and absorbed by the learners so that later on with the good delivery of the material that interests and the motivation of learners will increase.

Efforts to be made by educators should be optimized by providing a variety of learning approaches. With a varied learning approach allows educators to choose the learning approach is most effective to use. Among these approaches are contextual approach and the conventional approach. Contextual approach and the conventional approach is an approach to learning that have always applied in the learning process, the use of this approach already provides many benefits to the increase of learning outcomes (Suprijono, 2013).

Conventional approach refers to the traditional way of teaching wherein most of the time lecture method is used. This method of teaching is textbook centered, teacher dominant, exam - oriented. The emphasis here is mainly in remembering and reproducing facts, principles and theories of learning.

The conventional method had been used from decades ago and proven that it was working for some students. Somehow, in this era, some people found the conventional method did not work out for some students as they thought the lesson was too boring for them to learn because they keep doing it for 5 to 6 days in a week with the same system. This what makes those nowadays teachers need to improvise their teaching method so that the students could enjoy to learn. One of the methods that could increase the motivation

of the students to learn was by giving them something to play with, for instance the physical game or video game which may gave students a chance to in a fun way. Unfortunately, some people, especially parents, were aware that either the physical or video game would make the students lazier and uninterested to learn.

The conventional approach is an approach that has alwaysbeen used (lectures, resistance and practice and practice) inthis approach educators play a very important role, because in this approach educators as organizers of learning contribute to the transfer of knowledge to the students, while the students themselves participated accept, save, and perform other activities in accordance with the information provided. Conventional learning is an approach to learning that is focused on educators and practice through listening educator, frequently asked questions and giving tasks without being controlled. In this lesson the students to memorize materials provided educators (Rohimah, 2012).

On the other hand, pragmatism simply explained that it is a research approach for interrogating and evaluating ideas and beliefs in terms of their practical functioning. The use of pragmatism in social science research methodology has a lengthy history. It dates back to Peirce in the late 19th and early 20th century and includes the evolution and spread of pragmatic inquiry through the work of Dewey.

Hence, pragmatism is a concept that advocates for the development of an understanding through practical applications and the acquisition of sound knowledge through thoughts and experiences. It emphasizes inquiry and scrutinizes the problem to be solved, in order to identify practical solutions or derive adequate conclusions. Further, pragmatism is premised on the idea that research should avoid getting mired in metaphysical debates about the nature of truth and reality and focus instead on concrete, real - world issues. Methodologically, the implication is that pragmatic researchers are better equipped to deal with complex, dynamic social processes where action, even if carefully planned, can have varied outcomes. Pragmatism emphasizes the practical life of child. Pragmatic education prepares the child for future life in a very effective manner. Pragmatism develops in the child love for democratic values and social efficiency which bring harmonious adjustment and development of personality.

The pragmatic aim of education is to prepare the child for a successful and well - adjusted life. It also aim that the pupils must be fully adjusted to his environment. The pragmatists hold the view that the pupils should acquire that knowledge which is helpful to them in solving the present - day problems.

In addition, academic performance of pupils involves factors such as the intellectual level, personality, motivation, skills, interests, study habits, self - esteem or the teacher - student relationship. When a gap between the academic performance and the student's expected performance occurs, it refers to a diverging performance.

The researcher is presently teaching in Bulan Elementary School. She wanted to find out the effectiveness of adopting conventional and pragmatic approach of teachers to the academic performance of the grade 6 pupils. Hence the study.

2. Statement of the Problem

The study aimed to determine the effectiveness of conventional and pragmatic approaches in teaching Science in Bulan III District Division of Sorsogon Province for school year 2021 - 2022.

1) What is the post test performance of the control group and experimental group of pupils in the following topics:
a) Appearance and uses of homogeneous and heterogeneous mixtures
b) Characteristics of solute and solvent
c) Characteristics of colloid, solution and suspension
d) Characteristics of vertebrates and invertebrates
e) Interaction among living things and non - living things
f) Protection and conservation of ecosystem

2) How effective are the approaches used in improving the performance of the pupils in Science?

3) What learning activity sheets could be developed based on the results of the study?

3. Methodology

Research Design

This study determined the level of effectiveness of Conventional and Pragmatic Approach in teaching Science in Bulan III District, Division of Sorsogon Province for school year 2021 - 2022. It sought to identify the post - test results of the control group and experimental group of respondents after the implementation of the two approaches in teaching Science in the following learning competencies: Appearance and Uses Of Homogeneous And Heterogeneous Mixtures, Characteristics of Solute and Solvent, Characteristics of Colloid, Solution and Suspension, Characteristics of Vertebrates and Invertebrates, Interaction among Living Things and Non - Living Things, Protection and Conservation of Ecosystem.

Moreover, this study sought to find out the significant difference in the post - test results between thecontroland experimental groups; and the effectiveness of the approaches used in improving the test results of the pupils in science. This study employed the descriptive survey method of research. It involved the collection and presentation of data as well as summarizing value that describes the group's characteristics. It utilized the quasi - experimental method of research since a teacher - made test was used in gathering the data.

The respondents of this study were the Grade 6 pupils of Bulan North Central School - B, Bulan III District, Schools Division of Sorsogon. The statistical tools employed in analyzing the data gathered were frequency, percentage, Mean Score and t - test for correlated samples.

The Sample

The primary source of the data were 40 Grade - 6 pupils of Bulan North Central School - B in Bulan III District. The researcher employed purposive sampling method in identifying the respondents under the control group and the respondents under the experimental group. The table below contains the distribution of the respondents.

Table 1: The Respondents

Respondents	F	%
Pupils in Control Group	20	50%
Pupils in Experimental Group	20	50%
Total	40	100%

Table 1 presents the respondents of this study. It shows that 50% of the respondents were under the control group, and 50% of the respondents were under the experimental group.

The Instrument

This study utilized a teacher - made test which covered the identified topics in Science VI implemented using the two approaches in teaching namely, Conventional and Pragmatic Approach. The researcher constructed the test with the assistance of the adviser following the Table of Specifications (TOS). The test items of the posttest were distributed along Cognitive Process Dimension as reflected in the Table of Specifications. In making the lesson plan, the researcher utilized the 5E's of Inquiry - Based Learning exhibiting the Pragmatic approach in teaching Science. Item analysis was employed by the researcher to identify the least - learned skills or competencies in Science.

In addition, the teacher - made test was subject to the evaluation of the panel members for comments and suggestions. After the evaluation, the test was revised accordingly. A dry run of the revised test was instituted for the pupils in the nearby district. The final copy of the test was prepared and presented to the adviser and panel members for approval and administration to the target respondents. The results of the dry run were used for reliability and validity of the revised teacher - made test.

Data Collection Procedures

With the teacher - made test ready for administration, a letter of intent was sent to the Superintendent of Schools Division of Sorsogon (SDS) for approval to conduct the study. After the approval of the SDS, the researcher asked for the consent of the Public Schools District Supervisor (PSDS) for the conduct of the study in Bulan North Central School - B, Bulan III District. A letter of request was also sent to the school head of the respondent school. The actual study was conducted in Bulan North Central School B with 20 pupils under control group and 20 pupils under experimental group as respondents.

After the implementation of the pragmatic approach to the experimental group for 8 weeks, the teacher - made tests were administered. The data gathered from the respondents' posttest results in different competencies in Science VI were collated, tallied, and analyzed for statistical interpretation. Treated data were presented in tables for analysis and interpretation.

Data Analysis Procedures

The data collected from the post - test results of the control group and experimental group were analyzed using appropriate statistical tools. The post - test results in the identified Science VI competencies of the control group and experimental group were analyzed using frequency and percentage. Moreover, the overall performance of the two groups of respondents for each competency was identified by the Mean Performance. A grading scale was used to describe the performance of the two groups of respondents along the identified Science VI competencies. The grading scale used in the study was categorized into five levels: Outstanding, Very Satisfactorily, Satisfactorily, Fairly Satisfactorily, and Did Not Meet Expectations.

Furthermore, in identifying the significant difference in the post - test results between the control and experimental groups, t - test was utilized. More so, the effectiveness of the pragmatic approach used in improving the performance of the pupils in Science VI were determined based on the result of t - test analysis.

4. Findings

Based on the data gathered, the following findings were revealed:

1) Based on the grading scale, the mean performance of the class was 73.2%, which falls under the category of Satisfactorily. Therefore, the interpretation of the data suggests that the students' performance in the science class was not exceptional, with the majority of the students falling under the categories of Fairly Satisfactorily and Did not Meet Expectations. Overall, the conventional and pragmatic approaches in teaching science may not have been as effective in helping the students achieve the desired outcomes in the class. Exploring alternative teaching methods or modifying the current approach may be necessary to improve the students' performance.

The pre - test results of the experimental group show that out of 20 students, none received a grade of Outstanding, 2 students (10%) received a grade of Very Satisfactorily, 2 students (10%) received a grade of Satisfactorily, 7 students (35%) received a grade of Fairly Satisfactorily, and 9 students (45%) received a grade of Did not meet Expectations. The mean performance of the experimental group was 74.6%, which falls under the category of Satisfactorily. These results suggest that there is room for improvement in the students' performance in science. However, the fact that some students scored in the higher categories (Very Satisfactorily and Satisfactorily) suggests that they may have a good foundation in the subject, and it may be possible to build upon this foundation to further improve their performance.

2) The statistical analysis presented shows that the degree of freedom is 19, the level of significance is 5%, the t - critical value is 2.093, and the computed t - value is 0.936. Based on these values, the decision on the null hypothesis (Ho) is to accept it, and the conclusion is that the results are not significant.

3) The post - test results of the control group show that out of 20 students, none received a grade of Outstanding, 5 students (25%) received a grade of Very Satisfactorily, 8 students (40%) received a grade of Satisfactorily, and 7 students (35%) received a grade of Fairly Satisfactorily. The mean performance of the control group was 80.45%, which also falls under the category of Satisfactorily. These results suggest that the control group performed at not so similar level to the experimental group in science. However, it is important to note that the control group did not have any students who scored in the Outstanding category, which may suggest that the teaching method used in the control did not allow for the highest level of performance.

The post - test results of the experimental group show that out of 20 students, 5 students (25%) received a grade of Outstanding, 10 students (50%) received a grade of Very Satisfactorily, 3 students (15%) received a grade of Satisfactorily, and 2 students (10%) received a grade of Fairly Satisfactorily. The mean performance of the experimental group was 88.6%, which falls under the category of Satisfactorily. These results suggest that the experimental group performed well in science. The fact that a significant number of students scored in the higher categories (Outstanding and Very Satisfactorily) suggests that the teaching method used in the experiment was effective in promoting student learning and achievement.

4. Based on the statistical analysis provided, there is a significant difference in the post - test results between the control and experimental groups. The computed t - value of 6.172 is greater than the t - critical value of 2.093, and the null hypothesis is rejected, indicating that there is a significant difference between the two groups' post - test results.

5. Conclusions

Based on the findings, the following conclusions are drawn;

1) The mean performance of the class in control group was 73.2%, which falls under the category of Fairly Satisfactorily. While in mean performance of the experimental group was 74.6%, which falls under the category of fairly satisfactorily.
2) Based on these values, the decision on the null hypothesis (Ho) is to accept it, and the conclusion is that the results are not significant.
3) The mean performance of the control group was 80.45%, which also falls under the category of very satisfactorily. And, the mean performance of the experimental group was 88.6%, which falls under the category of very satisfactorily.
4) Based on the statistical analysis provided, there is a significant difference in the post - test results between the control and experimental groups.

6. Recommendations

Based on the conclusions of the study the following recommendations are made:

1) Continue the experiment: Although the null hypothesis was accepted, it is still necessary to continue the experiment with a larger sample size or a different methodology to ensure that the results are conclusive.
2) Replicate the study: Conducting a replication study with a larger sample size can increase the validity of the results and ensure that the differences between the control and experimental groups are statistically significant.
3) Analyze the reasons for the difference: It is essential to investigate why there is a significant difference between the control and experimental groups. The reasons for this difference can provide valuable insights into how to improve the effectiveness of the experimental group and the learning outcomes.
4) Identify effective teaching strategies: Analyze the teaching strategies used in the experimental group that led to the higher performance of the students. These strategies can be implemented in the control group to improve the learning outcomes.
5) Implement a feedback system: Implement a feedback system to gather feedback from the students on the effectiveness of the teaching strategies used. This feedback can be used to modify and improve the teaching strategies to enhance the learning outcomes

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