

PARALLELISM BETWEEN SCIENCE TEACHING PRACTICES AND CLASSROOM BEHAVIOR AMONG GRADE 8 STUDENTS OF BATANGAS NATIONAL HIGH SCHOOL

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ABSTRACT

Teachers' role is to improve the quality of teaching and learning in any content area. It expected that these educators would help shape the basic program into a valuable tool for reorganizing curriculum, instruction, and assessment. In this study, the researcher aimed to determine the relationship between teachers' teaching practices and classroom behavior of Grade 8 students of BANAHIS with the end view of proposing creative teaching methods to facilitate positive behavior towards effective student learning in Science. The research design used was descriptive with a researcher-constructed questionnaire as primary data gathering instrument. Respondents were eight teachers and 108 Grade 8 students. Statistical tools used were frequency, percentage, weighted mean and t-test. Results revealed that majority of the teachers employed cooperative learning as foremost teaching practice. Results also revealed that as to students' behavior and attitude to science learning, teachers cited evidence of enthusiasm and passion in what students learn while student-respondents said that tasks they were asked to perform have value. On acquisition and understanding, teachers revealed evidence of students understanding thoroughly and justifying accounts of phenomena, facts and data while students demonstrated at the end of the lesson the expected knowledge and skills, while on development of skills, applying science inquiry skills in addressing real-world problems through scientific investigations and that students apply science inquiry skills in addressing real-world problems through scientific investigations were evident. The researcher recommends refinement of the proposed creative teaching methods before implementation.

Keywords: Science teaching practices, classroom behavior, creative teaching, public secondary high school, Philippines

INTRODUCTION

Teachers in Basic Education come into play whose main thrust is to prepare its students holistically to make them ready for college. Undeniably then, teachers have a pivotal role in developing positive behavior and attitude among the learners through the utilization of varying and appropriate teaching practices. As deeply committed to delivering quality teaching-learning process, teachers push hard to provide quality pedagogy to achieve meaningful results in their students. However, for these to happen, teachers have to consider the learners. For

students to learn with interest, they must first be engaged with positive behavior and attitude to bring about proficient learning. On this, effective teachers must continually reinforce attitudes and behavior among students, especially in learning the core subjects such as Science. Accordingly, the Science education as discussed in the K to 12 Basic Education Curriculum Conceptual Framework of the Department of Education (DepEd) in the Philippines, scientific literacy must be developed among learners for them to be productive citizens, who know how to make sound decisions regarding scientific knowledge that may impact the health, social or the

environment. On this regard, to achieve the mandate of DepEd, teachers are expected to utilize teaching practices that can create a positive classroom environment. Alongside with this, teachers who have appropriate teaching practices offer opportunity for their students to be engaged in the process, developing skills in Science. Similarly, teachers' ability to stimulate students to learn is necessary to enable students to learn and understand science. The teaching methods and materials used, the opportunities provided to students to learn the concepts, may lead to students' learning. Moreover, education in the modern world characterized by the fast-changing technological advancement affecting change in the educational process. It is indeed a huge challenge not only for the teachers but to the nation as well to meet the demands of the 21st century of providing equal opportunities for every Filipino who wish to avail quality education. To this, DepEd has laid out educational reforms to ensure that every Filipino is given quality education at all levels. But then again, if basic education is not stable, it affects the quality of secondary education. If the implementers are not capable of delivering quality education, then students will be of poor quality as well. Therefore, teachers have the responsibility of ensuring that students are functionally literate in their core areas such as science before they go through the next higher level. On this regard, the quality of the teaching practices employed by teachers in the classroom is one of the most important factors in determining how well students learn. The quality of the teaching methods or practices depends on the competence of teachers for its implementation. If teachers do not provide students with quality basic education, then the higher education of the latter will be more likely affected. This conforms to what Njoku and Okoli (2013) stated that classroom practices are classroom activities according to conventional teaching strategies and or methods. The researcher, being one of the facilitators of science learning in Batangas National High School, plays an important role of integrating and manifesting creativity in their teaching practices for their students to learn the subject with positive

behavior while reaching their full potential. It is at this point that the researcher became interested in this study. Understanding her influential factors to students' learning in science prompted her to design creative teaching methods to facilitate positive behavior towards effective student learning in the subject. The proposed creative teaching methods may aid educators to move toward a solid understanding of how to improve their teaching practices for the ultimate benefit of the students they serve.

OBJECTIVES OF THE STUDY

This study aimed to (1) determine the instructional practices that were commonly used by the science teachers in teaching the subject to facilitate positive behavior among the Grade 8 students in learning the subject. Likewise, this also (2) looked into the impact of the teaching practices in relation to students' behavior and learning attitude to science; acquisition and understanding; and; development of skills. In addition, (3) the researcher considered the significant differences in the assessments of respondents when compared between the instructional practices used by teachers in teaching Science and their impact to students learning; and the (4) restraining factors they have encountered in the teaching of Science.

METHODOLOGY

The study utilized the descriptive research design with a researcher-constructed questionnaire as the main gathering instrument. Respondents were eight science teachers and 108 Grade 8 students of BANAHIS, in the Division of Batangas City. The researcher-constructed questionnaire consisted of three parts. The first part was on the instructional practices utilized by respondents in teaching Science to facilitate positive behavior among Grade 8 students in learning the subject. Meanwhile, the second part of the questionnaire dealt with the impact of these teaching practices relative to students' behavior and learning attitude to science; acquisition and

understanding; and development of their skills while the third part covered the restraining factors encountered by the science teachers in teaching the subject. The researcher used appropriate statistical tools such as weighted mean and t-test were used to assume the precision of statistical computation.

RESULTS AND DISCUSSION

1. Instructional practices utilized by teachers in teaching Science.

The major goal of the educational system is to nurture and educate the students to become productive citizens. As such, students are provided with sufficient opportunities to practice and apply what they have learned. On this, teachers provide whatever assistance students need to enable them to engage in learning activities productively. Teaching a student or a small number with the same abilities and instructional needs can be effective. Results showed that the composite mean of 3.41, interpreted as agree, suggests that science teaching practices should be strengthened to have a more effective teaching-learning process. Ultimately, well-planned and executed teaching practices may best help teachers to engage students in guided investigations relating to natural phenomena in order to develop, both an understanding of the nature of scientific knowledge as well as a specific set of scientific skills. With strong agreement, employing cooperative learning allowed students to learn together as shown by highest weighted mean of 3.72 was foremost teaching practice that teachers usually utilized in teaching Science in BANAHIS. According to Omoifo (2012), authorities in science education have advocated for a wide variety of research-based, innovative, learner-centered teaching strategies and methods, such as inquiry-based methods, cooperative learning strategies, use of problem-solving teaching strategy, and variants of the conceptual change models among others. It can be surmised that most teacher-respondents

have opted to use collaborative learning as their teaching and learning strategy to promote student collaboration, especially in subjects like science.

2. Impact of the teaching practices in relation to students' behavior and learning attitude to science; acquisition and understanding; and; development of skills.

Teachers' success in the field of teaching can be attributed to their resourcefulness, creativity, and innovation which they can achieve by continuously looking for avenues of improvement. Hence, their instructional practices play an important role in providing more effective preparation for citizenship for students.

2.1 Students' behavior and learning attitude to Science. Results show that the composite means of 3.03 and 3.35 suggest the impact of the instructional practices were all evident among the students in regard to their behavior and attitude in learning the subject. Results reflect that the understanding of students and their academic achievement are affected by inappropriate and non-effective teaching practices given to them by their teachers. The weighted mean of 3.22 showed that it was evident among their students the enthusiasm and passion in what they learn in science; students have healthy conversation with their teachers, and do not have a feeling of loneliness and that they believe that the tasks they are asked to perform have value, that they have a fair clear understanding of what the task required, and that they have the resources necessary to complete the tasks. Results imply that students' performance in their subject is greatly influenced and inspired by their science teachers who engage them in tasks that enabled them to inquire and solve problems. As mandated in the Enhanced Basic Education Act of 2013, every graduate of basic education shall be an empowered individual who has learned, through a program that is rooted on sound educational principles and geared towards

excellence, the foundations for learning throughout life, the competence to engage in work and be productive, the ability to coexist in fruitful harmony with local and global communities, the capability to engage in autonomous, creative, and critical thinking, and the capacity and willingness to transform others and one's self. Results imply that the learning contents should include tasks and experiences that will make learning interesting, that eventually help the pupils develop effective learning strategies. In this case, learning activities that pupils engage in and the work structures are described, which enable pupils to develop learning strategies that facilitate learning.

2.2. Acquisition and understanding.

Science teachers who are able to nurture and develop their students' skills in the search for answers to questions about materials and phenomena in the environment, and those who empower their students to grow to become informed decision-makers in society, are considered effective teachers. These are teachers who can evaluate their practice and use these insights to develop challenging learner-centered experiences. With these, it is expected that teachers who affect learning to their students are reflective, collaborative, and lifelong learners as well. Generally, as can be seen from the overall results, the impact of teaching practices in relation to acquisition and understanding were evident among the student-respondents as shown in the computed composite means of 2.94, for teachers and 3.33 for students. In support of these, highest weighted mean of 3.33 can be gleaned that teacher-respondents have assessed that the teaching practices have evident impact to the acquisition and understanding of the students in regard to their science subject as they have exhibited thorough understanding and can justify accounts of phenomena, facts, and data. On the other hand, student-respondents revealed that it was highly evident that their teachers' teaching practices have affected their acquisition and understanding of their science subject as they

can think critically, analyze information, communicate scientific ideas, make logical arguments, work as part of a team. To note, teachers and students have given clear indication that science teachers' utilization of teaching practices in teaching the subject have impact on the learning of the latter. Results imply that aside from teachers' mastery of the subject, the teaching practices are likewise contributory to students' performance in science. As defined by Kalu-Uche (2010), the classroom strategies of teachers create interactions with students that bring about learning in students. It is the interaction between the teacher and his students to expand their cognitive and skillful perceptions through the appropriate classroom management, determination to teach and continuous evaluation to achieve the desired teaching objectives. Admittedly, teachers must utilize appropriate teaching practices that will make the delivery of the content regardless of students' interest and motivation will create meaningful learning to the latter.

2.3 Development of skills. Schools have long recognized that one of the primary goals of education is to develop students' skills and their ability to think critically. Results showed that the impact of teachers' teaching practices on students' development of skills in science was apparent. More so, it was evident that students can apply science inquiry skills in addressing real-world problems through scientific investigations and work effectively with others to prepare, present and evaluate experiment results. Likewise, they cited that demonstrating understanding of science concepts and differentiating the concept of work as used in science and layman's language were results of the teachers' utilization of their teaching practices in teaching science. In addition to these, student-respondents validated the impact of the teaching practices on the development of their skills on regard to science learning. Indicators relating scientific investigations to real life, demonstrating understanding of science concepts, applying science inquiry skills in addressing real-world



problems through scientific studies; and communicating ideas clearly, fluently, and confidently both in oral or written form, working effectively with others to prepare, present, and evaluate experiment results, giving presentations via the production of reports and differentiating the concept of work as used in science and in layman’s language, were found evident.

3. Significant Difference in the Assessments of the Two Groups of Respondents

The science today should enable students to meet the demands and face the challenges ahead in the work environment of daily life. As such, the teaching-learning process is provided to students at various levels speaks about the kind of teaching practices that teachers employ. Not only knowledge, but also communication, skills, leadership quality, critical thinking, and listening skills are required to achieve excellence in work. This gets to be said, the results on the significant differences in the assessments of the two groups of respondents between the instructional practices utilized by science teachers to the impact to students’ learning in the subject when compared are shown in the following tables.

Table 1. Significant Difference in the Assessments of the Two Groups of Respondents on the Impact of the Teaching Practices to Students’ Classroom Behavior and Learning Attitude to Science

	Computed Value	p-value	Decision	Conclusion
Teachers	-1.116	.278	Accept H _o	Not Significant

Table 1 presented the summary of computations when testing was done on the difference that existed between the assessment of the two groups of respondents on the impact of science teaching practices in relation to students’ classroom behavior and learning

attitude. The researcher generated a p-value which was greater than 0.05 level of significance. Due to the result given, the null hypothesis was accepted and concluded that there was no significant difference in the assessments of the two groups of respondents. It can be construed from the results that students were in agreement with the impact of the teaching practices that their teachers have employed in regard to their behavior and attitude when it comes to learning science. As it is, the quality of teachers’ strategies will not only raise the test scores of students but may also provide emotionally supportive environments that can contribute to students’ social and emotional development, management of classroom behaviors, delivery of accurate content and support students’ critical thinking. On the other hand, Table 2 presents the summary of computations when testing was done on the difference that existed between the assessment of the two groups of respondents on the impact of science teaching practices in relation to acquisition and understanding. The researcher generated a p-value which was greater than 0.05 level of significance, leading to the acceptance of the posited null hypothesis. Hence it can be said that there was no significant difference in the assessments of the two groups of respondents when compared.

Table 2. Summary of Computations on the Assessment of the Two Groups of Respondents on the Impact of Teaching Practices in Relation to Acquisition and Understanding

	Computed Value	p-value	Decision	Conclusion
Teachers	.795	.433	Accept H _o	Not Significant

It can be deduced from this that teachers’ means of delivering their teaching-learning process enable students to withstand all oddities and challenges they face every day. In this view, it can be perceived that both groups of respondents believed that teachers’ teaching practices did not only serve the social and



cooperative skills of students but more so of their academic understanding and knowledge. On this regard, Katz and Dack (2013) had emphasized, that student achievement is directly related to the quality of teaching students to receive. Likewise, Jones and Leagon (2014) said that perhaps the single most important factor in the quality of science education is the teacher. Considering that student understanding for science education, in part, begins with their teachers where all students need teachers who can provide meaningful, authentic, and rigorous opportunities to learn science.

Table 3. Summary of Computations on the Assessment of the Two Groups of Respondents on the Impact of Teaching Practices in Relation to Development of Skills

	Computed Value	p-value	Decision	Conclusion
Teachers	.526	.142	Accept H_0	Not Significant

Table 3 presented the summary of computations when testing was done on the difference that existed between the assessments of the two groups of respondents on the impact of science teaching practices in relation to development of skills. The researcher generated a p-value which was greater than 0.05 level of significance. Due to the result given, the researcher accepted the null hypothesis and concluded that there was no significant difference in the assessments of the two groups of respondents. Results suggest that effective teaching of science teachers can lead to the attainment of students' scientific and technological greatness. In brief, findings corroborate Roth's (2014) idea that rather than teachers transmitting scientific facts to the students through lecture-style instruction or observation and description activities, they facilitate students to be engaged in developing conceptual understandings through investigations and reasoning with evidence-based explanations - a process called inquiry. In

this view, science teachers are very crucial in the translation of science educational objectives into practice. Science education provides more effective preparation for citizenship and to achieve this, qualified, and experienced science teachers who are well aware of global demands of science teaching with a view to engendering scientific and technological values in learners are required.

4. Restraining Factors in Teaching Science.

Science is an important subject at, and understanding of basic science concepts increases the content knowledge of the teachers and students. However, difficulties in teaching occur which may give students incorrect concepts. To teach today's science concepts, teachers need to understand subject matter deeply and flexibly so they can help students create useful cognitive maps, relate one idea to another, and address alternative conception. Results revealed that low performing students ranked 1st among the restraining factors in teaching science. According to Kola (2013), science teachers are important in the teaching and learning of science, and there is no development of science education in any country without considering teachers' contribution. Result suggests that the low performance of students may be traced back to the performance of the teachers themselves. For this point of view, it can be presumed that teachers need to find out the concepts of science which are difficult to understand for the students for them to utilize appropriate teaching practices in order to deliver the concepts of science to students. However, as can be seen from the results, respondents have disagreed on the other indicators as restraining factors in learning science. To this, it can be deduced that science teachers of BANAHIS were able to provide instruction that best developed the potentials of each student. Nonetheless, finding a way to develop learners' potentials and prepare them for lifelong learning in a constantly changing world which hinges on teachers' ability to be innovative and creative. Moreover, respondents

have generally disagreed that the given indicators served as restraining factors in teaching science in BANAHIS to Grade 8 students. On this, like teachers for all subjects, science teachers are challenged by harnessing the student focus. Science is meticulous, requiring a sense of focus and discipline. To this, it inferred that teachers employ different teaching practices and methods that will be able to address the diverse needs of students.

5. Creative Teaching Methods to Facilitate Positive Behavior towards Effective Student Learning in Science

Teachers' effectiveness and their teaching practices are somehow paralleled to students' behavior and attitude in their learning. Creative teaching practices then facilitate students' engagement and their becoming active learners in full grasp of higher-order and critical thinking. Creative teaching practices can then develop learners to become independent and dynamic learners in a relevant and stimulating science learning environment. The proposed Teaching Practices are focused on helping students to have positive behavior and attitude in learning science. As such, a training program through their Learning Action Cell (LAC) sessions that will educate teachers on specific strategies, techniques, and methods about how to facilitate learning creatively is needed. Professional training through intensive, in-service training can significantly influence the capacity of secondary science teachers in using various teaching practices for effective teaching-learning process in science.

CONCLUSION

Based on the findings of the study, the researcher was able to conclude that:

1. Majority of the teachers employed cooperative learning as foremost teaching practice.

2. Results also revealed that as to students' behavior and attitude to science learning, teachers cited evidence of enthusiasm and passion in what students learn while student-respondents said that tasks they were asked to perform have value.

On acquisition and understanding, teachers revealed evidence of students understanding thoroughly and justifying accounts of phenomena, facts, and data while students demonstrated at the end of the lesson the expected knowledge and skills.

On the development of skills, applying science inquiry skills in addressing real-world problems through scientific investigations and that students apply science inquiry skills in addressing real-world challenges through scientific studies were evident.

3. Results show that there were no significant differences in the assessments of the two groups of respondents when compared.
4. Respondents have generally disagreed that the given indicators served as restraining factors in teaching science in BANAHIS to Grade 8 students.
5. The proposed Creative Teaching Practices Training Program for Secondary Science Teachers is proposed to enhance the behavior and attitude of students in learning science.

RECOMMENDATION

The following are the recommendations of the study.

1. The proposed Creative Teaching Practices may be subjected to further review for enhancement, after which it may be presented for proper consultation and implementation.



2. Consultations with other internal stakeholders may be done to address problems on utilization of the considered tool for enhancement with interests and needs of students as priorities.
3. Similar studies may be conducted working on other criteria to determine the effectiveness of the teacher observation guide

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Maria Christina P. Diomampo graduated with a degree in Bachelor in Science in Secondary Education Major in General Science and earned a Masters Degree. She has been a dedicated science teacher for the last 17 years. She believes that a teacher should continue to find new ways to engage their students in the acquisition of knowledge and to develop different competency-based skills.



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