



Effect of Role-Playing Strategy on the Development of Descriptive Skills for Cosmic Occurrences Among Grade 11 General Academic Strand Students in Las Piñas City National Senior High School – CAA Campus

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A B S T R A C T

This study responded to the spiral path of Senior High School Science curricula, so the study chose the sample from the Grade 11 General Academic Strand Students in Las Piñas City National Senior High School – CAA Campus. The researcher divided the students into two different groups in content and roles. Moreover, the researcher allowed the students to exchange roles. Also, the researcher planned three consecutive class lessons on the concept of the solar eclipse, the lunar eclipse, and the solar system. After completing the stage of defining the research question and the general framework of the study steps, the principal agreed to the procedures to implement the research plan. Then, the researcher held a training session for teachers that included a brief presentation of the research objectives, tools, and procedures. Furthermore, the researcher took the voluntary official approvals to participate in the research from the study sample. Then the researcher began planning lessons and preparing educational resources, and assessment tools. The researcher determined the educational patterns of the learners by following them closely for three consecutive days and in cooperation with the directed teacher. In the implementation phase of the study, the researcher applied a blueprint for dramatic texts and distributed roles to students according to the plan. Then, the researcher distributed a written and visual guide to enable students to understand the phenomenon and simulate it. Students showed a simulation of the solar eclipse accompanied by a single worksheet that measures understanding and records learning descriptions. Following, the students were introduced to the lunar eclipse phenomenon, accompanied by another worksheet, and the student completed the learning progress record. Then the students wrote reflections on their learning experience. After completing the research investigation, the researcher interviewed the focus groups. Finally, the researcher tabulated all data and analyzed it to produce learning implications that explain and evaluate the impact of this strategy on learning.

1. INTRODUCTION

1.1. Research Background

Projects and efforts to reform global science education have focused on preparing a generation of scientifically educated people who can keep pace with rapid scientific and technological developments. The responsibility of science teachers is to build educational societies that reflect the scientific and emotional values of learning science in the social context. Therefore, Science teachers operate to develop students' scientific process skills of interpreting scientific phenomena, solving problems, furthermore understanding the world around them. Back to the recommendations of Project 2061 [1] and the new generation of science education standards that represents the global reform map

that defines the compass of science education globally, it unanimously emphasized the importance of developing students' interpersonal skills as one skill of complementary science processes that reflect the entrance constructive in the activities of mind and hands-on. Interpretation skill expresses the ability to relate cause to result, to understand the phenomenon or problem at hand [2]. Based on the researcher's observations, students find it difficult to explain scientific phenomena. The student describes the phenomenon and cannot link the cause to the result, and therefore cannot suggest solutions, make a decision, or make generalizations. Education is a dynamic process [3] that the teacher continuously shapes through various variables such as student and environment (physical and psychological). When applying science education strategies, the teacher should explore students' abilities, develop learning skills, and focus on achieving meaningful learning for students. This study took place during the

first semester of the school year 2019 - 2020. The study was also limited to the psychometric properties of the study tools and procedures. The study procedure consisted of planning three educational sessions using the role-playing strategy. To collect the necessary data, the researcher applied various assessment tools as a single worksheet and the semi-formal interview and analyzed their implications in the record describing the learning process. Physical and psychological sources such as papers, colors, and online research are available along with mutual respect.

1.2. Literature Review

While reviewing the educational literature on science education standards, the research focuses on the educational practices that a science teacher must take to provide students with the scientific culture and 21st - century skills. The role-playing strategy is theoretically related to social education models [4],[5]. Roleplaying strategy is an activity that represents the understanding (cognitive, psychological) of phenomena in the social context of the students [5]. Therefore, the researcher notes that learning through work and living phenomenon reflects a sensory and rational engagement with the learning experience. Also, procedural representation shows learned habits and scientific thinking skills centered on the learner. Thus defining the strategy of performing role-playing as an educational activity that integrates cognitive skills with the emotional context of social learning in which the learner visualizes the scientific concept and represents it visually. Many studies point to the importance of role-playing in effective science education. The role-playing scheme upsurges the student's indulgence and concentration in the systematic concept. Other studies also found a positive role of role-playing strategy in emotional development, communication skills, and scientific dialogue. According to the researcher's educational experience, the important characteristics of the role-playing strategy derived from their ability to provide opportunities for concrete learning situations. In which the learner learns scientific concepts and adapts them in his cognitive structure to form strong mental and emotional connections in the two hemispheres of the brain. This strategy also provides students with procedural evidence regarding the importance of conceptual change to alternative or incomplete concepts. Learners can create convincing self-learning and stimulate the thinking process. Perhaps these practices increase students' motivation to learn and understand the world. The characteristics of the aforementioned role-playing strategy are consistent with the educational transition from the senses to the abstraction of fourth-grade students. Also, this strategy allows the teacher to engage shy students and increase their interaction with educational activities. Furthermore, these strategies constitute a development of the skill of scientific interpretation that enables the learner to relate the observations and information obtained logically by linking the cause to the result based on the laws and principles of science and personal sense. Despite the benefits of this method, one of the most important challenges facing the teacher is a long time in preparation and implementation, but the roleplaying strategy focuses on student-centered learning, so it needs the teacher more ability to guide and facilitate learning [6]. The importance of the teacher role is planning the results and adapting them to the needs and capabilities of learners. Since the teacher will plan to develop imagination, awareness, attention, and thinking, the teacher should consider the simplicity of the language used in the texts to

adapt it to the language level of learners. One of the most prominent advantages of the role-playing strategy is to give learners the confidence to present their ideas [5] by fostering debate between student viewers and actors. In this study, the researcher divides students into four groups that they can perform, watch, and change roles among themselves so that everyone can take part in learning. Learners first explore the principles of the scientific phenomenon and then plan its role and manner of presentation in an active social context. The role of the group is to provide information about the phenomenon and hints about how the strategies work, then prepare the performers and viewers to guide them to the points they will observe. Therefore, the teachers plan to work by facilitating the work of the group and individuals in terms of tools and equipment necessary and then represent the role and the work of educational steps to guide the observation of the viewers and then evaluate the main points and give for feedback. Finally, students share experiences and draw generalizations and representations of the concepts. Although the role-playing strategy has two main types: automatic and planned representation [7],[8], the researcher applied for the planned role because of the age of the students. According to the researcher's observations, the cognitive preferences of learners in the sample are mostly visual and individual. Thus, the challenges faced by the researcher are to convert the abstract concept into a real, one and change the learning style from the individual into a cooperative. Based on what science education literature has shown, there are indications of the importance of using a role-playing strategy in science education. Therefore, this study examined the effectiveness of a role-playing strategy in developing the skill of scientific interpretation for Grade 11 General Academic Strand Students in Las Piñas City National Senior High School – CAA Campus.

1.3. The Research Objective

This paper aims to study the effect of the use of the role-playing strategy on the development of Interpretation of cosmic occurrences for Grade 11 General Academic Strand Students in Las Piñas City National Senior High School – CAA Campus. In this context, the research methodology is based on the effect of using the role-playing strategy in the skill of scientific interpretation for 20 Grade 11 General Academic Strand Students in Las Piñas City National Senior High School – CAA Campus.

2. MATERIAL AND METHOD

The purpose of this study is to examine the effectiveness of a role-playing strategy in developing the skill of scientific interpretation for Grade 11 General Academic Strand Students in Las Piñas City National Senior High School – CAA Campus.

2.1. Participants and/or Other Sources of Data and Information

This study involved Thirty (30) Grade 11 General Academic Strand students at Las Pinas City National Senior High School-CAA Campus, Las Pinas City. The students' participants were purposively selected for this study.

2.2. Data Gathering Methods

The study is designed for qualitative information. The qualitative information will be from the use of Earth and Life

Science Worksheets, perform a role play based on cosmic occurrences.

An old-fashioned teaching technique was used in the group of students. A note-taking strategy was used. Vital ideas and difficulties linked with the concepts were expounded by the teacher while the students acquired records, and inscribed the stuff written on the chalkboard with the teacher clarifying the concepts. Students asked their questions about unconceivable portions during the lecture. Continuously, students were then taught the role-play activities either individually or in pairs. Before the role-play activities, the teacher explained subjects and gave factsheets to the students. Then the students were given role-play activities based on cosmic occurrences.

2.3. Data Analysis

After the researcher implemented the study tools and procedures, analysis of participating Grade 11 General Academic Strand Students' worksheet results, as shown in Figure 1, revealed positive progress which is likely a result of implementing the role-playing strategy on developing the skill of 'interpreting astronomical phenomena.' The positive impact of the role-playing strategy on student learning can be explained because it allows the learner to visualize and simulate the phenomenon at hand. The learner can transform the abstract concept into concrete and link the elements of the phenomenon to each other.

3. RESULTS AND DISCUSSIONS

Figure 1 shows that 25% of students can explain astronomical phenomena very well. Perhaps this percentage is considered satisfactory to achieve educational outcomes if compared with the previous rate of learning. This means that educational outcomes are achieved in 60% of students in individual differences. The figure also shows that 15% of students achieved a good level of interpretation of astronomical phenomena, which is explained by the inability of Grade 11 General Academic Strand students to express phenomena.

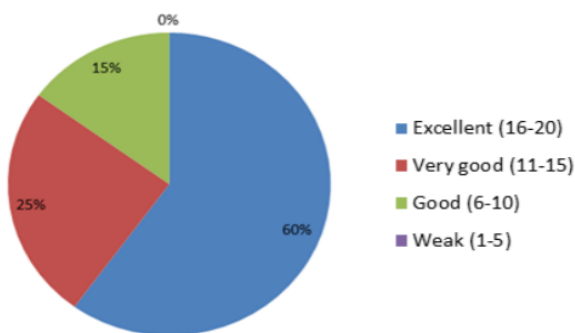


Figure 1. Distribution of Students' Grades on the Worksheets

Figure 2 shows students' results on worksheets over three consecutive lessons, reflecting the level of conceptual growth associated with the skill of interpreting astronomical phenomena that represent the effect of strategy over time. Upon looking into Figure 2, the researcher noted a significant structural progression for 14 students, who make up 70% of the sample, and a decrease for two students, which constitutes 10%, and consistency in the level of four students, which constitutes 20% of the sample.

According to results drawn from Figure 2, this is acceptable and theoretically correct because there is no consensus on a specific educational strategy [3]. The researcher can infer that the role-playing strategy contributed positively to the development of concepts related to astronomical phenomena satisfactorily and effectively. The researcher assumes that the reason for the lack of response of 10% of the study members is the inadequacy of this strategy for learners with an individual style of learning. Regarding an explanation of the constant level of 20% of Grade 11 General Academic Strand students, the researcher concluded that the role-playing strategy did not affect the way students learned, and this may be due to the strategy's inability to stimulate curiosity and learn to defend it as required.

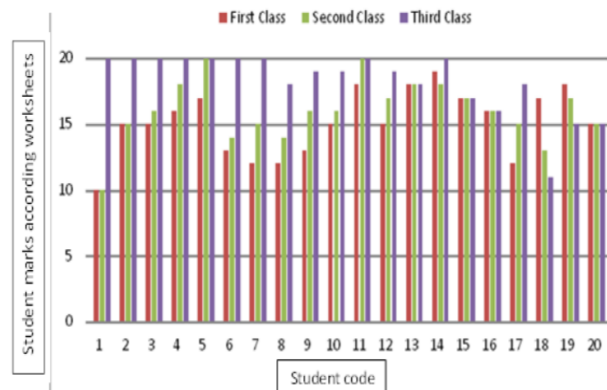


Figure 2. Students' Progress throughout the Lessons

The results of the interview analysis were supportive of the conclusion. The results showed that the role-playing strategy enabled students to break the deadlock in sixteen students. Thirteen students can deduce the phenomenon of astronomy. While fifteen students could distinguish between the phenomena, five students found the task difficult, but four students showed a balance in understanding the importance of astronomical phenomena. According to the data from the interview, the study found that the role-playing strategy helped students in developing thinking processes at Bloom levels. The results also show that the strategy affects reducing conceptual misunderstanding. Concerning the challenges encountered by some students throughout the implementation of the strategy, they don't prefer to work in groups, which negatively affected their ability to represent the phenomenon and identify key elements. The researcher concluded that the role-playing strategy develops communication skills among students because the simulating process of the phenomenon socially requires students to coordinate with each other. The students showed remarkable awareness of learning during the qualitative analysis of the record of the description of the learning process. They accurately defined the stages of their learning process by discussing their learning role and the proper outcomes. Also, the students become more aware of the cognitive processes and their acting skills in incoherent social contexts that mimic abstraction and convey it to reality in a scientific meaning.

4. CONCLUSION

The strategy of role-playing has a positive role in developing the interpretive skills of the Grade 11 General Academic Strand

students in Las Piñas City National Senior High School – CAA Campus by deepening the understanding of Cosmic Occurrences and addressing conceptual misunderstandings to develop descriptive skills. Also, this strategy helps students to reflect on the awareness of the responsibility of learning and providing elements of pleasure and simulation in learning science.

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