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Improving Students' Academic Performance in Science 9 through Project Tickle (Technology-based, Innovative, Creative, Knowledge-based Learning Education

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Abstract:- The ultimate aimed of this study is to determine the effectiveness of Project TICKLE (Technology-based, Innovative, Creative and Knowledge-based Learning Education) in improving the academic performance of Grade 9 students in Science of Salapungan National High School, S.Y. 2019-2020. Total enumeration of students among Grade 9-Peace and Grade 9-Freedom employed in this study. This study employed quasi- experimental method of research. It will help to provide evidence for the use of Project TICKLE (Technology-based, Innovative, Creative and Knowledge-based Learning Education) Moreover, this investigated the effects of Project TICKLE in improving the reading comprehension of Grade 9 students in Science. Results showed that there is a tremendous increase in the performance of the Grade 9 Wisdom students after subjecting them to the new proposed technique named Project TICKLE .Results of the pre-test and post-test revealed that Project TICKLE is effective and efficient method in improving the academic performance of Grade 9 students in science.

Keyword: Project TICKLE, Academic Performance in SCIENCE, Grade 9 Students

I. INTRODUCTION

Education has been a powerful agency in humankind. It is considered as an indispensable instrument for bringing a constructive change in any social, political, economic and cultural types of living of people. The whole process is shaped by many important agents, and the teacher is one of them. The teachers are claimed to play a vital role in education. They are the pivotal leaders to achieve nation's rising and progress by educating a large number of students in any subject-matters. Sellah (2014) explained that teachers are the "superheroes in the classrooms" because of the challenging and ever-changing nature of the work they do every day. But to stay adaptable, even these superheroes have to learn, unlearn and relearn.

Learning is a changing process since knowledge is not something static. For this reason, teaching should be boosted and should move beyond traditional and theory-based foundations. It may be more challenging for teachers as well when it comes to the complexity of classroom setting. This is because the classroom is, if anything, a dynamic place. With so much going on at any given time, teachers are not sure if what they are doing is making positive impact on students' learning.

One of the technical roles of a teacher inside the classroom is the deliberation of the educative process. The teacher is mandated to deliver quality and relevant education to the learners. Aligned with this role is the responsibility of improving the academic performance of the students in their respective discipline or learning area.

The researcher, as Science teacher, is keep on crafting better, innovative and creative ways in improving the academic performance of students in science. This involves creating interactive activities and employing suited and relevant teaching strategy to uplift their interest towards learning.

According to Manalastas,(2016), variety of teaching technique is needed to employ inside the classroom for many reasons. Various teaching strategy aims to improve the interest of the learners towards learning. It enhances learners' interest on learning the basic concepts toward mastery of the idea. Because of various styles of learning employed to the class, students engage more on learning facts and they tend to appreciate more the lesson taught by the teacher.

In the study conducted by Andal, (2015), entitled "Improving Students' Academic Performance using Differentiated Learning", concluded that Grade 10 students of Salapungan National High School performed better using differentiated instruction than the conventional teaching. She suggested among teachers to try using differentiated instruction among learners in the conduct of teaching-learning process.

Based on the research study conducted by Ramos, (2014), creative way of learning involves includes artistic manifestation of the teaching-learning process from the entire discussion. Teachers must be creative enough to craft an interesting motivation, innovative review, interactive activities throughout the discussion, freedom for the learners to express their ideas and quality assessment and evaluation.

According to Marquez, (2010), increase in the use of new information technologies in education and training stands out in developing countries, like Philippines. This is helping with two essential elements of learning; (a) student-centered approach, and (b) developing non-cognitive skills. Although the traditional chalk-and board still has its merits, the new and more effective methods, such as multimedia sources, "Text2Teach" cell phone messaging, already being integrated into the class room, are making an impact. The contemporary teacher must be familiar with the new educational technologies for delivering quality teaching. I will discuss the use and benefits of technology in education, as applicable to enhanced learning and effective teaching.

Armstrong as cited by Mangalino (2012) emphasized that in a learner-centered learning, students are directly involved and invested in the discovery of their own knowledge. Through collaboration and cooperation with others, students engage in experiential learning that is authentic, holistic and challenging. Students are empowered to use prior knowledge to construct new learning. Through the development of metacognitive process, students reflect on their thinking.

This modern age requires that teachers and students should have access to the latest forms of technology and innovative form of teaching. In this case, it will be an advantage for a science teacher if he is equipped with necessary skills in order to adapt to this ever-changing world. However, the fact cannot be denied that there are still some traditional teachers who are not knowledgeable in terms of modern methods and techniques. Hence, attendance to seminars and trainings on innovative teaching will be one of the efficient methods in connecting gaps between the issue and the solution.

Science teachers are faced with a tough job of improving the quality of education being the front liners in the educative process. He should be aware, update himself and be equipped with various innovative and creative teaching strategies to enhance the interest and enthusiasm of learners towards learning.

This research study aims to determine the effect of Project TICKLE (Technology-based, Innovative, Creative and Knowledge-based Learning Education) in improving the academic performance of Grade students in Science.

As stipulated on the Enhanced Basic Education Act of 2012, the science curriculum will utilize the spiraling approach. Lessons and concepts taught in this approach progressively which is totally different from the previous curriculum. With the implementation of this program, they find difficulty in the connection of the previous lesson to the present one, also, the difficulty of giving meaning to the topic, the deepening and relating to other fields.

The above-mentioned reasons prompted the researcher to try another innovative way of teaching to address those issues and further improve the academic performance of the learners in the subject Science.

- *Research Questions*

The ultimate aim of this study is to determine the effectiveness of Project TICKLE (Technology-based, Innovative, Creative and Knowledge-based Learning Education) in improving the academic performance of Grade 9 students in Science of Salapungan National High School, S.Y. 2019-2020.

Specifically, it seeks answer to the following questions:

1. How may the pre-test results of the control group and experimental group be described before the conduct of this study?
2. How may the post- test results of the control group and experimental group be described after the conduct of this study?
3. Is there a significant difference on the pre-test and post-test result before and after conduct of this study?

- *Hypothesis*

This study is guided by the hypothesis:

There is no significant difference exists on the pre-test and post-test of Grade 9 students in science before and after the conduct of this study.

- *Significance of the Study*

This study will be essential and important in the field of science education. It will show the effects of the new proposed technique in teaching science in uplifting the proficiency level of the students. Findings and results of this study will ultimately benefit the following:

- *Students*

They are the primordial beneficiaries as respondents of this study. The knowledge and experiences gained may use by the students to motivate themselves to strive harder in their studies. Moreover, this will serve as motivation to uplift their performance in science.

- *Parents*

The findings of the study will be beneficial for parents to be aware on the education of their children using various techniques in teaching science.

- *Teachers*

The result of the study may serve as a guide to remind teachers on their role in providing quality education using various, updated and relevant teaching techniques in teaching science. In addition, teacher, being the backbone of the teaching-learning process may motivate the students to uplift their performance in science.

- *School Administrators*

The findings of the study will be beneficial to the administrators in managing their respective institution and serve as an opportune venue to encourage teachers to teach with dedication in meeting the needs of the students.

➢ *Community*

The study will also be important to the community as a whole, because quality students will be an asset of the society in towards nation-building.

➢ *Future Researchers*

The researcher ultimately believes that the results of this study will help the future researchers to conduct an in-depth study or similar subject using other variables.

➢ *Scope and Limitations*

The study focused on the use of Project TICKLE (Technology-based, Innovative, Creative and Knowledge-based Learning Education) in improving the academic performance of Grade 9 students in Science of Salapungan National High School, S.Y. 2019-2020.

The respondents of this study were the Grade 9 students section Freedom and Peace, 9-Peace will be the experimental group while the 9-Peace will be the control group.

II. METHODOLOGY

➢ *Type of Research*

This study employed quasi- experimental method of research. It will help to provide evidence for the use of Project TICKLE (Technology-based, Innovative, Creative and Knowledge-based Learning Education) Moreover, this investigated the effects of Project TICKLE in improving the reading comprehension of Grade 9 students in Science.

➢ Respondents

The Grade 9-Peace and Freedom of Salapungan National High School, Candaba, Pampanga, S.Y. 2019-2020 will be the respondents of the study.

➢ *Sampling Method*

Total enumeration of students among Grade 9-Peace and Grade 9-Freedom employed in this study.

➢ *Proposed Innovation/ Intervention/ Strategy*

Project TICKLE (Technology-based, Innovative, Creative and Knowledge-based Learning Education) was the proposed teaching innovation and intervention strategy to address the issues on classroom instruction and further improve the academic performance of the learners.

This involves innovative, creative, knowledge-based and computer-aided learning strategy embedded on the lesson plan/ daily lesson log.

➢ *Instrument*

A teacher made pre-test and posttest will be used by the researcher as instrument of this study.

➢ *Data Collection Procedure*

Upon the approval of the action research proposal, the teacher administered the pre-test on the two participating group. The researcher taught Science lessons in different technique, control group (Group B) will not be the intervention while the experimental group (Group A) using the said intervention.

➢ *Ethical Consideration*

After the conduct of the research, the researcher will also use the Project TICKLE, Technology-based, Innovative, Creative and Knowledge-based Learning Education in the control group to make it fair and just for the students.

➢ *Data Analysis*

To determine the effectiveness of Project TICKLE in improving the academic performance of Grade 9 students in Science, t-test analysis will be employed in this study.

III. RESULTS AND DISCUSSIONS

This part presents the results of the study on the comparative analysis of academic performance of students in Science using traditional method vs. the Project TICKLE. Statistically, the problems of the study were answered by the following data gathered by the researcher.

Table 1 presents the results of the pre-test and post-test using the traditional method of teaching. The pre-test result is 50.50 while the post-test is 60.25 with a difference of 10.25. This implies that there is an increase in the performance of the students after teaching the lesson. In addition, the students learn the facts, knowledge and information taught by the teacher.

Table 1 Results of the Pre-Test and Post-Test Using the Traditional Method of Teaching

Traditional Method of Teaching				
Grade 9-Peace	**N**	**Pre-Test**	**Post-test**	**Difference**
	48	50.50	60.25	10.25

Table 2 shows the results of the pre-test and post-test using Project TICKLE. As you gleaned on the table, the pre-test result is 54.25 and the post-test is 81.50 with a difference of 27.25.

It can be noted from the table that there is a tremendous increase in the performance of the Grade 9 Wisdom students after subjecting them to the new proposed technique named Project TICKLE.

Table 2 Results of the Pre-Test and Post-Test Using 7E's Inquiry-Based Learning

7E's Inquiry-Based Learning				
Grade 9-Freedom	**N**	**Pre-Test**	**Post-test**	**Difference**
	49	54.25	81.50	27.25

Table 3 displays T-test analysis on significant difference on the pre-test and post-test results between traditional method against 7E's Inquiry-Based Learning .

The table exhibits that the T value is 2.51 and the P value is 0.038 for pre-test result, thus, it implies to reject the null hypothesis and interpreted as significant.

Meanwhile, the result for post-test is 6.80 for T value and 2.165E-08 for P value, thus, the result reveals to reject the null hypothesis and interpreted as highly significant.

Table 3 T-Test on the Significant Difference on the Pre-Test and Post-Test Results Between Traditional Method against 7E's Inquiry-Based Learning

Variable	T Value	P Value	Decision	Interpretation
Pre-test	2.51	0.038	Reject Ho	S
Post-test	6.80	2.165E-08	Reject Ho	HS

0.05 Level of Significance
S= significant
NS= not significant

IV. SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

This part presents the summary of the major findings, the conclusion arrived at based on the findings and the recommendations given in accordance with the conclusions.

➢ *Summary*

The study determined the effectiveness of using the new proposed teaching technique in teaching science named Project TICKLE in improving the academic performance of the Grade 9 students of Salapungan National High School, S.Y. 2019-2020.

This composed of the control group and experimental group, the control group used the traditional method of teaching and the experimental group using the Project TICKLE.

It utilized the quasi-experimental method of research and the t-test analysis to show the comparison between variables.

Results of the pre-test and post-test revealed that Project TICKLE is effective and efficient method in improving the academic performance of Grade 9 students in science.

➢ *Conclusions*

In the light of the findings, the following conclusions were drawn:

- The experimental and control groups performed at the same level before the conduct of the study.
- The experimental group performed better in the posttest than the control group.
- There is a significant difference exists on the pre-test and post-test of Grade 9 students in science before and after the conduct of this study.
- The new proposed teaching technique Project TICKLE is an effective method in improving the academic performance of Grade 9 students in science.

➢ *Recommendations*

Based on the findings and conclusions of the study, the following recommendations were drawn:

- To uplift the academic performance of the students in science, teachers in the academe can try using this innovation.
- Science teachers must innovate his art of teaching by providing various activities to enhance, enrich and empower the students to become productive individual.
- Personnel in the Department of Education should initiate programs/ activities, trainings and seminars to equip the teachers with latest trends, issues and concerns to further stimulate their teaching competency especially in the conduct of teaching-learning process.
- Students nowadays have the unique way of learning as compared before, thus, teachers must find innovative ways to address the needs of the students and satisfy their urge for knowledge.
- A similar study may be conducted by future researchers covering a bigger number of respondents in another venue.

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