

The Effectiveness of Using Two Stay-Two Stray Technique in Improving the Performance in Chemistry of the Grade 10 Students

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Abstract

Two stay-two stray is a learning technique that the students are responsible for helping other members to learn, achieve the group goal and share information with the other groups. This study aimed to find out the significant difference between the pretest scores in Chemistry of the students when grouped to Two Stay-Two Stray technique and Lecture Method; find out the significant difference between the posttest scores in Chemistry of the students when exposed using Two Stay-Two Stray technique and Lecture Method and find out the significant difference between the pretest and posttest scores in Chemistry of the students when exposed using Two Stay-Two Stray technique and Lecture Method. The study used the true experimental design, the randomized pretest-posttest control group design.. Paired t-test revealed a significant difference between the pretest and posttest scores in Chemistry of the students when exposed using Two Stay-Two Stray technique and lecture method. This study concluded that Two Stay-Two Stray technique can improve the students' performance in Chemistry.

Keywords: Two stay-two stray technique, performance, experimental group, control group, lecture method

1. Introduction

Learning is an interaction between the existing knowledge and new knowledge .Teaching needs to present ideas in ways that are authentic representations of the scientific concepts, simple enough to be meaningfully understood by the learners. This requires attempts be made to pinpoint areas of difficulty in the local contexts of teaching learning. If areas of difficulty are identified, then it will encourage teachers to employ innovative strategies in a more economic and focused way to remedy student difficulties in those areas (Gafoor & Shilna, 2013). It needs more effort to discover creative technique in teaching Chemistry. Chemistry proves a difficult subject for many students (Sirhan, 2007)..The mission of any high school Chemistry teacher is to sell Chemistry as an intellectual pursuit, as a creative science (Gafoor & Shilna, 2013).. The use of appropriate teaching strategies can relate the novel abstract chemistry concepts with the concrete existing chemistry knowledge. Chemistry teachers must make much effort to create an ideal environment for teaching and learning.

The Two Stay-two Stray is one of the learning techniques that give opportunity to share information with the other groups. Two Stay-two stray is the technique to which can be used in all lesson items and it fits learners age levels (Wijayati, 2016).In this technique, the students are responsible for helping other members to learn, achieve the group goal and share information with other groups. The teacher may consider the five essential components of cooperative learning activities and these are: (a) positive interdependence, (b) individual accountability, (c) face to face interaction, (d) social skills, and (e) group processing. In addition, the activities of this technique covered all components of cooperative learning both in home-group discussions and stray group discussions (Sukmayati, 2012).

II. Methodology

There were forty (40) grade 10 students of Naawan National High School, Naawan, Misamis Oriental, Philippines involved in the study. The study utilized the true experimental research design, the randomized pretest-posttest control group design. Two (2) groups were involved in the study; the twenty-(20) students were exposed using Two stay-two stray technique and the other twenty (20) students to Lecture method respectively. Random assignment was used to form the groupings. The performance of the students is measured through pretest and posttest. The pretest and posttest questionnaires were composed of thirty (30) items multiple choices.

III. Results and Discussion

Table 1 presents the independent t-test result showing the difference between the pretest scores of the two groups. It shows no significant difference between the pretest scores in Chemistry of the students when grouped to Two Stay-two Stray technique and Lecture Method as shown in their mean difference of -0.60 with t-value of -0.80 and p-value of 0.21 which is more than the p-value of 0.05 and that leads to the non-rejection of the null hypothesis. This shows that the performance of the two groups is comparable to each other. Assessment is an integral part of the teaching process (Corpuz, et al. 2006). Teaching cannot be whole and complete without assessing their learning and do something after assessed students' learning. This means that assessment is very important before and after teaching to assess students' performances. Pretest was given at the start of the first meeting and was used to know how well they had learned to read with their own teacher up till then (.Saputra, 2016). The pretest results of the two groups do not differ with each other.

Table 1. Independent t-test result showing the difference between the pretest scores of the two groups

Variable	Mean score	Mean difference	t-value	p-value	Remarks
Two stay-two stray technique	8.25				
		-0.60	-0.80	0.21	Not Significant
Lecture method	8.85				

$p < 0.05^*$

Table 2 displays the independent t-test result showing the difference between the posttest scores of the two groups. The data show no significant difference between the posttest scores in Chemistry of the students when exposed using Two stay-two stray as technique and Lecture Method as shown in their mean difference of 0.85 with t-value of 1.09 and p-value of 0.14 which is more than the p-value of 0.05 and that leads to the non-rejection of the null hypothesis. This means that the performance in the posttest of the two groups do not differ with each other. Although, it shows no significant difference between the two groups but the two stay-two stray group has the higher mean score than of the Lecture Method group. Two stay-two stray techniques is a way of grouping to allot result and information for other groups. It can also help the students interact with their friends to do their tasks. This technique gives students' a chance to share information with the other groups.. Two stay-two stray is suited for all educative participant levels. This technique can be used for all students which come from different ages. Two stays-two stray is a technique to which can be used in all lesson items and it fits learners age levels (Wijayati, 2016). Real understanding requires not only the grasp of key concepts but also the establishment of meaningful links to bring the concepts into a coherent whole (Sirhan 2007).

Table 2. Independent t-test result showing the difference between the posttest scores of the two groups

Variable	Mean score	Mean difference	t-value	p-value	Remarks
Posttest Two stay-two stray technique	10.30				
		0.85	1.09	0.14	Not Significant
Lecture method	9.45				

$p < 0.05^*$

Table 3 shows the paired t-test result showing the difference between the pretest and posttest scores of the two groups. The data reveal significant difference between the pretest and posttest scores in Chemistry of the students when exposed using Two stay-two stray technique as shown in their t-value of -4.44 and p-value of 0.00014 which is less than p-value of 0.05 and that leads to the rejection of the null hypothesis. There was a significant improvement on the pretest and posttest scores of the students in the experimental group. It showed that there was a significant increase in the posttest scores of the students exposed using Two stay-two stray technique.. In Two stay-two stray technique the students are responsible for helping other members to learn, achieve the group goal and share information with other groups. The teacher considers the five essential components of cooperative learning activities and these are: (a) positive interdependence, (b) individual accountability, (c) face to face interaction, (d) social skills, and (e) group processing. In addition, the activities of this strategy covered all components of cooperative learning both in home-group discussions and stray group discussions (Sukmayati, 2012).

Moreover, the performance of the students exposed using Lecture Method reveals no significant difference between the pretest and posttest scores of the students. This shows that the students are passive in the class. The teacher becomes the person in authority (Pantosa, 1991).

Chemistry is a very conceptual subject, and many of its concepts are rather abstract. One of the widely recognized issues in teaching Chemistry, indeed in teaching the sciences more generally, is that students very commonly develop alternative ideas about science topics. This means that the teacher's job is not usually to move students from a state of ignorance to a state of knowledge, but more often to shift student thinking away from existing ways of understanding the world (Taber, 2009).

Table 3. Paired t-test result showing the difference between the pretest and posttest scores of the two groups

Group	Mean Score	Mean difference	t-value	p-value	Remarks
Two stay-two stray technique Pretest	8.25				
Posttest	10.30	-2.05	-4.44	0.00014*	Significant
Lecture method Pretest	8.85				
Posttest	9.45	-0.60	-0.766657	0.2263787	Not Significant

$p < 0.05^*$

IV. Conclusion

Based on the findings of the study, it was concluded that the experimental and control groups were comparable before the start of the experiment. Independent T-test result showed no significant difference between the posttest scores of the students when exposed using Two stay-two stray technique and Lecture Method. Paired t-test result revealed a significant difference between the pretest and posttest scores of the students when exposed using Two stay-two stray technique and Lecture Method. This study concluded that Two stay-two stray technique can improve the performance in Chemistry of the grade 10 students.

V. Recommendations

Based on the findings and conclusion of the study, the researchers would like to recommend that Two stay-two stray technique can improve the performance in Chemistry of the grade 10 students. Two stay-two stray technique will enhance performance of the students when it is used appropriately. Similar study should be conducted using Two stay-two stray technique in other schools to different grade levels and in other disciplines too.

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