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Effectiveness of Quiz, Quiz, Trade Incorporating *Hugot* and Pop Rock Songs in Enhancing Students' Performance in Earth Science

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ABSTRACT

This descriptive study utilizing the pretest-posttest control group design investigated the effectiveness of Quiz, Quiz, Trade incorporating *Hugot* and Pop Rock Songs (QQTIHPRS) in enhancing students' performance in Earth Science. This was done during the First Quarter of School Year 2022-2023 to the 81 Grade 10 students of Sarra National High School. 35-item researchers-made test (pretest and posttest) and a motivation checklist were used to gather data. Teaching using traditional lecture-discussion methods was done in both groups but with the addition of QQTIHPRS in the experimental group. Students' pretest and posttest scores were analyzed using frequency distribution and percentage. The t-test was used to find out if there exists significant difference between the students' mean scores in the pretest, posttest, and pretest and posttest in both experimental and control groups. The mean was used to analyze data from the students' motivation checklist. Results showed that both groups have gained significantly higher scores in the posttest than in the pretest. However, the posttest mean score of the experimental group is significantly higher than that of the control group. This implies that the students in the experimental group performed better than those in the control group. It was also found that when QQTIHPRS were utilized in teaching Earth Science, students were actively involved; excited and thrilled; motivated to work, shared their ideas, and established camaraderie and teamwork. These findings show that the use of QQTIHPRS in addition to the usual lecture-discussion method enhanced the performance of students in Earth Science.

INTRODUCTION

Science is vital because of its links to technology and industry, both of which have high development priorities. Science systematically develops students' scientific inquiry skills, values, and attitudes such as objectivity, curiosity, and honesty, as well as mental habits such as critical thinking. All of these are beneficial to the individual student's personal development, future career, and life in general. These abilities, values, attitudes, and personalities are also beneficial to the community to which a student belongs, as well as to the country in which he lives. Some Filipino students have gained recognition for their high level of accomplishments in the International Science and Engineering Fair and Robotics Competition, to name a few.

International competency assessments revealed that Filipino students lag in receiving a high-quality education. As reported by Paris (2019), the Philippines was ranked 79th in reading in the 2019 Program for International Student Assessment (PISA), as indicated by its very low average of 340 compared to the international average of 487. In addition, Filipino learners scored poorly in Mathematics and Science, as indicated by the low averages of 353 and 357 points, respectively. For both areas, the score is significantly lower than the international average of 489. Furthermore, according to Albano (2021), the National Achievement Test (NAT) results for 2018 revealed that the national average mean percentage score (MPS) continued to decline, with the lowest performance in the history of the Department of Education's

standardize examination.

The 2018 National Achievement Test (NAT) and the 2019 Basic Education Exit Assessment (BEEA), the test for graduating senior high school students, the overall average mean percentage score (MPS) for Grade 6 NAT was 37.44, the lowest in the NAT's history, and 44.59, the third lowest. This means that Grade 6 students got less than four correct answers out of every ten questions, whereas Grade 10 students got more than four correct answers out of every ten questions. The pioneer Grade 12 graduates (2018), on the other hand, obtained an average MPS of 36.71, while the 2019 batch obtained 36.45. When Republic Act (RA) 10533, also known as the Enhanced Basic Education Act of 2013, was signed into law, it marked a significant shift in Philippine basic education. According to the law, the K to 12 Basic Education Program strives to build, promote, and maintain an adequate, complete, and integrated educational system for the global recognition of Filipino graduates and professionals.

This study aimed to determine the effectiveness of using Quiz, Quiz Trade incorporating *Hugot* and Pop Rock Songs in enhancing students' performance and motivation in Earth Science class. The researchers focused on the development of learning outcomes or achievements of students as to their standing and scores in the pretest and posttest and their level of interest and mood toward learning Earth Science concepts and their views on the use of Quiz, Quiz Trade incorporating *Hugot* and Pop Rock Songs.

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LITERATURE REVIEW

Science education seeks to develop scientific literacy in students to prepare them to be informed and participatory citizens capable of making judgments and decisions about applications of scientific knowledge that may have social, health, or environmental consequences. The Science curriculum acknowledges the importance of Science and technology in everyday life. Science and technology are integrated into the social, economic, personal, and ethical aspects of life. Moreover, the Science curriculum emphasizes the importance of Science and technology, including indigenous technology, in preserving our country's cultural heritage (Arrieta *et al.*, 2020).

The K to 12 Science curriculum is learner-centered and inquiry-based, emphasizing the use of evidence in constructing explanations. Concepts and skills in Life Sciences, Physics, Chemistry, and Earth Sciences are presented with increasing levels of complexity from one grade level to another in spiral progression, thus paving the way to a deeper understanding of core concepts. The integration across Science topics and other disciplines will lead to a meaningful understanding of concepts and its application to real-life situations (DepEd Science Curriculum, 2016).

Science teachers are challenged to employ better methodologies and activities to make it more interesting. Teaching Science particularly in high school is not that easy because of the more complicated theories. Aside from it, experiments have to be carefully planned and prepared.

With the adoption of the new curriculum, the same old problems in the education sector were not addressed. Still, there are inadequacy on the number of classrooms, textbooks, seats, and toilets in public schools (Navarro, 2022). The excessive teaching loads of teachers (Esguera, 2018), the difficulty in following the spiral progression approach in teaching (Dunton & Co, 2019), the scarcity of instructional materials (Soriano & Vargas, 2021), the presence of big class sizes (Esguera, 2018), and the inadequate training for teachers (David, Albert & Vizmanos, 2019), are still there.

Many educators and graduate student researchers have identified several factors that contribute to Filipino students' poor performance in Science. These include teacher quality, the teaching-learning process, the school curriculum, instructional materials, and administrative support.

There are abstract concepts and principles in Science which students could hardly understand. This makes students consider Science as a difficult subject because it needs a lot of mental and physical exploration and extra effort to comprehend its nature, principles, and laws. Besides, students do lots of handwriting, and after a while the theory seems like a fantasy.

Teachers tend to use the traditional approach to solve the lack of textbooks and references, and unavailability of teaching aids and materials needed in Science and technology classes. This approach in teaching Science leads to the development of poor attitudes toward the assimilation and comprehension of scientific knowledge.

The researchers also observed that many students meet some problems in their studies. Many students who have worked in a team in a laboratory or project-based class do not have fond memories of the experience. Some recall one or two team members doing all of the work and the others simply going along for the ride but receiving the same grade. Others recall dominant students whose intense desire for a good grade led them to stifle their teammates' efforts to contribute. Others recall arrangements in which the work was divided up and completed parts were stapled together and turned in, with each team member knowing little or nothing about what the others did.

To verify these studies, the researchers also observed classes and even interviewed Science teachers and found out that students are very hesitant to recite and during team laboratory the leader mainly do the works and some students prefer to be in group for them to be guided with their classmates.

From the observations the researchers had, coupled with the reflections and expectations of the students, it was hypothesized that the students' belongingness affects their interest and performance in the subject. Specifically, students' difficulties to give answers correctly are due to lack of interest, lack of mastery skills, less effective motivational technique of the teacher, lack of imagination or representation of the situation of the problem and students have poor comprehension and analytical ability. Through the implementation of the K to 12 Program, education curriculum should be child – centered, developmentally appropriate, interactive with learning materials, interactive socially and assessed through direct observation. Teachers can facilitate and enhance mental development by providing activities where the students mentally act on what is being learned. This means that there is a need for the teacher to shift from the traditional approach of the teacher's being the teller, and the student, the receiver, to the teachers being the facilitator, and the student, the actor, and the doer. Students should also be encouraged and given the chance to choose some of their learning activities to allow them to use their minds to evaluate what should be studied.

Experiential learning caters to the needs and desires of the learner, which is the key to the distinction. When a student fully participates in the learning experience and has control over its nature and direction, learning is facilitated. As a result, when a subject is pertinent to the student's personal interests, significant learning occurs.

For effective learning to take place, students should be provided with varied activities. More so, a good teacher must adapt his methods and learning materials to the nature of the individual child and his level of development. Individual differences among students play an important role in choosing instructional materials, methods, and techniques. The Kagan strategy, one of which is the Quiz, Quiz, Trade, allow students to construct their own meanings and scaffolding what they are learning with their peers has the potential to improve student performance

(Olatunbosun, Adeyeye, & Ogonyebi, 2020). Likewise, Zuherieh *et al* (2020) reiterated that the Kagan structure proves to help make more positive connections with peers and teacher and thus deeply effect students' attitude towards overall classroom experiences.

Many attempts have been made to meet the needs of individual learners and this resulted in the production of more instructional materials, like modules, self – learning packages, and workbook to meet the learner's needs.

The use of Quiz, Quiz Trade incorporating *Hugot* and Pop Rock Songs as a support strategy to the traditional lecture/discussion, chalk – talk and laboratory method in teaching Earth Science concepts enhances students' performance and motivation.

The results of the study may have significant contributions in enhancing the teaching-learning process. Teachers should use Quiz, Quiz Trade incorporating *Hugot* and Pop Rock Songs in enhancing students' performance and motivation for learning; Teacher should use other Kagan Structures in teaching. Likewise, similar studies must be

conducted to verify the effectiveness and validity of the Quiz, Quiz Trade incorporating *Hugot* and Pop Rock Songs in enhancing students' interest and performance in Science, in general.

MATERIALS AND METHODS

This descriptive study utilizing the pretest-posttest control group design investigated the effectiveness of Quiz, Quiz Trade incorporating *Hugot* and Pop Rock Songs (QQTTHPRS) in enhancing students' performance in Earth Science. This was done during the First Quarter of School Year 2022-2023 to the 81 Grade 10 students of Sarraat National High School.

The researchers were guided by a table of specifications in the preparation of the Earth Science 's pretest and posttest to evaluate learning outcomes and competencies to be tested. The test was content validated by Science teachers and professors, tried out and item analysis was performed and test of reliability was done to further improve it.

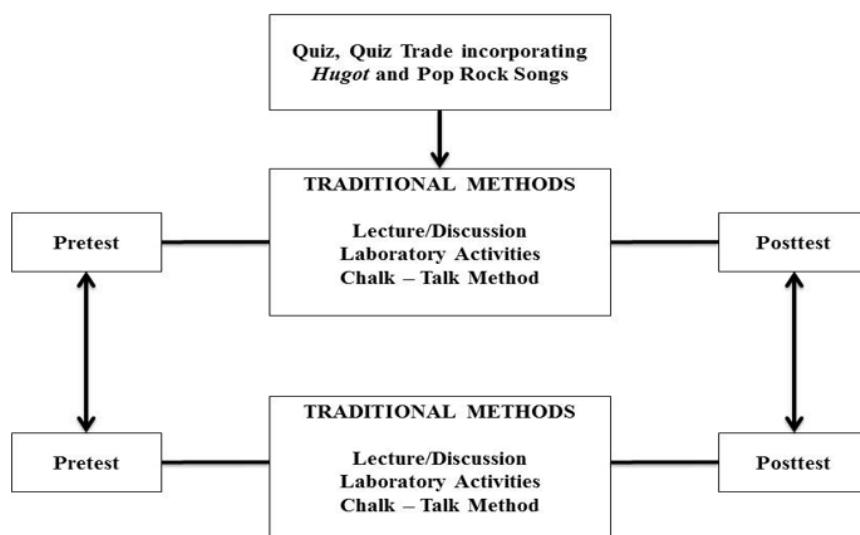


Figure 1: Research Paradigm

Quiz, Quiz Trade incorporating *Hugot* and Pop Rock Songs (QQTTHPRS) is a strategy in teaching with the combination of Quiz, Quiz Trade and *Hugot* and Pop Rock songs; students share their answers and ideas with other students while songs are being played.

This technique requires students review information with other students by asking and answering questions. Working with peers in a nonthreatening manner builds confidence, encourages greater participation, and results in more thoughtful discussions.

First, create questions wherein the researchers provide each student with flash cards about the current unit of study. One side of the card has a question, and the other side provides the answer. Second, pair up wherein the researchers use the stand-up; hands up and pair up method for students to find a partner. Partner A holds up the flash card to show partner B the question then partner B answers. Partner A praises if correct or coaches if incorrect. Students switch roles and partner B asks

partner A the next question. Lastly, hands up. After thanking each other and switching cards, partners A and B raise their hands to find a new partner and repeat the process for an allotted amount of time.

The study was limited in using the Quiz, Quiz Trade incorporating *Hugot* and Pop Rock Songs as a support to the use of traditional method and as a factor in enhancing the students' performance and motivation towards learning Earth Science concepts.

Before presenting the topics on Distribution of Earthquake Epicenters, Volcanoes, and Mountain Ranges; Plate Boundaries; Causes and Evidence of Plate Movements, and Plate Tectonic Theory, the validated Earth Science 's test was administered as pretest to the seventy students. The students' scores in the pretest were used as measures of their entry knowledge in the topics that were taught. Teaching using the traditional methods for both groups was done for two days with integrated formative assessment. On the fourth day, teaching

using the strategy as a support to the existing traditional methods followed for the experimental group only. Some songs played were: Secret love song by Little Mix, Easy on me and All I ask by Adele. Some fast beat songs were also used such as: All about the bass and Better when I'm dancing by Meghan Trainor. Last day was the administration of the posttest to verify the effect of the intervention on the performance of the students. After they were done with their worksheets, the researchers allowed students to give their comments, questions, and opinions regarding the activity.

Furthermore, the control group was given the same lesson, same number of contact time and rules with the experimental group. The students' answers in the pretest and posttest were scored, tabulated, and analyzed using frequency distribution and percentage. The scores were

interpreted through score intervals with descriptive ratings which were used by [11] which are as follows: 29 – 35 (Outstanding); 22 – 28 (Very Satisfactory); 15 – 21 (Satisfactory); 8 – 14 (Fair) and 1 – 7 (Poor). Both the data gathered in the pretest and posttest were tabulated and analyzed using frequency distribution and percentage. The *t* – test for dependent samples was used to test the significance of the difference between the pretest and posttest mean scores in each of the experimental and the control group while the *t*-test for independent samples was used to find out if there is a significant difference between the pretests of the two groups as well as their posttests.

Means of Students' Motivation and feedbacks on the use of Quiz, Quiz Trade incorporating *Hugot* and Pop Rock Songs were interpreted with descriptive ratings as follows:

Table 1: Motivation and feedbacks on interpreted with descriptive ratings

Positively stated		Negatively Stated
Strongly agree (SA)	4.21 – 5.00	Strongly disagree (SD)
Agree (A)	3.41 – 4.20	Disagree (D)
Undecided (U)	2.61 – 3.40	Undecided (U)
Disagree (D)	1.81 – 2.00	Agree (A)
Strongly Disagree (SD)	1.00 – 1.80	Strongly (SA)

RESULTS AND DISCUSSION

The Pretest & Posttest of the Experimental and Control Groups

The frequency and percentage distribution of the pretest scores of the experimental and control groups are shown in Table 1. Results show that in the experimental group, 21 (52.50%) of the students got scores within the score range of 8-14 with a descriptive interpretation of fair, while 19 (47.50%) got score within the score range of 15-21 with a descriptive interpretation of satisfactory.

In the control group, 24 (58.54%) of the students got scores with the score range 8-14 with a descriptive interpretation of fair, 17 (44.46%) scored with the score range of 15-21 with a descriptive interpretation of satisfactory. The mean scores of the experimental and control groups which are 14.80 and 14.73, respectively. This implies that students have background knowledge of the topics: Distribution of Earthquake Epicenters, Volcanoes, and Mountain Ranges; Plate Boundaries; Causes and Evidences of Plate Movements, and Plate Tectonic Theory.

Table 2: Distribution of pretest scores of the experimental group and the control group

Scores	Descriptive Interpretation	Experimental Group		Control Group	
		f	%	f	%
29-35	Outstanding	-	-	-	-
22-28	Very Satisfactory	-	-	-	-
15-21	Satisfactory	19	47.50	17	41.46
8-14	Fair	21	52.50	24	58.54
1-7	Poor	-	-	-	-
Total		40		41	
Mean		14.80 (Satisfactory)		14.61 (Satisfactory)	
SD		2.95		2.95	

Comparing the pretest mean scores of the two groups, the results of the *t* – test displayed in Table 3 below shows that the pretest mean score of the students in the experimental group (14.80) is not significantly different from the pretest mean score of the students in the control group (14.61) as indicated by the probability value of 0.775 which is greater than 0.05 probability value. This

only indicates that the experimental and control groups have more or less the same entry level of knowledge along the topics: Distribution of Earthquake Epicenters, Volcanoes, and Mountain Ranges; Plate Boundaries; Causes and Evidence of Plate Movements, and Plate Tectonic Theory, hence the two groups are equivalent.

Table 3: Results of the t-test of difference between the pretest mean scores of the students from the experimental and control groups

Group	N	Pretest Mean Score	Difference	t-value	Probability
Experimental	40	14.80	0.19	0.286ns	0.775
Control	41	14.61			

Ns - not significant

Level of Performance of the Experimental and Control Groups in the Posttest

Table 4 below shows the distribution of the posttest scores of the experimental group and the control group. In the experimental group, 33 (82.50%) of the students

had an outstanding performance as they got scores within the score range of 29 - 35 while 7(17.50%) got score within the score range of 22-28 which is described as very satisfactory.

Table 4: Distribution of posttest scores of the experimental group and the control group

Scores	Descriptive Interpretation	Experimental Group		Control Group	
		f	%	f	%
29-35	Outstanding	33	82.50	7	17.07
22-28	Very Satisfactory	7	17.50	25	60.98
15-21	Satisfactory	-	-	9	21.95
8-14	Fair	-	-	-	-
1-7	Poor	-	-	-	-
Total		40		41	
Mean		31.22 (Outstanding)		24.24 (Very Satisfactory)	
SD		2.78		4.73	

In the control group, 25 (60.98%) of the students got scores within the score range of 22-28 in the very satisfactory level, 9 (21.95%) are within the range of 15-21 in the satisfactory level and 7 (17.07%) are within the score range of 29 - 35 in the outstanding level.

The mean score of the experimental group is 31.22 with a descriptive interpretation of outstanding while the control group has a mean score of 24.24 with a descriptive interpretation of very satisfactory.

This means that both groups were able to increase their posttest scores after teaching them Distribution of Earthquake Epicenters, Volcanoes, and Mountain Ranges; Plate Boundaries; Causes and Evidence of Plate Movements, and Plate Tectonic Theory Trade incorporating *Hugot* and Pop Rock Song for the experimental group and traditional lecture – discussion method for the control group.

Effectiveness of the QQTIIHPRS in Teaching Earth Science

Table 5 below shows the results of the t–test between the pretest and posttest mean scores of the students from the experimental and control group.

It can be deduced from Table 5 that the pretest mean

score of the experimental group (14.80) is significantly lower than its posttest mean score (31.22) as evidenced by the mean difference of 16.42 with a computed t – value of 25.5598 that has a probability of 0.000 which is less than the 0.05 probability value. Also, in the control group, the pretest mean score (14.73) of the students is significantly lower than their posttest mean score (24.24) as evidenced by the mean difference (9.51) with a computed t – value of 10.9337 with a probability of 0.000 which is less than the 0.05 probability value.

Results of the t-tests of difference between the pretest and posttest mean scores of the students from the experimental and control groups indicate a significant difference in the increase of the mean posttest scores of both groups. These further imply that the students in both groups have gained significantly and had a clearer understanding of the Earth Science concepts presented to them.

Comparing the posttest mean scores of the experimental and control groups, it can be gleaned from the results of the t – test presented in Table 5 that the posttest mean scores of the students in the experimental group (31.22) is significantly higher than that of the posttest mean score of the control group (24.24) as indicated by the computed

Table 5: Results of the t-test of difference between the pretest and posttest mean scores of the students from the experimental and control groups

Group	N	Pretest Mean Score	Posttest Mean Score	Difference	t-value	Probability
Experimental	40	14.80	31.22	16.42	25.5598s	0.000
Control	41	14.73	24.24	9.51	10.9337s	0.000

s – significant

t – value of 8.1766 with a probability of 0.000 which is less than the 0.05 probability value. This implies that the students in the experimental group, having obtained the higher posttest mean score, were able to develop better and clearer understanding of the Earth Science concepts covered in the study than their counterparts. This implies that the use of the Quiz, Quiz Trade incorporating *Hugot* and Pop Rock Song is more effective in teaching Earth

Science concepts than with the use of the traditional lecture – discussion method.

It is evident then that the use of Quiz, Quiz Trade incorporating *Hugot* and Pop Rock Songs enhanced the students' learning performance in Earth Science. This claim is supported by the students' feedback during the interview. Some of the feedbacks are the following:

Student A: The activity was fun. Fun to have an interaction

Table 6: Results of the t-test of difference between the posttest mean scores of the students from the experimental and control groups

Group	N	Posttest Mean Score	Mean Difference	t-value	Probability
Experimental	40	31.22	6.98	8.1766s	0.000
Control	41	24.24			

s – significant

with my classmates and knowing how to share my knowledge with them. It's fun. I enjoyed it and I learned a lot about our topic. Nice activity sir!

Student B: The activity was fun and I'm very thankful because it's not that complicated as I expected. I've learned a lot.

The observations above manifest the value of Quiz, Quiz Trade incorporating *Hugot* and Pop Rock Songs. Hence, the use of varied activities such as games and trading inside the classroom improves the quality of performance of students. This coincides with the study of Yazıcıoğlu and Güngören (2021) that interactive approach through game-based learning is an effective method for increasing

students' motivation, active participation, and conceptual understanding of scientific knowledge in Science education. The improvement can also be attributed to the cooperative learning strategy employed in doing the activities. This also supports the study of Hartt, Hosseini, and Mostafapour (2020) that interactive approach such as game-based learning has emerged as a novel method of increasing student motivation, emotional involvement, and enjoyment. Moreover, music is known to affect the feelings and energy levels of a person. Hence, it can prompt memories, enhance brain activity, and stimulate the mind.

Table 7: Means and descriptive interpretations of the students' feedbacks on the use of Quiz, Quiz Trade incorporating *Hugot* and Pop Rock Songs. (N=40)

Statement	Mean	DI
Quiz, Quiz Trade incorporating <i>Hugot</i> and Pop Rock Songs motivate me to learn Earth Science.	3.91	A
I see no value on the use of Quiz, Quiz Trade incorporating <i>Hugot</i> and Pop Rock Songs in teaching Earth Science.	3.40	D
The use of Quiz, Quiz Trade incorporating <i>Hugot</i> and Pop Rock Songs are important source of scientific information.	3.74	A
Earth Science is one of the least useful subjects that I have taken even with the use of Quiz, Quiz Trade incorporating <i>Hugot</i> and Pop Rock Songs.	3.11	U
Using Quiz, Quiz Trade incorporating <i>Hugot</i> and Pop Rock Songs make me experience thrills in Science.	3.97	A
I find Quiz, Quiz Trade incorporating <i>Hugot</i> and Pop Rock Songs difficult to perform.	2.69	U
Quiz, Quiz Trade incorporating <i>Hugot</i> and Pop Rock Songs in Earth Science challenge me to study more about the subject.	3.77	A
I don't want to skip my Earth Science class especially when my teacher introduces activities such as the Quiz, Quiz Trade incorporating <i>Hugot</i> and Pop Rock Songs	3.83	A
Using Quiz, Quiz Trade incorporating <i>Hugot</i> and Pop Rock Songs make me see the relevance of Earth Science in our lives.	3.74	A
Quiz, Quiz Trade incorporating <i>Hugot</i> and Pop Rock Songs make Earth Science dry and boring.	3.29	U
Having fun and learning at the same time make Earth Science an enjoyable subject.	4.57	SA
Quiz, Quiz Trade incorporating <i>Hugot</i> and Pop Rock Songs can ease my burden in improving my memory and mastery.	3.71	A
<i>Hugot</i> and Pop Rock Songs can help me motivate to listen in the class	4.17	A

I am not comfortable in playing and learning at the same time.	3.23	U
Learning Earth Science through Quiz, Quiz Trade incorporating <i>Hugot</i> and Pop Rock Songs is time consuming	3.26	U
Play and experimentation are valuable forms of learning Earth Science concepts.	4.2	A
Quiz, Quiz Trade incorporating <i>Hugot</i> and Pop Rock Songs make Earth Science concepts difficult for me to learn.	3.17	U
Overall Mean	3.63	A

Feedbacks of the Students on QQTIHPRS

This part of the study presents and enumerates the feedbacks, level of motivation and interest of the students with respect to the use of Quiz, Quiz Trade incorporating *Hugot* and Pop Rock Songs in teaching Earth Science. These were expressed in terms of the respondents' degree of agreement or disagreement to statements present in the student feedbacks or motivational checklist and their qualitative responses in the interview guide.

Moreover, the feedbacks were supported by the observations made by the researcher. Descriptive statistics particularly mean was used to analyze students' responses in the students' feedbacks checklist.

Table 7 shows a detailed interpretation of the summarized results of the students' feedbacks checklist. It presents the mean and descriptive rating of the students' responses. Of the seventeen (17) statements in the student feedbacks checklist, ten(10) were stated positively (statement numbers 1, 3, 5, 7, 8, 9, 11, 12, 13 & 16) while the other seven (7) were stated negatively (statement numbers 2, 4, 6, 10, 14, 15 & 17)

Table 6 exhibits that the highest mean scores correspond to statement number 11 (4.57). This means that the students strongly agreed that having fun and learning at the same time make Earth Science an enjoyable subject one of which is integrating Quiz, Quiz Trade incorporating *Hugot* and Pop Rock Songs. This explains also that they have similar view on statement number 16 (4.20) that students favored that play and experimentation are valuable forms of learning Earth Science. Likewise, they agreed to the statement number 13 (4.17) that *Hugot* and Pop Rock Songs can help them be motivated to listen in class discussion; this coincides to their response on statement number 1 (3.91) that Quiz, Quiz Trade incorporating *Hugot* and Pop Rock Songs motivate them to learn Earth Science. Statement number 8 (3.97) confirmed that using Quiz, Quiz Trade incorporating *Hugot* and Pop Rock Songs confirmed that students don't want to skip their classes once this strategy is being used in the classroom. Students agreed that this strategy challenges them to study more about the subject as expressed in statement number 7 (3.77).

Likewise, it can ease the burden in improving their memory training and mastery skill as reflected in statement number 12 (3.71) and firmly agreed that they see the relevance of Earth Science in their lives by using Quiz, Quiz Trade incorporating *Hugot* and Pop Rock Songs in class and the act of sharing ideas to others to build a better foundation of ideas and principles.

Some of students' responses are the following

Student C: This activity is so fun, wew! I learned a lot and by sharing your answer (idea) is not about selfishness. Sharing is being friendly, brainstorming and challenging yourself. Have a nice day sir!

Student D: It was a good activity because we were able to interact with our fellow classmates and also taught me that not everything, I know is right. Cheers to cooperative learning.

Student E: Well, it was fun having this sort of activity because if you have forgotten the answer, you have the chance to ask your classmate that will refresh your memory.

Student F: Today's activity was full of fun and enjoyable. We had the chance to consider each and everyone's idea in answering the questions. It showed the importance of cooperation in learning. It was just like having fun while learning something together.

Student G: It was enjoyable and entertaining because it was not that hard. At nakakaengganyo ang music [The music is too relaxing and enticing]. Makikita din dito ang kooperasyon ng bawat isa. [It really made the class very cooperative].

Student H: The activity was great and fun. With the activity, we had the chance to interact with our other classmates in a good way. We shared our answers to each one and corrected each other's mistakes.

Some were thankful of the benefits of this kind of strategy such as the following:

Student I: This activity was quite fun because of the different twists that make this quiz unique. It also enhanced our answering abilities and decision-making abilities about Earth Science.

Student J: The activity Quiz Quiz Trade was much enjoyed. The mechanics is interesting and how we can share and trade our answers were refreshing knowing that other people have different answers that can help you with yours. This helped strengthened our bond and socialization with others.

Student K: This activity Quiz – Quiz Trade is kinda hard, but we had fun while doing it because we shared our knowledge and ideas to be able to answer the questions and we're glad that we did it. Cooperation and patience to look for the question are the basic requirements for this kind of activity.

Among the negatively oriented statements, statement number 2 got the highest mean (3.40). The students firmly do not agree that the use of Quiz, Quiz Trade incorporating *Hugot* and Pop Rock Songs have no value in teaching Earth Science. Many of the students

are still undecided on the use of Quiz, Quiz Trade incorporating *Hugot* and Pop Rock Songs as stated in the following statements: dry and boring, statement number 10 (3.29); time consuming, statement number 15 (3.26); not comfortable in playing and learning at the same time, statement numbers 14 (3.23); difficult to perform, statement numbers 6 and 17 (2.69 & 3.17, respectively). Some also gave points for more improvement of the strategy:

Student L: The game is good, but my suggestion is that a student should exchange one by one religiously because some of us didn't follow the rules and copied the answer of others.

Student M: The activity was hard yet fun, the questions were not that easy but because of the music, it helped us to answer the questions more enjoyable.

In general, since majority of the response of students in terms of the positive statements are Agree and the overall mean scores response 3.63 is Agree. It can be deduced that students have positive feedbacks towards motivation and learning Earth Science because of the use of Quiz, Quiz Trade incorporating *Hugot* and Pop Rock Songs as a support to existing use of traditional chalk – talk method and usual lecture or discussion method.

It was noted also that they were much motivated in answering the questions while songs especially *Hugot* and Pop Rock songs are being played. Some songs played during the intervention were: Secret love song by Little Mix, Easy on me and All I ask by Adele. Some fast beat songs were also used such as: All about the bass and Better when I'm dancing by Meghan Trainor. They now viewed Earth Science as a subject that is not hard and boring, full of experience, fun, work and play.

Quiz Quiz Trade is an active learning strategy that can be used in teaching Earth Science concepts. This strategy involves learners pairing up and quizzing each other on a set of questions, then trading questions and finding a new partner to quiz. Likewise, using songs in teaching Earth Science can have several positive effects on learners. It can improve retention and recall. Studies have shown that when information is presented in a musical format, learners are more likely to remember it. The rhythm and melody of music can aid in the retention and recall of scientific concepts and terms. Using songs in the classroom can help to make Science more engaging and enjoyable for learners. This can help to increase their motivation and interest in the subject. Moreover, some learners may find it difficult to learn through traditional methods such as lectures and textbooks. However, incorporating songs into the curriculum can cater to different learning styles and help learners understand concepts more easily. Learning Science with songs can be used to connect scientific concepts with other subjects such as music, language, and culture. This interdisciplinary approach can help learners to see the connections between different areas of knowledge.

Moreover, using *Hugot* and pop songs in teaching Science can be an effective way to engage learners and help them remember scientific concepts. *Hugot* and pop rock songs

often contain lyrics that express emotions and experiences that learners can relate to. By incorporating these songs into Science lessons, learners can make an emotional connection to the concepts they are learning. When learners connect emotionally to the material, they are more likely to remember it. By using songs with relatable lyrics, learners can better remember scientific concepts and terms. *Hugot* and pop rock songs can help to make Science more interesting and engaging for learners. This can help to increase their motivation and interest in the subject.

Pop rock songs are often written in contemporary and informal language, which can help learners improve their language skills. *Hugot* songs, on the other hand, can help learners to express their emotions and thoughts more effectively.

It is encouraging to see students asking questions and having their group members explain concepts to each other. Students learned the power of true accountability of each member of the group as well as the power of peer pressure within a group increased student engagement. This coincides with the study of Olatunbosun, Adeyeye, & Ogunyebi (2020) that the Kagan strategy allow students to construct their own meanings and scaffold what they are learning with their peers, therefore has the potency of producing higher students' performance. Moreover, Zuherieh *et al* (2020) reiterated that the Kagan structure proves to help make more positive connections with peers and teacher and thus deeply effect students' attitude towards overall classroom experiences. Thus, the QQTTHPRS improved the students' performance and motivation towards Earth Science concepts. Hence, Kagan Cooperative Learning Structures such as the Quiz, Quiz, Trade, can promote students' teamwork and interpersonal skills as students are required to communicate and discuss with one another to solve problems or complete the tasks assigned. Every team member plays an important part in the learning process.

CONCLUSION AND RECOMMENDATIONS

In the light of findings of the study, since there is a significant difference on the mean scores of the pretest and posttest of the students in the experimental and control group, the researcher can conclude that the integration of the Quiz, Quiz Trade incorporating *Hugot* and Pop Rock Songs during the discussion on the practical applications of Earth Science concepts via basic and mastery skills improved the performance and enhanced the interest and motivation of students in learning Science .

They were actively involved in the activity, the intervention gave them an element of excitement and fun because of the thrill of working with their classmates, they were also motivated to work, to share their ideas and to establish camaraderie and teamwork. It was noted also that they were much motivated in answering the questions while songs especially *Hugot* songs are being played. Some songs played were: Secret love song by Little Mix, Easy on me and All I ask by Adele. Some fast beat songs were

also used such as: All about the bass and Better when I'm dancing by Meghan Trainor. They now viewed Earth Science as a subject that is not hard and boring, full of experience, fun, work, and play.

Based on the above findings and conclusions, the following recommendations are formulated: Teachers should use Quiz, Quiz Trade incorporating *Hugot* and Pop Rock Songs in enhancing students' performance and motivation for learning; Teacher should use other Kagan Structures in teaching; Similar studies must be conducted to verify the effectiveness and validity of the Quiz, Quiz Trade incorporating *Hugot* and Pop Rock Songs in enhancing students' interest and performance in Science in general.

However, it is important to use appropriate *hugot* and pop songs that are relevant to the scientific concepts being taught. The lyrics and message of the song should also align with the lesson objectives and values of the learning institution. Overall, using songs in teaching Science can have positive effects on learners' engagement, retention, and understanding of scientific concepts.

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