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Activity Driven Approach in Teaching Science

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Abstract *– This study aimed to determine the frequency of use of activity driven approach in teaching Science among Elementary Schools in Malasiqui District I, Division of Pangasinan I. This research made use of descriptive-correlational survey method of research with questionnaire as an instrument in data gathering. A total of 111 Science teachers of the public elementary schools in Malasiqui District I were randomly selected as the respondents of the study. Frequency counts and percentages were used to describe respondents' profile and the problems encountered by the Science teachers, weighted mean to describe the frequency of use of activity driven approach, and correlational analysis to describe the respondents' frequency of use of activity driven approach in teaching science across their profile variables. Study revealed that most of the Science teachers are at middle adulthood and predominantly female; majority have earned Bachelor's Degree with Masteral units; occupying the Teacher position; claimed to have more number of trainings in the district and division level; and most of them are new in teaching science. The Science teachers perceived that they always used the activity driven approach in the pre-instruction phase and instruction phase while they often used in post-instruction phase. The Science teachers acknowledge that the limited audio-visual knowledge is a barrier in using activity driven approach in teaching science.It is recommended that Education Specialist should adopt measures to increase the participation of the science teachers into trainings in different level in order to further develop their skills which is necessary in the science teaching and focus on the use of audio-visual technology to elevate Science teachers' traditional and local practice and learn globally competitive teaching strategies.*

Keywords – *activity driven approach, instruction, post instruction, pre-instruction*

INTRODUCTION

The school is the second home of the learners. This assertion is true where the learners have more days to stay in school rather than at home. A school, a real place with four corners and a roof where young people can learn many things about life under the guidance of parental figure, the teacher. This is the place where all worries and wonders of the parents replace with trust and confidence. This is a secured environment for their young ones to grow up in. And this is where education occurs to the curious minds of these young.

Quality education in all levels is imperative in the world today. Centeno [1] suggested that quality higher education can never be achieved if the country's basic education is not successful. Quality basic education is the process, which promotes the development of the above characteristics. It shall ensure the balance development of Filipino child in terms of modern skills, particularly in literacy and numeracy, character formation and physical development, mastery of fundamental learning skills in preparation for the future.

During her administration President Gloria Macapagal Arroyo said that, competitive edge is not only on the low cost of labor but it is in the quality of people's education. Philippine government place the highest value on education, which realize as one of the country's strongest resources. She said further that the country's educational system is not yet a world class. Considering the importance of Science as one of the tool subjects and as an ideal vehicle for progress of the country, educational system is constantly improved and expanded by new and innovative ideas and development worldwide.

Clemente [2] was right when he said that we have already entered into the 21st century of Industrial Darwinism where only the fittest survive. He added that we must produce students who can dish out with the best and the brightest in the world that they can find a niche in a global market. The world is technology

driven and that science and technology proceed in exponential rate that products, manufacturing processes, organizations, jobs and the way we live are changing very rapidly. In fact, many products and jobs for the 21st century are not yet even defined.

Sison [3] pointed out that the world has already started undergoing scientific and technical revolutions, elementary pupils must reach a higher level of excellence. Their inability to attain this will place them in a difficult and irrelevant situation in this rapidly changing society. They need to double the efforts to enable the learners to be ready to face their future. To attain global competitiveness, one must emphasize and encourage innovation by promoting culture of creativity, productivity and excellence.

In the Philippines, the main objectives of science instruction today is to be more responsive to the needs of the society and to contribute to the attainment of the national development goals, making the curricula relevant to the present time. With this program, great challenge is posed to schools that are tasked to carry out a constructive change, makes it imperative to give significant attention to science.

The elementary science curriculum is developed in terms of meanings and understanding of the different aspects in science that are of interest and are meaningful to the pupils. It is designed to develop intelligence with reference to the place of science in everyday life. Although the elementary science curriculum adheres to a desired pattern and sound educational principles in its organization, it is characterized by a great deal of flexibility which means adjustment of the curriculum to the needs and interest of the pupils and the utilization of available community resources to the fullest extent by Gregorio [4].

The rapid advancement of science and technology poses a significant challenge to the entire humanity to keep up with the fast societal development rhythmically, most especially in the third world and developing countries like the Philippines. Being in rhythmic motion does not merely imply acquiring advance facilities and technologies but rather, the acquisition and enhancement of knowledge and skills essential in meeting the demands of the highly competitive and scientifically-inclined society must be given with more attention. The secret to which lies primarily on the quality of science education is one of the fundamental concerns. Among all the subjects being taught in elementary and high school, science is the most logical anchor for environmental education. And in this larger area, Philippine education has suffered. This is the reason why environmental education is deficient – anchored to which science is weak.

There is one of the articles regarding Philippine Science Education. This information struck one's unwavering cognizance. This article was written by Marvin Earl Rabino. Experts from the University of Philippines argued that students from Philippines performed poorly in Mathematics and Science compared to students from other nations in the world. The Philippines ranks a poor seventh among nine Southeast Asian nations in the area of education and innovation, Guillermo M. Luz, co-chairman of the National Competitiveness Council (NCC), said. At a forum on Innovation and Entrepreneurship for a Globally Competitive Philippines on Tuesday, Luz presented the disturbing results of the 2010-2011 Global Competitiveness Report of the World Economic Forum, which showed that the Philippines only fared better than Cambodia, among the eight Southeast Asian countries that were surveyed in the fields of education, science and technology and innovation. In all categories, the Philippines was falling behind Singapore, Brunei, Malaysia, Indonesia, Thailand and Vietnam.

Another related issue is the news reported by the Manila Times last May 28, 2014. According to Jalmasco, a member of the Agham National Secretariat. The last time Philippines participated in the international surveys like the 2003 Trends in International Mathematics and Science Study (TIMSS), the Philippines ranked 34th out of 38 countries in Math and 43rd out of 46 countries in Science in High School. For grade 4, the Philippines ranked 23rd out of 25 participating countries in both math and science. In 2008, even with only the science high schools participating in the Advanced Mathematics category, the Philippines ranked lowest among 10 countries.

Though some of the data being presented in this article were dated a few years back, still, the findings show us that Philippines was really behind in terms of science education, though they could confidently say that Science education is greatly improving nowadays, the fact that it still remain poor and behind in this field is a slap in our face! With a blistering desire to find out the causes of the poor performance in the field of

science, there are some reasons as to continue visiting numerous sites. The main factors that account for the low performance in science of the Filipino students include the lack of support for a scientific culture reflected in the deficiencies regarding the school curriculum, the poor teaching learning strategies, insufficient instructional materials and lack of teachers' training. For instance, the lack of good and engaging textbooks and lack of science equipment have hindered the conduct of scientific investigations and hands-on activities among Filipino pupils.

Considering the above mentioned discussions, the researcher motivated to conduct a study. Though many approaches and strategies being used in science, only few are being utilized in the actual scenario of teaching science in the classroom. The researcher who is also a science teacher himself experiences such dismal performance of his pupils in this discipline even in the conduct of the quarterly examination. Based on the observation, elementary pupils find out that science is really hard for them to study. The researcher was deeply sad by these findings, but with the deepest love and concern for the country he is trying to find a way to contribute to the solution of the country's challenge in the area of science education. One of its way is to conduct a research study associated with this. The aim of this study is to determine the teachers' frequency of use of activity driven approach in teaching science.

THEORETICAL FRAMEWORK

The researcher presents herein important theories and findings of notable researchers in the field of Science to support the current study. This study is anchored on the theory of Horne that learning is an experience which occurs inside the learner and is activated by the learner. It is necessary that the pupils get motivated to learn. Motivation can be provided not only in the school but primarily in the home. Teachers and parents should work hand-in-hand to provide this motivation to improve their performance in science.

The science curriculum for elementary pupils is developed in terms of meanings and understanding which includes the aspects that are of interest and are meaningful to the learners. It is designed to develop intelligence with reference to the place of science in the learners' everyday life. Gregorio [4] was right that it is characterized by a great deal of flexibility which means adjustment of the curriculum to the needs and interests of the learners and the utilization of available resources in the community to the fullest extent.

Science teachers are then expected to perform their tasks to a high level of efficiency and sincerity in the exercise of their profession. They should develop among pupils' skills and scientific attitude that will influence their manner of thinking and ways of doing things.

The other theory is about the constructivism which refers to the idea that learners construct knowledge for themselves. Each learner individually constructs meaning. Constructing meaning is learning. The consequences of this view are the twofold: we have to focus on the learner in thinking about learning; and there is no knowledge independent of the meaning attributed to experience by the learners. Constructivist theory requires full attention and must turn back on any idea of an encompassing machine which describes nature and instead look towards all those wonderful, individual living beings like the learners. Accepting the constructivist position in teaching-learning are inevitably required to follow a pedagogy which argues that one must provide learners with the opportunity to interact and perform the process of learning.

Relating to the improvement of science program in the elementary level presents a challenge to instructional leadership. In this milieu of scientific age, advances in science are continually changing the way people live. The world of the child creates him curiosities and interests which demand satisfaction. The teaching of elementary science should therefore offer a broad range of content to satisfy the many interests of the child.

As a part of the science teachers' task is to create situations which will cause pupils to constantly raise questions, test the validity of their ideas, until it becomes a habit and to make an intelligent adult, critically and essentially a doer, receptive to new ideas and are well-equipped to apply these ideas in reality.

CONCEPTUAL FRAMEWORK

The concept of this study was shown in Figure 1 on the next page formulated utilizing the perspectives discussed on the review of related literature and study. It illustrates how the independent variables influence

the frequency of use of activity-driven approach in teaching Science.

As shown in the figure, independent variables include the respondents' profile like age, sex, highest educational attainment, teaching position, number of trainings attended and number of years in teaching for the teachers' profile.

Dependent variables include the perceived level of the Science teachers on the frequency of use of activity driven approach in teaching science in the phases of pre-instruction, instruction and post-instruction.

From the above indicators of the teachers' frequency of use of activity driven approach in teaching science, some problems affecting the utilization were identifie

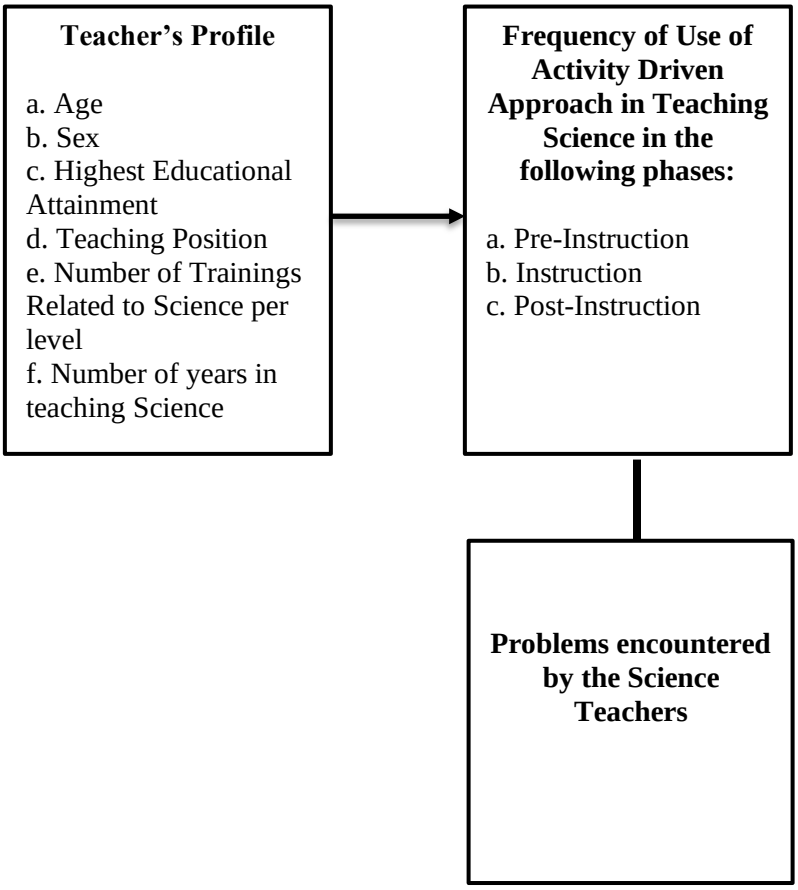

Figure 1. Conceptual Framework

OBJECTIVES OF THE STUDY

This study aimed to determine the frequency of use of activity driven approach in teaching Science among elementary schools in Malasiqui District I. Specifically, it sought answers to the following questions: (1) What is the profile of the public elementary school Science teachers with respect to the age, sex, highest educational attainment, teaching position, number of trainings related to science per level, and number of years in teaching Science?; (2) What is the frequency of use of activity driven approach in teaching science as self-perceived by the Science teachers in terms of pre-instruction phase, instruction phase and post instruction phase?; (3) Is there a significant relationship between the frequency of use of activity driven approach in

teaching science and teachers' profile?; (4) What are the problems encountered by the Science teachers in teaching science?

MATERIALS AND METHODS

Research Design

This study used the descriptive-correlational survey method of research with the questionnaire-checklist as the main data-gathering instrument. The paramount aim of employing this method is to describe the nature of a situation as it exist at the time of the study and to explore the causes of the phenomenon. The descriptive survey method of research employed to describe the profile of the public elementary school teachers in Malasiqui District I such as age, sex, highest educational attainment, teaching position, number of trainings related to Science per level, and number of years in teaching Science and to describe the frequency of use of activity driven approach as perceived by the teachers. This study also included the correlational analysis of the respondents' frequency of use of activity driven approach in teaching science and the profile variables.

Samples of the Study

The respondents of this study were the elementary teachers from Grades 3 to 6 who teaches Science in Malasiqui District I, Division of Pangasinan I. The population sample were selected using stratified random sampling technique with proportionate allocation and the school served as stratum. The total population sample was one hundred eleven (111) Science teachers obtained using the Slovin's formula.

Data Gathering Instrument and Procedures

The main instrument used in gathering the data of this study was the questionnaire checklist. The researcher-formulated questionnaire as data gathering instrument is composed of three parts. The questionnaire was prepared following the order of the problems in the study. Part I of the questionnaire included the profile of the respondents; Part II focused on the public elementary school teachers' frequency of use of activity driven approach in teaching science in the pre-instruction phase, instruction phase and post instruction phase; Part III consisted the problems encountered by the teachers in the use of activity driven approach in teaching science. The questionnaire on the frequency of use of activity driven approach in teaching Science and the problems encountered by the respondents in the use activity driven approach was evaluated by the master teachers, head teachers and district science coordinator. Some of the concepts were taken from the related literature. A structured questionnaire prepared by the researcher was undergone validation before it is administered to the respondents. The indicators used comprised of pre-instruction, instruction and post instruction.

The researcher seek the approval and permission of the Schools Division Superintendent of Pangasinan I Division, Public Schools District Supervisor, School Heads of Malasiqui District I, and the Science teachers to whom the questionnaires were floated and administered. After that the permission secured then the researcher personally administered the instrument to each respondent to ensure the one hundred percent (100%) return of the questionnaire. After that the questionnaires floated and retrieved, then the results of the questionnaires was tallied, tabulated, and interpreted by the researcher.

Statistical Analysis of Data

The data obtained from the responses of the respondents tabulated, categorized, analysed and interpreted to provide significant answers to the specific problem of the study. The profile of the teacher in terms of age, sex, highest educational attainment, teaching position, number of trainings related to science per level, and number of years in teaching Science were described using frequency counts and its corresponding percentages. Frequency of use of activity driven approach in teaching science in the different phases was established from the weighted mean of their responses. The relationship between the extents of use of activity driven approach in teaching science and the teachers' profile determined by testing the hypothesis at 0.05 level of significance using the Person Correlation, Spearman's Rho Correlation and Point Biserial. The problems encountered by the teachers in their extent of

use of activity driven approach in teaching science determined by computing the frequency counts and its corresponding percentages and rank.

RESULTS AND DISCUSSION

Profile of the Respondents

Table 1 presents the profile of the respondents in terms of age, sex, highest educational attainment, teaching position, number of trainings related to Science, and number of years in teaching science

Age. The age range of the respondents is from below 30 years old to 51 years old and above. Almost half of the respondents aged 41 to 50 years old with 46 or 41.4%; and only 6 or 5.4% of the respondents were aged 51 years old and above. This implies that there are more science teachers under middle age than young and older ones in the field of teaching science.

Sex. On the sex profile of the respondents, females are by far in the majority with 100 or 90.1% while for the male respondents there are only 11 or 9.9%. This indicates that women mostly likes teaching profession while men mostly likes other profession than teaching.

Table 1
Profile of the Public Elementary School Science Teachers
n = 111

Profile	Category	Frequency	Percentage
Age	Below 30 years old	16	14.4
	31-40 years old	43	38.7
	41-50 years old	46	41.4
	51 years old and above	6	5.4
Sex	Male	11	9.9
	Female	100	90.1
Highest Educational Attainment	Doctorate	3	2.7
	Masteral Degree with Doctoral Units	6	5.4
	Masterate	27	24.3
	Bachelor's Degree with Masteral Units	73	65.8
	Baccalaureate	2	1.8
Teaching Position	Master Teacher	9	8.1
	Teacher	102	91.9
Number of Trainings Related to Science per Level			
International Level	1-2	1	.9
	3-5	0	0
	None	110	99.1
National Level	1-2	16	14.4
	3-5	0	0
	None	95	85.6
Regional Level	1-2	12	10.8
	3-5	5	4.5

	None	94	84.7
Division Level	1-2	36	32.4
	3-5	15	13.5
	None	60	54.1
District Level	1-2	52	46.8
	3-5	23	20.7
	None	36	32.4
Number of Years in Teaching Science	1-5 years	38	34.2
	6-10 years	24	21.6
	11-15 years	27	24.3
	16 years or more	22	19.8

Highest Educational Attainment. As to the highest educational attainment of the respondents, majority of the elementary school science teachers are Bachelor's Degree with Masteral Units with 73 or 65.8%; and only 2 or 1.8% of the respondents are Baccalaureate degree holder.This signifies that majority of the respondents gained an advanced studies to obtain enough degree of competence and also to gain the required skills in the teaching profession and in the field of teaching science. Least numbered of teachers possess the minimum educational qualification requirement of Baccalaureate degree.

Teaching Position. The data on the current position of the elementary school teachers revealed that most of the respondents occupied the position of Teacher with 102 or 91.9% while the rest which is only 9 or 8.1% are Master Teachers. There are more science teachers who occupied the position of Teacher than Master Teacher.

Number of Trainings related to Science. Based from the information in table 1, it shows the relevant trainings in Teaching Science of the respondents. In the International Level: only 1 or 0.9% has attended 1-2 number of international trainings; 16 or 14.4% has attended 1 to 2 number of national trainings; in the Regional Level, there are 5 or 4.5% have attended 3-5 trainings; in the Division Level, for 3 to 5 category, there are 15 or 13.5% have attended the trainings; in the District Level, there are 23 or 20.7% have attended 3-5 trainings. The data signify that most of the respondents have rare trainings related to Science. Main factors why this happens is because of financial reason based from observation.

Number of Years in Teaching Science. As the data revealed in the table, respondents are relatively new in the teaching service for there are 38 or 34.2% are in the 1 to 5 years bracket; and a handful has served for 16 years or more for there are 22 or 19.8%. This implies that the science teachers are fairly new in the teaching profession and others have stayed long in the service.

Frequency of Use of Activity Driven Approach In Teaching Science

The following discussion are derived from the data gathered as to the frequency of use of activity driven approach in teaching science in the phases of pre-instruction, instruction and post-instruction. The data were enumerated in the table 2 to table 6 together with its statistical mean and descriptive equivalence.

Pre-Instruction Phase

Table 2 shows the extent of use of activity driven approach in teaching Science as self-perceived by the Science teachers in pre-instruction phase. The data from the table reveals that out of eight activities presented to the respondents, six or most of these rated "always used". Most numbered activity was, let learners participate in the preparatory activities such as drill, review and motivation with a weighted mean of 4.71 with a descriptive equivalent of always use. Two activities were rated "often used" and the least numbered activity was, motivate the learners through singing, dancing, audio-video presentation, etc.. The pre-instructional activities provided the average weighted mean of 4.33 tantamount to always used.

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Table 2
Frequency of Use of Activity Driven Approach in Teaching Science as Self-Perceived by the Science Teachers in the Pre-Instruction Phase
n=111

	Indicators	AU	OU	SOU	SEU	VSU	WM	DE
1	Let learners participate in the preparatory activities such as drill, review and motivation	**88**	17	4	1	1	4.71	AU
2	Encourage learners to answer open-ended questions and perform games as a review of the previous lesson.	**82**	23	3	2	1	4.65	AU
3	Involve the learners to create a stimulating classroom environment by keeping relevant visuals such as word wall, dioramas, and models.	**68**	35	7	0	1	4.52	AU
4	Allow learners to work on visual clues drill such as drawings, diagrams and pictures to improve pupils' understanding about prior knowledge.	**64**	37	8	1	1	4.46	AU
5	Have the learners get prepared by reflecting on the topic presented on film showing and computer simulations.	20	**57**	26	7	1	3.79	OU
6	Encourage learners to play word games i.e pictionary, bingo, and scrabble to familiarize scientific words before instruction.	20	**57**	24	7	3	3.76	OU
7	Engage the learners in making all necessary instructional and alternative materials for the specific lessons/activities such as flash cards and science text cards.	**55**	47	6	2	1	4.38	AU
8	Motivate the learners through singing, dancing, audio-video presentation, etc.	**56**	42	11	1	1	4.36	AU
						Average Weighted Mean	**4.33 (Always Used)**	

Note: Highest frequencies are in boldface; DE=Descriptive Equivalent, WM = Weighted Mean
*Legend: **1.00-1.80** - (VSU) Very Seldom Used; **1.81-2.60** - (SEU) Seldom Used; **2.61-3.40** -(SOU) Sometime Used; **3.41-4.20** - (OU) Often Used; **4.21-5.00** - (AU) Always Used*

The result shows a positive meaning for six out of eight or most of the activities under pre-instruction rated always used. The average weighted mean of pre-instruction implies that the respondents utilized pre-instructional activities to prepare the learners before doing instructional activities in the teaching and learning process. According to Cristobal [5], said that activities before instruction elevates students' participative action during the execution of science activities. He also stressed that pre-activities influence to the development of oneself and in the promotion of better classroom performance.

Instruction Phase

The information listed in the table 3 are important because it relates to how Science teachers utilized instructional activities in the teaching and learning process. The table shows that science teachers have a positive response in their frequency of use of activity driven approach with an average weighted mean of 4.25 tantamount to always used as a result in the instruction phase. Majority of the respondents preferred, have learner's story telling about their personal experiences as examples to help learners understand concepts, the social and emotional needs with a weighted mean of 4.39. The activity that was least numbered by the respondents was, use instructional video clips and require learners to reflect in creating more interactive lesson with a weighted mean of 4.08 equivalent to often used.

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Table 3
Frequency of Use of Activity Driven Approach in Instruction Phase
n=111

	Indicators	AU	OU	SOU	SEU	VSU	WM	DE
1	Have learner's story telling about their personal experiences as examples to help learners understand concepts, the social and emotional needs.	**60**	37	12	1	1	4.39	AU
2	Have pupils' answers a guided discovery problems to develop critical thinking skills of the learners.	**55**	43	9	3	1	4.33	AU
3	Provide activities for learners' practical and active involvement such as science discovery in their school surroundings.	**50**	46	13	1	1	4.29	AU
4	Provide varied activities for group work/cooperative learning such as working on interactive science exhibition.	47	**51**	10	2	1	4.27	AU
5	Allow learners to use graphic organizers in the presentation of the lesson to capture their interest.	**50**	45	12	3	1	4.26	AU
6	Increase learners' participation by providing meaningful connections between and among learning opportunities and experiences.	41	**57**	11	1	1	4.23	AU
7	Involve learners in conducting scientific investigations to generate, construct and test knowledge.	38	**55**	15	2	1	4.14	OU
8	Use instructional video clips and require learners to reflect in creating more interactive lesson.	38	**49**	19	5	0	4.08	OU
					Average Weighted Mean			**4.25 (Always Used)**

Note: Highest frequencies are in boldface; DE=Descriptive Equivalent, WM = Weighted Mean
*Legend: **1.00-1.80** - (VSU) Very Seldom Used; **1.81-2.60** - (SEU) Seldom Used; **2.61-3.40** - (SOU) Sometimes Used; **3.41-4.20** - (OU) Often Used; **4.21-5.00** - (AU) Always Used*

This implies that teachers constantly applied and observed instructional activities in their science teaching. Respondents always do the instructional activity that help learners understand concepts, the social and emotional needs by having the learner's story telling about their personal experiences as an example to attain the required skills that should be developed in the teaching and learning scenario. Result also show that respondents do not realize such importance on the use of instructional video clips and reflections in creating more interactive lesson and this contributes to not even reach the full utilization of the approach. The result of the study of Rosinah as stated by Dequina [6] in her study supports the current findings that students are not engage in activities and the implementation of classroom approaches so it does not reached the satisfactory level. Instructional activities and lesson control need to be delivered clearly to ensure the experiment or practical training of the students will be carried out smoothly.

Post Instruction Phase

Table 4 shows the frequency of use of activity driven approach in teaching Science as self-perceived by the Science teachers in post instruction phase. The data from the table reveals that majority of the Science teachers always do selecting and transforming learned knowledge through poster making with a highest mean of 4.5 equivalent to always used. And common to them often used assessing and extending knowledge through science investigatory projects with a lowest mean of 3.47 equivalent to often used. More than half or five out of eight activities obtained a descriptive equivalent of "often used". This infer that respondents often used post instructional activities in their science teaching with an average weighted mean of 4.05.

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Table 4
Frequency of Use of Activity Driven Approach in Post Instruction Phase
n=111

	Indicators	AU	OU	SOU	SEU	VSU	WM	DE
1	Select and transform learned knowledge through poster making.	**75**	23	8	4	1	4.5	AU
2	Give learners an opportunity to perform the acquired knowledge through embodied learning such as action songs or interpretative dance.	**65**	31	9	5	1	4.39	AU
3	Expect learners to construct essays using their recent and present learned knowledge.	**50**	42	12	6	1	4.21	AU
4	Facilitate group work/cooperative learning such as project making.	43	**47**	18	2	1	4.16	OU
5	Encourage the learners for peer and self-assessments through reflection, writing journals, etc.	31	**51**	26	3	0	3.99	OU
6	Enhance the learners' adopted knowledge through scientific experiments.	22	**55**	29	4	0	3.86	OU
7	Evaluate thinking and learning skills of the learners through demonstration such as planting, producing mixtures and solutions, building circuits, etc.	32	**41**	30	4	4	3.84	OU
8	Assess and extend knowledge through science investigatory projects.	16	**42**	36	12	5	3.47	OU
				Average Weighted Mean			**4.05 (Often Used)**	

Note: Highest frequencies are in boldface; DE=Descriptive Equivalent, WM = Weighted Mean
*Legend: **1.00-1.80** - (VSU) Very Seldom Used; **1.81-2.60** - (SEU) Seldom Used; **2.61-3.40** - (SOU) Sometimes Used; **3.41-4.20** - (OU) Often Used; **4.21-5.00** - (AU) Always Used*

Science teachers continuously used poster making as a tool in transforming learned knowledge in to new ideas as part of post instructional phase. On the other hand, most of the post instructional activities often used by the respondents especially assessing and extending knowledge through science investigatory projects. The AWM=4.05 (often used) was the post instruction phase result. As stated in the DepEd Order No. 8, series 2015 [7] which includes assessment activities that develop process knowledge, by these respondents do not realize these assessment activities are important factors to ensure learner's success in moving from guided to independent display of knowledge, understanding, and skills, and to enable them to transfer this successfully in future situations.

Summary on the Frequency of Use Activity Driven Approach in the Three Phases

Table 5 evidently shows that the Science teachers possess always used in the frequency of use of activity driven approach with an overall weighted mean of 4.21. Science teachers always used activity driven approach in pre-instruction phase (4.33) and in instruction phase (4.25). However, respondents often used activity driven approach in the post instruction phase activities (4.05).

This implies that science teachers as a facilitator of learning in the four corners of their classrooms always used the activities in the pre-instruction and instruction phase and often used the post instruction phase activities. Respondents tend to constantly utilized activities in the pre-instruction and instruction phase for they know that these are important and effective ways to inspire learners to acquire knowledge and engaged them in scientific tasks. In support to these findings, study of Guillermo [8] suggested that the quality of science education in schools is greatly influenced by the quality of science teachers. In the study of Soriano [9], also determined that students' interest in science is directly linked to the quality of teaching as well as learning interactions provided by their science teachers.

However, often used result in the post instruction phase denotes that science teachers do not realize the post instruction activities are important to ensure learner's success as stated in DepEd Order No. 8, series 2015 [7]. From the AWM (4.33, 4.25, 4.05) results, it can be gleaned that it does not reached the highest AWM of 5.00 or the maximum utilization of activity driven approach for there might be problems and difficulties that hinder the science teachers in their utilization.

Table 5
Summary on the Frequency of Use of Activity Driven Approach in the Three Phases
n=111

	Activity Driven Approach in Teaching Science	AWM	DE
a.	Pre-Instruction Phase	4.33	AU
b.	Instruction Phase	4.25	AU
c.	Post Instruction Phase	4.05	OU
	Overall Weighted Mean		**4.21 (Always Used)**

Note: DE=Descriptive Equivalent, AWM = Weighted Mean
*Legend: **1.00-1.80** - (VSU) Very Seldom Used; **1.81-2.60** - (RU) Seldom Used; **2.61-3.40** - (SEU) Sometimes Used; **3.41-4.20** - (SOU) Often Used; **4.21-5.00** - (AU) Always Used*

Relationship between the Frequency of Use of Activity Driven Approach in Teaching Science and Teachers' Profile

Table 6 presents the r value and significant value on the correlation test. The test was performed at 0.05 level of significance and the hypothesis was tested in its null form.

Age. Table 6 revealed the data in pre-instruction, r value of .01 and .888 significance value; in instruction, r value of .06 and .515 significance value; and in post instruction, r value of -.03 and .753 significance value. The result shows that there is no significant relationship between the frequency of use of activity driven approach in any phases and age. Since all the computed significance values in the three phases are higher than 0.05 level of significance.

Sex. The data revealed in the table where the r value of -.06 and .527 significance value in pre-instruction; r value of -.04 and .675 significance value in instruction; and r value of -.00 and .988 significance value in the post instruction denotes that there is no significant relationship existed between frequency of use of activity driven approach in the three phases and sex since all the computed significance values in the three phases are higher than 0.05 level of significance.

Highest Educational Attainment. From the data in table 3 it shows the pre-instruction r value of -.18 and a significance value of .066; in instruction, r value of -.16 and a significance value of .089; and in post instruction, r value of -.14 and a significance value of .154. The significance values in the three phases were all higher than the set level of significance (.05). This implies that there is no significant relationship between frequency of use of activity driven approach and highest educational attainment. In simpler terms, highest educational attainment is not related in any way to the teachers used of activity driven approach.

Table 6
Relationship between the Frequency of Use of Activity Driven Approach in Teaching Science and Teachers' Profile

Profile	Activity Driven Approach in Teaching Science					
	Pre- Instruction		Instruction		Post Instruction	
	r	Sig.	r	Sig.	r	Sig.
Age[a]	.01	.888	.06	.515	-.03	.753
Sex[c]	-.06	.527	-.04	.675	-.00	.988

Highest Educational Attainment[b]	-.18	.066	-.16	.089	-.14	.154
Teaching Position[b]	-.01	.923	.09	.340	.06	.561
Number of Trainings Related to Science per level[b]						
International Level[b]	.02	.815	.05	.597	.09	.358
National Level[b]	.09	.341	.13	.176	.21*	.031
Regional Level[b]	-.03	.725	.05	.574	.11	.248
Division Level[b]	-.01	.936	-.00	.976	.06	.507
District Level[b]	-.38**	.001	-.35**	.001	-.30**	.002
Number of Years in Teaching Science[b]	-.09	.347	-.01	.893	-.07	.459

*Note: [ns] Not Significant. * Significant at 5% level. ** Significant at 1% level*
[a]Person Correlation. [b]Spearman's Rho. [C]Point Biserial.

Teaching Position. Table 6 shows the r value of -.01 and significance value of .923 in pre-instruction; r value 0f .09 and significance value of .340 in instruction, and r value of .06 and significance value of .561 in post instruction. Since the significance values in the three phases are higher than 0.05, it only shows that there is no significant relationship between the frequency of use of activity driven approach and teaching position. In simple terms, the teaching position has no bearing on the utilization of activity driven approach.

Number of Trainings Related to Science per Level. Table 6 revealed the significant relationship between the frequency of use of activity driven approach across number of trainings related to science per level. It shows that there is no significant relationship between the utilization of the approach in the three phases across the number of trainings in the international, regional, and division level. In the national level, in the post instruction phase, the result shows that the r value of .21* is significant at 5% level and the significance value of .031 is lesser than .05 which means there is a significant relation between utilization of activity driven approach in the post instruction phase. In the district level, the data from table 6 revealed that there is significant relationship between utilization of activity driven approach across number of trainings in the district level in the three phases. The r. values (-.38, -.35, and -.30) of the trainings in the district level in the three phases is significant at 1% level of significance. This denotes that the variables are inversely related to the utilization of the approach. The significant values .001 (pre-instruction), .001 (instruction) and .002 (post instruction) is lesser than the set level of significance. Therefore, there is a significant relationship. In simple terms, number of trainings in the district level greatly affect science teachers in the used of activity driven approach in teaching science.

Number of Years in Teaching Science. Table 6 presents the r value of -.09 and significance value of .347 in pre-instruction; r value of -.01 and significance value of .893 in instruction; and r value of -.07 and significance value of .459 in post instruction. There is no significant relationship existed between frequency of use of activity driven approach in the three phases and number of years in teaching science since all the computed significance values are higher than 0.05. This means to say, the capability of utilizing the approach of the science teachers is not dependent on the length of experience in teaching science.

Overall it can be seen from the table that most of the profile variables such as age, sex, highest educational attainment, teaching position, and number of years in teaching Science has no significant relationship in the frequency of use of activity driven approach in teaching Science in pre-instruction, instruction, and post-instruction phase. Furthermore, in the number of trainings related to Science in all levels in the three phases have no significant relationship in the frequency of use of the approach except for the national level in the post-instruction and in the district level in the three phases which has significant relationship. Teachers who have numerous trainings in national and district level can easily use the activity driven approach since their expertise and skills enriched by the knowledge they acquire in attending trainings related to science. In support to this is the study conducted by Centeno [1] cited that science teachers who attended trainings have

been updated with the current trends of education and acquired new expertise that gives personal benefit and advantage to the learners because the latter can have edge to freely transfer the seeds of wisdom which may give positive result to the performance of the learners.

Problems Encountered by the Teachers in Teaching Science

The data in table 7 revealed the problems encountered by the Science teachers from the highest to lowest rank. From the result of frequency of use of activity driven approach in teaching science in the three phases, shows that it does not attained the maximum of 5.00 mean of utilizing the approach. Some problems and difficulties affects the result and the science teachers in their frequency of use of the approach.

Table 7
Problems Encountered by the Teachers in Teaching Science
n= 111

Problems Encountered	Frequency	Percentage	Rank
1. Limited audio-visual knowledge by the science teachers which is required in using activity driven approach in teaching science.	68	61.3	1
2. Difficulty in using the activity driven approach due to limited trainings attended of the Science teachers.	56	50.5	2
3. Laboratory materials in using activity driven approach are expensive.	50	45.0	3
4. Limited learner's manual and/or activity sheets to be used in the different activities.	37	33.3	4
5. Difficulty in completing the science activities by the learners because of limited time.	36	32.4	5
6. Activities that require scientific skills are not clearly stated in the manual and curriculum guide.	33	29.7	6
7. Suggested assessment tools are complicated to follow by the science teachers and to be answered by the learners.	22	19.8	7
8. Limited rubrics for other activities in the learner's manual and curriculum guide.	21	18.9	8

**These are multiple response of the respondents.*

Among the problems encountered by the respondents, majority of them encountered the limited audio-visual knowledge which is required in using activity driven approach in teaching science with a frequency of 68 or 61.3 %. This was in highest rank problem that contributes to the under full utilization of activity driven approach by the Science teachers in pre-instruction, instruction, and post instruction phases. The respondents least encountered the rank 8 problem which is limited rubrics for other activities in the learner's manual and curriculum guide with a frequency of 21 or 18.9%. In simple terms, there are ready made rubrics included in the manuals and curriculum guide that are used by the teachers in their science teaching.

The result implies that common problem to science teachers was limited audio-visual knowledge which is required in using activity driven approach in teaching science. The approach was definitely appropriate in teaching science, however, lapses occur not to attain the full utilization due to this highest problem encountered by the respondents in the pre-instruction and instruction phase and in the often used result in the post instruction. Respondents slightly encountered the problem limited rubrics for other activities in the learner's manual and curriculum guide. These was the lowest in rank problem that has a little effect with the result in the utilization of activity driven approach in different phase. The study conducted by Brawner (2001) as stated by Centeno [1],

supports the present study wherein constraints facing science education in Philippine schools were shortage of qualified science teachers, lack of quality textbooks, inadequate equipment, large classes, lack of support from administrators, and many others. Researcher under this project decided that the framework for science teacher education should pay attention to problems that will address ways to improve the quality of teaching practices.

CONCLUSIONS

Based on the findings stated above, the following conclusions are drawn: (1) Most of the Science teachers are middle adult, female dominated, Bachelor's Degree holder with Masteral Units, occupy Teacher position, mostly have district and division trainings, and a science teacher for not more than five years; (2) the Science teachers are frequent users of activity driven approach in various phases of instruction in Science subject; (3) attendance to relevant trainings is related to the frequency of use of activity driven approach in teaching Science; (4) Most Science teachers consider the limited audio-visual knowledge as a barrier in using activity driven approach in teaching science.

RECOMMENDATIONS

Based on the findings and conclusions crafted, the following recommendations are hereby enumerated.

1. The educational protagonist should continue make necessary reinforcement to uplift teachers' baccalaureate in advance studies in order to gain the required skills and to attain the higher competencies of teaching science.
2. Education specialist should adopt measures to increase the participation of the science teachers into trainings in different level in order to further develop their skills which is necessary in the science teaching and focus on the use of audio-visual technology.
3. Government should provide assistance to public elementary schools such as to purchase laboratory equipment to be used by the learners in the attainment of science lesson objectives.
4. The teachers should do more innovative and creative efforts such as action plan and strategic intervention materials that contributes to their effectiveness in the performance of their Science teaching and to go with the fast changing real of education.
5. Future research should be conducted to investigate predicament of Science teachers in relation to activity driven approach to add other issues and concerns related to this study.

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