

The Effect of IBSE Integration to the K-12 Grade - 9 Curriculum at Passi National High School

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Abstract

This documentary educational research was conducted to perceived the effect of IBSE integration in the K-12 Grade 9- Curriculum at Passi National High School , School Year 2017-2018. The subjects of the study were 48 students of one section junior students'. They were taught following the K-12 instructional material utilizing Hands-on modified activities, Inquiry Based Teaching and Learning, The 5E's lesson Plan during the 4th Quarter (Physics) and adopting the GANAG SCHEMA in the presentation of the lessons. The Grade -9 Students' received a week pre-summative review adopted a Programmed Instruction Technique. Descriptive data were taken from their Form 137-A Permanent Records in the secondary level during their three consecutive years and were triangulated (Arce, 2016). The results suggest that different interventions improved students scholastic achievement during their Grade 9-Science Curriculum.

Keywords: IBSE Curriculum, 5E's Lesson Plan, GANAG SCHEMA

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Introduction

Research findings showed that Science students' are not learning enough in this subject. The result of the International Mathematics and Science Study (TIMSS) showed that out of ten countries represented by the Philippine Science High School students' in the recent crossed country evaluation, the Philippines was number ten (Jamasco, 2012; in Arce, 2016). TIMSS results reflected a poor state of Science education in the country. The factors that contributed to the very poor performance of the Filipino learners were looked into in preparation for curricular revisions aimed at elevating the degree of competency of science education in the Philippines. The question is: What are the possible factors that affect junior students' scholastic achievement in Science?

The Australian Academy of Technological Science and Engineering (ATSE), Australia have sponsors activities/equipment that embraces the recent K-12 STEM Curriculum of South East Asia. Thru Science and Technology Education Leveraging Relevance (STELR) Curriculum for Grade 9-12, students' has sees technologies as being highly relevant to their adult life. It incorporate teaching and learning practice, in particular an inquiry-based learning approach that engage and challenges students (Stoyles, 2015). This documentary basic research study employed several interventions adopted during the K-12 STELR/STEM Grade 9- Science Curriculum to enhance the Minds-on, Hands- on, Inquiry - based and Hearts-on learning to inspire students and to help them confirm the principles that they are learning. This research study perceived the spiraled K to 12 Science curriculum secondary levels as shown in Figure 1 below.

Objective of the Study

1. What is the levels of the male and female Grade 8 Science Quarterly Scholastic Achievements among Grade 9-Fluorine students'?
2. What is the levels of the male and female Grade 7 Science Quarterly Scholastic Achievements among Grade 9-Fluorine students'?
3. What indication pattern on levels of the male and female Grade 7, 8, and 9 scholastic Achievements when the descriptive assessment were triangulated?

Method

The Qualitative Triangulation Method of Research was employed: The Scholastic Achievement in Science 9 vs Science 8 vs Science 7 were compared. Chemistry, Physics, Earth Science, and Biology are taught following the K-12 spiraled Science curriculum. Scholastic Achievement were taken from Grade 9-Fluorine students' Form 137-A at the school registrar.

Participants

The participants in this study were the junior students' from Grade 9-Fluorine S.Y 2017-2018 under the K-12 Curriculum. The entire group promoted composed of 22 males and 26 females.

Data Gathering

The Descriptive Qualitative Method by Hoyo and Allen in Arce (2016). The triangulation scheme of data assessed via three different year levels on Science Quarterly Scholastic Achievements.

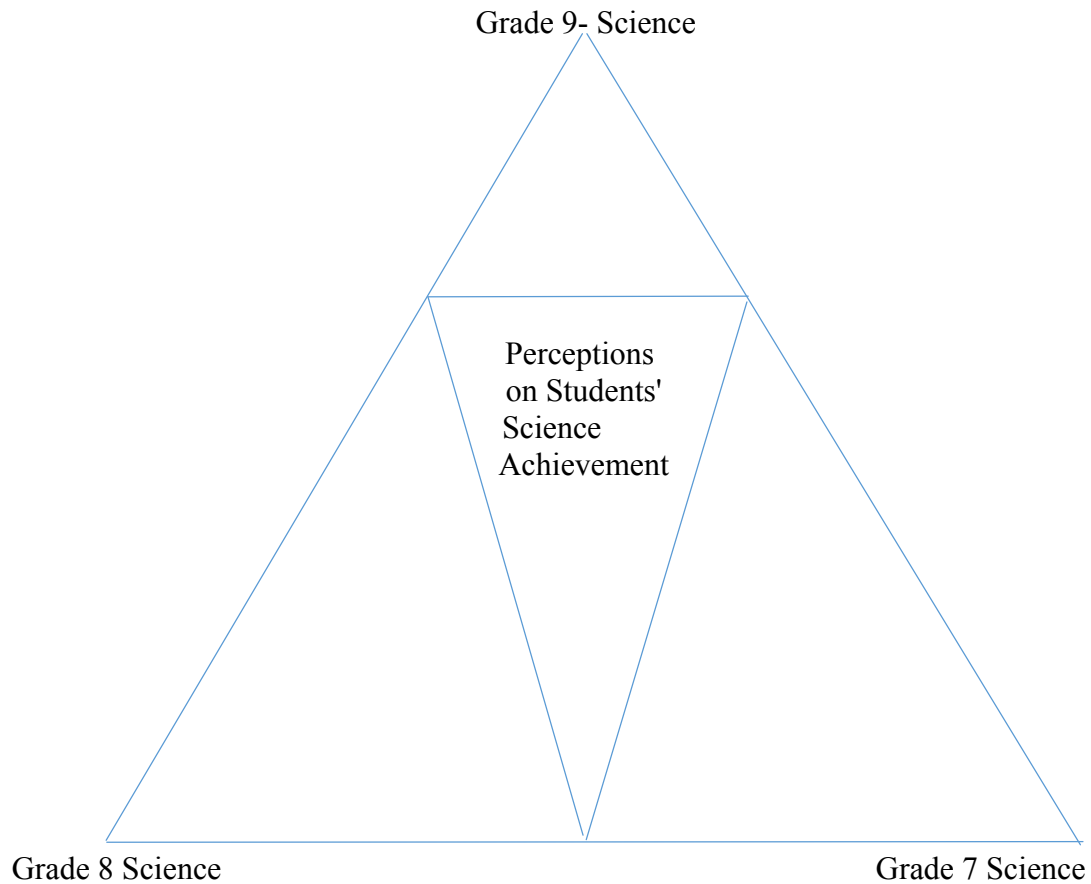


Figure1. The descriptive-qualitative triangulation method of their quarterly scholastic achievements in Science 7 versus Science 8 versus Science 9.

Schematic representation of the triangulation design was shown in Figure 1. Each vertex of the triangle produces results that were compared and weighs against the results of the other. The Method was used to determine the effect of interventions done ,namely, the used of (a) 5E's Lesson Plan and used of ORICA equipment as innovation on the students activities during the 4th Quarter Science 9, (b) the adoption of Hands-on, Inquiry learning with ORICA equipment, (c) The GANAG SCHEMA (SEAQIS, 2015) and the authored Programmed Instruction Techniques (Arce, 2015) adopted as Pre-Summative review during first to third Quarter s Grade 9 Science Curriculum. The 7th Grade Science SY 2015-2016 were taught by teachers in carousel on each quarters, thus, hopping for their expertise. The 8th Grade Science SY 2016-2017 were taught by Biology teachers and 9th Grade Science were taught by Chemistry teachers. All Science teachers were trained in the K-12 Science Curriculum Secondary levels.

Ethical Issues

Permission to gather data utilizing Students' Form 137-A of Grade 9 Fluorine School Year 2017-2018 obtained from the School Registrar. All data gathered in this study will be treated with utmost confidentiality and anonymity.

Surfacing Pattern of Data

On the levels of achievement assessed and triangulated were Grade 7, Grade 8, and Grade 9 Science Grades from each Quarters were assessed. Grades in the form of scholastic achievement were taken on Students' Form 137-A. The students Permanent Record (Form 137-A) were found at the school registrar. Indicator used five point scales interpreted below. The quarterly grades of students in the spiraled Science subjects from Grade 7,8, and 9 were used as descriptive data, tabulated , interpreted by bracketing (Mark and Shotland; in Arce, 2016). The following scale was observed in the DepEd K-12 Curriculum (Luistro, A. A., 2015).

Scale	Description
90-100	Outstanding
85-89	Very Satisfactory
80-84	Satisfactory
75-79	Fairly Satisfactory

In this study, perceived indicator on levels of Science quarterly grades in the three different curricular levels were determined and qualitatively triangulated to describe the interventions done every quarters in the Grade 9 Science curriculum.

The results of this method discern if different qualitative descriptive data-collection methods would expose the same or different meaningful issues regarding teachers perceptions on k-12 curricular program they handled.

Results

The indicators pattern of the spiraled K-12 Science Students' scholastic performance from three consecutive years were bracketed, tabulated, and interpreted on the following tables below.

Part I: Descriptive Data Analysis

The present study initially attempted to determine the students' scholastic performance in Science spiraled curriculum. Means employed for this purpose.

The 9th Grade Science Male Students' Quarterly Scholastic Achievements and their GPA

In terms of achievements towards 9th Grade Male Science Quarterly subjects, the following groups manifested " Very Satisfactory" achievements as reflected by Ms which fell within the 85-89 range: the Male Students achievements in Chemistry, Physics, Earth Science, and their GPA. Only one subject- Biology (M=83)- -reflected Satisfactory. Table 1 above shows the data.

No. of Students'	1st Quarter Biology	2 nd Quarter Chemistry	3 rd Quarter Earth Science	4 th Quarter Physics	Grade 9 Science GPA
N=22	M=83	M=85	M=86	M=85	M=85

Table 1: The 9th Grade Science Male Students' Quarterly Scholastic Achievements and their GPA

The 8th Grade Science Male Students' Quarterly Scholastic Achievements and their GPA

In terms of achievements towards 8th Grade Male Science Quarterly subjects were “Satisfactory” as reflected by Ms which fell within the 80-84 range: the Male students achievements in Biology, Chemistry, Physics, Earth Science, and their GPA. Table 2 shows the data.

No. Of Students'	1 st Quarter Chemistry	2 nd Quarter Physics	3rd Quarter Earth and Space	4th Quarter Biology	Grade 8 Science GPA
N=22	M=83	M=78	M=80	M=83	M=80

Table 2: The 8th Grade Science Male Students' Quarterly Scholastic Achievements and their GPA.

The 7th Grade Science Male Students' Science Scholastic Achievement and their GPA

The results showed that the 7th Grade Male students in Physics, Chemistry, Biology, and their GPA had satisfactory achievements as reflected by means ranging from 80-84. However, one subject- -Earth Science (M=79)- - reflected fairly satisfactory achievement. Table 3 shows the data.

No. of Students'	1st Quarter Physics	2nd Quarter Earth Science	3rd Quarter Chemistry	4th Quarter Biology	Grade 8 Science GPA
N=22	M=81	M=79	M=80	M=81	M=80

Table 3. The 7th Grade Science Male Students' Science Scholastic Achievement and their GPA

The 9th Grade Female Students' Science Scholastic Achievements and their GPA

The results showed that the 9th Grade Female students' achievement in Biology, Chemistry, Earth Science, Physics, and their GPA had Very Satisfactory achievements as reflected by means ranging from 85-89. Table 4 shows the data.

No. of Students'	1st Quarter Biology	2nd Quarter Chemistry	3rd Quarter Earth Science	4th Quarter Physics	Grade 9 Science GPA
N=26	M=85	M=86	M=89	M=89	M=88

Table 4: The 9th Grade Female Students' Science Scholastic Achievements and their GPA

The 8th Grade Female Students' Science Scholastic Achievements and their GPA

The results showed that the 8th Grade Female students' achievement in Biology, Chemistry, Earth Science, Physics, and their GPA had Very Satisfactory achievements as reflected by means ranging from 85-89. Table 5 shows the data.

No. of Students'	1st Quarter Physics	2nd Quarter Earth Science	3rd Quarter Chemistry	4th Quarter Biology	Grade 8 Science GPA
N=26	M=82	M=84	M=83	M=85	M=84

Table 5: The 8th Grade Female Science Scholastic Achievements and their GPA

The 7th Grade Female Science Students' Scholastic Achievement and their GPA

The results showed that the Grade 7 Female Science Students' in their Physics and Earth Science subjects had a fairly satisfactory achievements as reflected by Mean of 79. However, three students achievements - - Biology, Chemistry, and their GPA - - reflected satisfactory achievement by Ms ranging from 82 to 84. Table 6 shows the data.

No. of Students'	1st Quarter Physics	2nd Quarter Earth Science	3rd Quarter Chemistry	4th Quarter Biology	Grade 8 GPA
N=26	M=79	M=79	M=82	M=83	M=84

Table 6: The 7th Grade Female Science Students' Scholastic Achievement their GPA

Part II: Triangulation Method of the Three Different Grade Levels Quarterly Achievements in Spiraled Science Grade 7, 8, and 9 Curriculum

The bracketed data reveal that the Grade 9 –Chemistry had very satisfactory scholastic achievements as reflected by means ranging from 85 to 89 from both males and females. However, Science 7 and Science 8 Students' quarterly subjects Ms ranging from 80 to 84 had satisfactory achievements in chemistry; versus the 9th Grade Physics students had very satisfactory achievements with means ranging

from 85 to 89. However, two groups Science 8 Female and Science 7 males - - means ranging from 80 to 84 had satisfactory achievements and Science 7 Female and Science 8 Male means ranging from 75 to 79 had fairly satisfactory achievements; versus the 9th Grade Earth Science had very satisfactory achievements with means ranging from 85 to 89. However, two groups, the 8th Grade Earth Science had satisfactory achievements with means ranging from 80 to 84; 7th Grade Earth Science students had fairly satisfactory achievements (M=79)

The Female 8th Grade Biology students achievements had very satisfactory reflected by their means ranging from 85 to 89. The males of the 7th Grade, 8th Grade and 9th Grade Biology students had satisfactory achievement reflected by means ranging from 80 to 84. Only one group the female Science 7 Biology (M=77) had fairly satisfactory achievement.

The 9th Grade GPA in science had very satisfactory reflected by means ranging from 85 to 89 versus 8th Grade Science and 7th Grade Science had satisfactory achievements reflected by means ranging from 80 to 84. Table 7 below shows the data.

K-12 Quarterly Subjects	Year Levels					
	Science 7		Science 8		Science 9	
	Male	Female	Male	Female	Male	Female
Chemistry	80	82	80	83	85	88
Physics	81	79	78	82	86	85
Earth Science	79	79	80	84	85	86
Biology	81	77	83	85	83	89
GPA	80	84	80	84	85	88

Table 7: Science Male and female Students' Determined Patterns Science Quarterly Achievements in their three Consecutive Year

Action

The subjects during 9th Grade Science First Quarter -Biology, 2nd Quarter-Chemistry, 3rd Quarter - Earth Science. The students were exposed to a week review before the Summative test with the authored Programmed Instruction Technique and the adopted GANAG SCHEMA in the plan assessment during the First to Third Quarters. The 4th Quarter Science -Physics, students' were exposed to Inquiry learning using Orica equipment and the 5E's Lesson Plan were adapted. Contextualization, Indigenization, and Localization observed in the delivery of lessons on spiraled curricular programs. Since students are only on concrete developmental stage considering Piaget (1975), the following interventions named above improved students scholastic achievement. In Chemistry and Physics, higher order skills is necessary and the adaption of authored Programmed Instruction Technique to enhanced the lessons which was done as lesson study before the summative test found to improved students' achievement. The GANAG SCHEMA (SEAMEO SEAQIS, 2015) on the presentation of the curricular contents from simple to complex lessons made handy to the students to grasp highly abstract Science

contents. Thus, lessons studied in frames always with prior learning found effective in improving students' grade (ATSE, Australia; 2015).

Evaluation of Results

Enhanced Grade 9-Science curriculum utilizing several interventions, namely: Programmed Instruction Technique on lesson study, adopting 5E's lesson Plan in Physics, the use of Orica equipment to deliver concepts on Physics 9 Hands-on, inquiry learning activities opted to the concrete readiness of learners, and the GANAG SCHEMA on the preparation of daily lesson plan were the interventions improved students scholastic achievements in their Science 9-quarterly subjects.

Insights and Discussion

Scholastic achievement of Learners improved when teachers academic freedom done in the four walls of the classroom. Science contents should be made handy to the learners on teacher engineered curriculum. The teacher used of differentiated teaching strategies for the science highly abstract lessons that showed students' positive interaction.

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