

Difficulties in Teaching and Learning Science and Health in relation to NAT of Selected Grade Six Pupils of Central Schools of Zone III

Rica F. Sanchez, Martha Jelle D. Blanco, Elizabeth N. Farin

Teacher, Sindol Elementary School, San Felipe, Zambales

Teacher, Bangan-Capayawan Integrated School, Botolan, Zambales

Professor, President Ramon Magsaysay State University, Iba, Zambales

ABSTRACT: This study aims to determine the difficulties in teaching and learning Science and Health in Relation to NAT of the selected grade six pupils of Central Schools of Zone III, Division of Zambales, Philippines. The majority of the teacher-respondent of the study are female Science teachers, in their early adulthood, master degree units and had a length of service of 6 to 10 years. On the other hand, the majority of the student-respondent of the study are male, belonging to age 11 years, and belong to the low income group of families. Based on the quantitative data, the Science teachers' and students' difficulties of teaching and learning science as to the different areas is assessed to be moderately difficult. The study utilized descriptive statistical tools and ANOVA was used as inferential statistics. The student-respondents were selected through convenience sampling coming from the selected teachers and pupils of Central School of Zone III. The results of the study found that the teacher and student perceptions on student difficulties were the same whether in understanding nature and context of science, inquiry or class schedule.

Keywords: Central Schools, Difficulties in Teaching and Learning, NAT, Science and Health

I. INTRODUCTION

Education is generally described as "the process of receiving or giving systematic instruction." It is a basic human right because it is considered one of the fundamental guarantees that enable an individual to live his full potential as a human being.

According to De Frank and Associates (2001), teaching is a stressful occupation associated with significant levels of burnout.

In study conducted by Burke, Greenglass, and Sschwarzer (2003), it was found out that teachers had higher stressful levels than school administrator. Compared to school administrators, teachers assume multiple and often contradictory roles, including academic instruction, maintaining classroom decorum, attending to student, social and emotional well-being the often conflicting expectations of parents, students, administrators, and the self-esteem and reduced job satisfaction among teachers. If prolonged, it can lead to deterioration of job performance (Overio, 2000).

A number of factors have been identified to be responsible for these poor performances in science from the various studies conducted in Nigeria. These include the lack of motivation for most teachers, poor infrastructural facilities, inadequate textual materials, attitude of students to learning, lack of teaching skills and competence by science teachers, and lack of opportunities for professional development for science teachers (Brimoh & Okedeyi, 2001).

Our 1987 Constitution itself explicitly provides for government to "protect and promote the right of all citizens to quality education at all levels" and "take appropriate steps to make such education accessible to all." The constitution also states that "the highest budgetary priority" shall be assigned to education. Education is given a high value in the country because it is perceived by the masses as a stepping stone out of poverty, it is imagined by the middle classes as a way to climb to a higher social status, and is used by the ruling classes to reinforce their influence over the populace. Education, more importantly, is of great importance for nation-building because it can mold the consciousness of the people.

However, the Philippine education system is overwhelmed with problems from the basic level until the tertiary level, and although previous and present administrations took steps to reform the system, these reforms failed to improve the country's education system. According to the latest "Economic Policy Monitor", released in April 2012 of government think tank Philippine Institute for Development Studies, despite the reforms pursued by the Aquino administration to address these failures, even more reforms are needed to improve the quality of education in the Philippines. The same study found that even the reforms initiated by the government may even bring more problems to the education system (Arcibal, 2002).

Studies showed that the Philippine educational system, specifically science instruction in the Philippines, is declining in quality. Science teaching has been criticized because of the poor performance of students in science subjects relative to their counterparts in other countries. DepEd data show that achievement rate of fourth year students in Math dropped from 50.70% in SY 2005-2006 to 47.82% in SY 2006-2007. The decline also happened in Science, from 39.49% to 37.98% in the same period. A Science and Education Institute study on Trends in Mathematics and Science Study (TIMSS) in 2003 showed that Philippines' 8th grade (2nd year high school) students' skills and competencies in Math ranked a pitiful 42nd out of 46 participating countries while the Philippine 4th grade students placed 23rd out of 25 participating countries. The 2004 executive report on Philippine TIMSS showed that in four years since the Third International Mathematics and Science Study Repeat (TIMSS-R) in 1999, only seven regions showed improvements in Math competencies among the 8th grade students. Results of the student achievement test indicate very poor performance in each content domain at this early education stage. The problem seems to be double-edged, with the students' lack of interest to the lack of professionals who can teach Math and Science. Those who teach Math and Science in public schools are not Math and Science majors, but Education majors that may lack expertise in the subjects. This can be attributed to various factors such as educational background of the Science and Technology mentors, number of years in the teaching profession and lack of graduate studies in the field of math and science, not to mention the administrative procedures being employed in the selection of teachers (Favila and Jsongco 2009).

Senate Minority Leader Alan Peter S. Cayetano has urged the Department of Education (DepEd) to enhance the quality of Science and Mathematics teaching in the country. Cayetano said it is high time school authorities conduct a thorough review and improvement of the existing elementary science and math curricula as he noted the dwindling performance of Filipino students in the two subjects. He noted that despite allotting the most time to science education in elementary in Southeast Asia, the Philippines continues to rank poorly compared to other countries in the region. Cayetano stressed the DepEd needs to improve the quality of education rather than on the quantity or the number of years a student should spend time in school as a result of the K to 12 program. A study by the Southeast Asian Ministers of Education Organization (SEAMEO), he said, puts the Philippine time allotment to science at 1,100 minutes per week compared to Brunei's 810 minutes, Singapore's 540 minutes, and Malaysia's 360 minutes. The country, in the Global Competitiveness report that pegged the quality of science and education, ranked 112th out of 139 countries in 2010-2011 and 115th out of 142 countries in 2011-2012. (Torregoza, 2012)

The current situation of science teaching and learning is a concern to all including government and the society at large. Research indicates that many students found science to be difficult, boring and not interesting to them. Large class sizes, inadequate funding, insufficient curriculum resources, poor teaching skills and lack of supports for teachers among other factors further limit the quality of science teaching and learning in schools. To solve these lingering problems one needs to develop a realistic picture of what is currently happening in the teaching and learning of science in schools and also to identify the factors that are limiting the quality of science education. Furthermore, one needs to develop a reasonable ideal picture for which the nation can strive towards within the existing resource limitations.

From the range of evidence in the science education literature, it is very clear that science education is faced with numerous problems that need to be addressed so that the goal of equipping students to live effectively in our modern age of science and technology. It is, however, believed that if appropriate steps are not taken to address these lingering barriers to reform, the citizens will not be able to develop scientific literacy useful for coping in the modern scientific and technological world. Efforts at developing scientifically literate citizens by improving the quality of science teaching and learning in schools is a laudable reform that should preoccupy the mind of the policy makers and all the key stakeholders in science education in the Philippines.

In an effort to improving the teaching and learning of science in elementary schools and make the learning of science more attractive to students, this study will be conducted.

II. OBJECTIVE OF THE STUDY

The study determined the difficulties of teaching and learning science and health of selected grade six pupils of Central School of Zone III during the school year 2014-2015.

III. MATERIALS AND METHOD

The descriptive method of research was used in this study to determine the determinants of academic performance in Elementary Science among selected Grade VI pupils of Central School of Zone III. The methods involved range from the survey, which describes the status quo, the correlation study that investigates the relationship between variables, to determine changes over time according to Sevilla et al. (2000).

San Esteban (2001) cited that the descriptive method includes data to test the given hypothesis or hypotheses and provides answers to the questions concerning the present status of the study. The present investigation was concerned with the determinants of academic performance among selected Grade VI pupils of Central School of Zone III, the descriptive method research was the most appropriate method to be used because it dealt with the description of facts and presented conditions existing relative to sex, course, age and parents' educational attainment.

The researcher investigated the 208 selected Grade VI pupils and 43 selected teachers of Central School of Zone III. The teacher and students respondents were made aware of the objective of the research. The main instrument for gathering data in this study was questionnaire. It is composed of 3 main parts. Part 1 covered the profile of the respondents as to their age, sex, course, parents' educational attainment of father and mother, size of the family, monthly family income and distance of the student's home to school. Part 2 includes the average grade of the pupil in the particular subject. Part 3 includes the determinants, which are the personal – related, school – related and teacher – related.

To test the validity of the research instrument, the constructed questionnaire was submitted to the adviser and later to panel members for confirmation, correction and suggestions to be made. Validation of the instrument was done to few pupils and teachers who will not be respondents of the study.

The researcher requested permission to the principals and head teachers for the administration of the questionnaires to the selected pupils and teachers of the different central schools of Zone III. The data was collected, tallied and computed using the percentage, weighted arithmetic mean and other statistical tools.

IV. RESULTS AND DISCUSSION

The result shows quantitative data gathered from the two groups of respondents, Teacher-respondents and student-respondents

1. Personal Profile of the Teacher-Respondents

Table 1 reflects the profile of the teacher-respondents in terms of age, sex, civil status, educational qualification, position and length of service.

Table 1 Distribution of Teacher- Respondents as to age, sex, civil status, educational attainment, position and length of service

Age	Frequency	Percentage
56 – above	1	2.33
51 – 55	5	11.63
46 – 50	6	13.95
41 – 45	11	25.58
36 – 40	9	20.93
31 – 35	5	11.63
26 – 30	3	6.98
21 – 25	3	6.98
Total	43	100.00
Mean Age = 40.56		
Sex	Frequency	Percentage
Male	5	11.63
Female	38	88.37
Total	43	100.00
Civil Status	Frequency	Percentage

Married	39	90.70
Widower	2	4.65
Single	2	4.65
Total	43	100.00
Educational Attainment	Frequency	Percentage
Ed.D. / Ph.D. Holder	4	9.30
MS / MA + Ph.D / Ed.D. Units	10	23.26
BS + MA / MS Units	20	46.51
BS Graduate	9	20.93
Total	43	100.00
Academic Rank/ Position	Frequency	Percentage
Head Teacher	3	6.98
Master Teacher	9	20.93
Teacher	31	72.09
Total	43	100.00
Length of Service (in years)	Frequency	Percentage
30 – above	2	4.65
26 – 30	4	9.30
21 – 25	3	6.98
16 – 20	8	18.60
11 – 15	9	20.93
6 – 10	10	23.26
0 – 5	7	16.28
Total	43	100.00
Mean 14.16		

Age. There were one (1) or 2.23percent who belong to age bracket 56-above, five (5) or 11.63 percent belong to age bracket 51-55 and 31-35 years old, six (6) or 13.95 percent belong to age bracket 46-50 years old, eleven (11) or 25.58 percent belong to age bracket 41-46 years old, nine (9) or 20.93 percent belong to age bracket 36-40 years old and three (3) or 6.98 percent belong to age bracket 26-30 and 21-25 years old. The mean age of the respondents is 40.56 or 41 years old.

Sex. There were forty-three (43) teacher-respondents. They consisted of five (5) or 11.63 percent male teacher-respondents and thirty eight (38) or 88.37 percent female teacher-respondents. The study conducted by Umipig (2007), stated that teaching is a female dominated career as parents still choose that their female children will take up education because they know that teachers are well respected in the community and they are also highly regarded by the persons they come across with.

Civil Status. Thirty-nine (39) or 90.70 percent are married; two (2) or 4.65 percent are single and widower.

Educational Attainment. There were only four (4) or 9.30 percent of the teacher – respondents finished their doctoral degree. There were ten (10) or 23.26 percent who are pursuing doctoral degree. Twenty (20) or 46.51 percent are with master degree units and nine (9) or 20.93 percent are Bachelor in Science Graduate. The finding conforms with the finding of Apostol (2009) that most of the teachers in Zone 3 Division of Zambales were Bachelor degree holder with masteral units.

Academic Rank / Position. Minority of the teacher - respondents, three (3) or 6.98 percent are Head Teacher, nine (9) or 20.93 percent are Master Teacher; and majority of the teacher – respondents, thirty-one (31) or 72.09 percent are Teacher.

Length of Service. There were two (2) or 4.65 percent of the respondents who have been served 30 years and above; four (4) or 9.30 percent had served 26 – 30 years in the service; three (3) or 6.98 percent are 21 – 25

years; eight (8) or 18.60 percent are 16 – 20 years; nine (9) or 20.93 percent are 11 – 15 years; ten (10) or 23.26 are 6 – 10 years; and seven (7) or 16.28 are 0 – 5 years in the service. The mean length was 14.16.

Personal Profile of the Student-Respondents

Table 2 reflects the profile of the teacher-respondents in terms age, sex, and family monthly income is presented as follows:

Table 2 Distribution of Student- Respondents as to age, sex, and family monthly income

Age	Frequency	Percentage
14	2	.96
13	5	2.40
12	28	13.46
11	135	64.90
10	38	18.27
Total	208	100.00
Mean Age = 11.03		
Sex	Frequency	Percentage
Male	106	50.96
Female	102	49.04
Total	208	100.00
Family Monthly Income (In Pesos)	Frequency	Percentage
Php 30,000 - above	16	7.69
Php 25,000 - 29,999	11	5.29
Php 20,000 - 24,999	19	9.13
Php 15,000 - 19,999	25	12.02
Php 10,000 - 14,999	51	24.52
Php 5,000 - 9,999	45	21.63
Php 4,999 and below	41	19.71
Total	208	100.00
Mean Php 13292.80		

Age. Out of the two hundred eight (208) respondents two (2) or .96 percent of them are aged 14 years; five (5) or 2.40 percent are aged 13 years; twenty-eight (28) or 13.46 percent are aged 12; one hundred thirty-five (135) or 64.90 are aged 11; and thirty-eight (38) are aged 10. The mean age of the pupil – respondents is 11.03.

Sex. Male pupils were one hundred six (106) or 50.96 percent; female pupils were one hundred two (102) or 49.04 percent. The result reveals that the number of males is not so much more than the number of females and that they are almost the same.

Family Monthly Income. There were sixteen (16) or 7.69 percent whose parents received a monthly salary of P30,000 and above; eleven (11) or 5.29 percent whose parents received a monthly salary of P25,000 – P29,999; nineteen (19) or 9.13 percent whose parents received a salary of P20,000 – P24,999; twenty-five (25) or 12.02 percent whose parents received a salary from P15,000 – P19,999; fifty-one (51) or 24.52 percent whose parents received a salary from P10,000 – P14,999; forty-five (45) or 21.63 percent whose parents received a salary from P5,000 – P9,999; and forty-one (41) or 19.71 percent of whose parents received a monthly salary of P4,999 and below. The mean monthly salary was is P13,292.80.

2. Level of Mastery in National Achievement Test (NAT) of pupil – respondents

The level of mastery in national achievement test of pupil – respondents is presented Table 3.

Table 3 Level of Mastery of Students in National Achievement Test (NAT) of pupil – respondents in Science

School	Percent Score	Descriptive Equivalent
San Narciso Elementary School	77.25	MTM
San Felipe Elementary School	90.04	CAM
Cabangan Elementary School	82.54	MTM
Overall	83.11	MTM

Mastery Level Descriptive Equivalent		
Percentage	Descriptive Equivalent	
96 - 100	Mastered	M
86 – 95	Clearly Approximating Mastery	CAM
66 – 85	Moving Towards Mastery	MTM
35 – 65	Average	AVR
15 – 34	Low	L
5 – 14	Very Low	VL
0 – 4	Absolutely No Mastery	ANM
* Based on NAT		

3. Perception of teacher – respondents on difficulties of teaching and learning science as to the different areas

The perception of teacher – respondents on difficulties of teaching and learning science as to different areas is presented as follows.

Table 4 Perceptions of the Teacher-Respondents of Students' Difficulties Towards Understanding Nature and Context of Science

Area 1: Understanding Nature and Context of Science		Teachers		RANK
		AWM	DR	
1	Creating scientific knowledge within the scientific community, and compares science with other ways of knowing.	2.84	MD	1
2	Analyzing local, regional, national, or global problems or challenges in which scientific design can be or has been used to design a solution.	2.74	MD	3
3	Evaluating the scientific design process used to develop and implement solutions to problems or challenges.	2.79	MD	2.5
4	Evaluating consequences, constraints and applications of solutions to a problem or challenge.	2.79	MD	2.5
5	Analyzing how scientific knowledge and technological advances discovered and developed by individuals and communities in all cultures of the world contribute to change in societies.	2.67	MD	4
Overall Weighted Mean		2.77	MD	

Understanding Nature and Context of Science The mean of area 1, understanding nature and context of science was 2.77 or a descriptive rating of moderately difficult. The result implies that they are still in their half way journey in discovering the nature and content of science. According to Dogu et al.(2007), in order to be

able to increase and develop students' interest towards science, teachers have to educate them so that they can understand the nature of Science adequately. Geddis (2005) studied the transformation of pre-service science teachers' subject-matter knowledge into "teachable content knowledge".

Table 5 Perceptions of the Teacher-Respondents on Students' Difficulties towards Inquiry

Area 2: Inquiry		Teachers		RANK
		AWM	DR	
1	Understanding how to plan and conduct scientific investigations.	2.58	D	6
2	Synthesizing a revised scientific explanation using evidence, data, and inferential logic.	2.63	MD	5
3	Applying understanding of how to report complex scientific investigations and explanations of objects, events, systems, and processes and how to evaluate scientific reports.	2.72	MD	3
4	Analyzing why curiosity, honesty, cooperation, openness and skepticism are important to scientific explanations and investigations.	3.09	MD	1
5	Analyzing scientific theories for logic, consistency historical and current evidence, limitations, and capacity to be investigated and modified.	2.67	MD	4
6	Evaluating inconsistent or unexpected results from scientific investigations using scientific explanations.	2.88	MD	2
Overall Weighted Mean		2.76	MD	

The mean of area 2, inquiry was 2.76 or a descriptive rating of moderately difficult. The result implies that they still need to work out more about scientific areas.

This result is noteworthy, considering recent efforts to push such activities particularly in the primary grades (Bernardo et al, 2008).

Students understand the nature of scientific problem solving as the pursuit of meaningful question through the use of procedures (Magnusson and Palinsar, 1995). Bianchini & Colburn (2000) described his teaching of the nature of science in a general science course for elementary education majors as inquiry-based and linked to a "three-stage process of exploration, concept introduction, and application"

Table 6 Perceptions of the Teacher-Respondents towards Class Schedule

Area 7: Class Schedule		Teachers		RANK
		AWM	DR	
1	The schedule of classes is in the afternoon	3.35	MD	1
2	Time spent for the laboratory and lecture	3.30	MD	3
3	Schedule of measuring and evaluating student learning in a variety of dimensions.	3.23	MD	5
4	Schedule of giving projects	3.30	MD	4.5

5	The schedule of classes is before lunch	3.30	MD	4.5
6	The schedule of classes is in the first period	3.33	MD	2
Overall Weighted Mean		3.30	MD	

The mean of area 7, class schedule was 3.30 or a descriptive rating of moderately difficult. The result implies that the teachers have difficulties in scheduling the science class in the afternoon since the students feel sleepy during this period.

Table 7 Perceptions of the Teacher-Respondents towards Subject Matter

Area 8: Subject Matter		Teachers		RANK
		AWM	DR	
1	The Circulatory and Nervous System	3.02	MD	4
2	Interrelationship in the Ecosystem	3.12	MD	2
3	Materials in Our Environment	3.21	MD	1
4	Energy in Our Environment	3.16	MD	3.5
5	Moving Bodies	3.16	MD	3.5
6	The Changing Earth	2.93	MD	5
7	Beyond the Solar System	2.91	MD	6
Overall Weighted Mean		3.07	MD	

The mean of area 8, subject matter was 3.07 or a descriptive rating of moderately difficult. The result implies that the teachers have to exert more effort and still need to work out more in teaching the subject matter.

3.5. Perception of pupil – respondents on difficulties of teaching and learning science as to the different areas.

The perception of pupil – respondents on difficulties of teaching and learning science as to different areas is presented as follows:

Table 8 Difficulties of the Pupil-Respondents towards Understanding Nature and Context of Science

Area 1: Understanding Nature and Context of Science		Pupils		RANK
		AWM	DR	
1	Creating scientific knowledge within the scientific community, and compares science with other ways of knowing.	2.54	MD	4
2	Analyzing local, regional, national, or global problems or challenges in which scientific design can be or has been used to design a solution.	2.57	MD	3
3	Evaluating the scientific design process used to develop and implement solutions to problems or challenges.	2.41	MD	5
4	Evaluating consequences, constraints and applications of solutions to a problem or challenge.	2.60	MD	1

5	Analyzing how scientific knowledge and technological advances discovered and developed by individuals and communities in all cultures of the world contribute to change in societies.	2.59	MD	2
Overall Weighted Mean		2.54	MD	

The mean of area 1, understanding nature and context of science was 2.54 or a descriptive rating of moderately difficult. The result implies that they are still in their half way journey in discovering the nature and content of science.

Table 9 Difficulties of the Pupil-Respondents towards Inquiry

Area 2: Inquiry		Pupils		
		AWM	DR	RANK
1	Understanding how to plan and conduct scientific investigations.	2.79	MD	2
2	Synthesizing a revised scientific explanation using evidence, data, and inferential logic.	2.53	MD	5
3	Applying understanding of how to report complex scientific investigations and explanations of objects, events, systems, and processes and how to evaluate scientific reports.	2.69	MD	3
4	Analyzing why curiosity, honesty, cooperation, openness and skepticism are important to scientific explanations and investigations.	3.17	MD	1
5	Analyzing scientific theories for logic, consistency historical and current evidence, limitations, and capacity to be investigated and modified.	2.51	MD	5
6	Evaluating inconsistent or unexpected results from scientific investigations using scientific explanations.	2.67	MD	4
Overall Weighted Mean		2.73	MD	

The mean of area 2, inquiry was 2.73 or a descriptive rating of moderately difficult. The result implies that the children still need to work out more about scientific areas.

Table 10 Perceptions of the Pupil-Respondents towards Class Schedule

Area 7: Class Schedule		Pupils		
		AWM	DR	RANK
1	The schedule of classes is in the afternoon	3.38	MD	1
2	Time Spent	3.31	MD	2
3	Schedule of measuring and evaluating student learning in a variety of dimensions.	3.00	MD	4
4	Schedule of giving projects	2.95	MD	6
5	The schedule of classes is before lunch	2.99	MD	5
6	The schedule of classes is in the first period	3.11	MD	3
Overall Weighted Mean		3.12	MD	

The mean of area 7, class schedule was 3.12 or a descriptive rating of moderately difficult. The result implies that the pupils have difficulties when it comes in scheduling their science class.

Table 11 Perceptions of the Pupil-Respondents towards Subject Matter

Area 8: Subject Matter		Pupils		
		AWM	DR	RANK
1	The Circulatory and Nervous System	3.21	MD	6
2	Interrelationship in the Ecosystem	3.05	MD	7
3	Materials in Our Environment	3.37	MD	3
4	Energy in Our Environment	3.51	E	2
5	Moving Bodies	3.57	E	1
6	The Changing Earth	3.35	MD	4
7	Beyond the Solar System	3.44	E	5
Overall Weighted Mean		3.36	MD	

The mean of area 8, subject matter was 3.36 or a descriptive rating of moderately difficult. The result implies that they still need to work out more about the learning of the subjects.

Table 12 Analysis of Variance to Test Significant Difference on Perception of the teacher – respondents as regards to the Four Areas when grouped according to profile variables

Profile Variables	Understanding Nature & Context of Science		Inquiry		Class Schedule		Subject Matter	
	F	Sig.	F	Sig.	F	Sig.	F	Sig.
School	5.023	0.0113	1.933	0.1580	1.383	0.2626	5.100	0.0106
Academic Rank / Position	0.526	0.5949	1.157	0.3248	0.003	0.9969	0.251	0.7793
Age	2.480	0.0354	2.751	0.0219	1.522	0.1921	1.672	0.1483
Sex	1.510	0.2261	1.135	0.2930	2.674	0.1096	3.487	0.0690
Civil Status	1.750	0.1867	1.376	0.2643	0.974	0.3862	1.080	0.3492
Educational Attainment	3.084	0.0383	2.406	0.0819	2.264	0.0963	1.667	0.1898
Length of Service	0.486	0.8142	1.025	0.4248	0.884	0.5168	0.517	0.7916

4. Difference on the perception of the teacher – respondents as regards to the Four Areas when grouped according to profile variables

Analysis of Variance to Test Significant Difference on the Perception of the Teacher - respondents on Students' Difficulties in Understanding Nature and Context of Science. Since significant values of 0.113 for school, 0.0354 for age, 0.2261 for sex, 0.0383 for educational attainment, and were lower than P value of 0.05, the differences were significant. On the other hand value of 0.5959 for academic rank/position, 0.1867 for civil status, 0.8142 for length of service and 0.5959 for academic rank/position were higher than P value of 0.05, the differences were not significant. The result implies that the perceptions were the same regardless of the respondents' school, sex, age, civil status, educational attainment, position and length of service.

Analysis of Variance to Test Significant Difference on the Perception of the

Teacher - respondents on Students' Difficulties towards Inquiry. Since significant values of 0.0219 for age was lower than P value of 0.05, the difference was significant. On the other hand value of 0.1580 for school, 0.3248 for academic rank/position, 0.2930 for sex, 0.2643 for civil status, 0.08119 for educational attainment and 0.4248 for length of service were higher than P value of 0.05, the differences were not significant. The result implies that the perceptions were the same regardless of the respondents' school, sex, civil status, educational attainment and length of service.

Analysis of Variance to Test Significant Difference on the Perception of the

Teacher - respondents towards Class Schedule. Since significant values of 0.2626 school, 0.9969 for academic rank/position, 0.1919 for age, 0.1096 for sex, 0.3862 for civil status, 0.0963 and 0.5168 for length of service were higher than P value of 0.05, the differences were not significant. The result implies that the perceptions were the same regardless of the respondents' school, academic rank/position, age, sex, civil status, educational attainment and length of service.

Analysis of Variance to Test Significant Difference on the Perception of the

Teacher - respondents towards Subject Matter. Since significant value of 0.0106 for school was lower than P value of 0.05, the difference was significant. On the other hand, values of 0.07793 for academic rank/position, 0.1483 for age, 0.0690 for sex, 0.3492 for civil status, 0.8142 for length of service and 0.5959 for academic rank/position were higher than P value of 0.05, the differences were not significant. The result implies that the perceptions were the same regardless of the respondents' school, sex, age, civil status, educational attainment, position and length of service.

Analysis of Variance to Test Significant Difference on the Perception of the

Teacher - respondents on Students' Difficulties towards Inquiry. Since significant values of 0.0219 for age was lower than P value of 0.05, the difference was significant. On the other hand value of 0.1580 for school, 0.3248 for academic rank/position, 0.2930 for sex, 0.2643 for civil status, 0.08119 for educational attainment and 0.4248 for length of service were higher than P value of 0.05, the differences were not significant. The result implies that the perceptions were the same regardless of the respondents' school, sex, civil status, educational attainment and length of service.

Analysis of Variance to Test Significant Difference on the Perception of the

Teacher - respondents towards Class Schedule. Since significant values of 0.2626 school, 0.9969 for academic rank/position, 0.1919 for age, 0.1096 for sex, 0.3862 for civil status, 0.0963 and 0.5168 for length of service were higher than P value of 0.05, the differences were not significant. The result implies that the perceptions were the same regardless of the respondents' school, academic rank/position, age, sex, civil status, educational attainment and length of service.

Analysis of Variance to Test Significant Difference on the Perception of the

Teacher - respondents towards Subject Matter. Since significant value of 0.0106 for school was lower than P value of 0.05, the difference was significant. On the other hand, values of 0.07793 for academic rank/position, 0.1483 for age, 0.0690 for sex, 0.3492 for civil status, 0.1898 for educational attainment and 0.7916 for length of service were higher than P value of 0.05, the differences were not significant. The result implies that the perceptions were the same regardless of the respondents' academic rank/position, age, sex, civil status, educational attainment and length of service.

3.7. Difference on the perception of the pupil– respondents as regards to the Four Areas when grouped according to profile variables

Table 13 Analysis of Variance to Test Significant Difference on Perception of the pupil– respondents as regards to the Four Areas when grouped according to profile variables

Profile Variables	Understanding Nature & Context of Science		Inquiry		Class Schedule		Subject Matter	
	F	Sig.	F	Sig.	F	Sig.	F	Sig.
Age	1.945	0.1043	0.697	0.5950	0.723	0.5770	1.744	0.1417
Sex	0.015	0.9031	0.138	0.7106	3.356	0.0684	0.399	0.5281
Family Monthly Income	2.162	0.0482	0.981	0.4393	1.411	0.2118	1.847	0.0917

Analysis of Variance to Test Significant Difference on the Difficulties of the Pupil - respondents towards Understanding Nature and Context of Science. Since significant value of 0.0482 for family monthly income was lower than P value of 0.05, the difference was significant. On the other hand values of 0.1043 for age and 0.9031 sex for were higher than P value of 0.05, the differences were not significant. The result implies that the perceptions were the same regardless of the respondents' age and sex.

Analysis of Variance to Test Significant Difference on the Perception of the Pupil - respondents towards Inquiry. Since significant values of 0.5950 for age 0.7106 for sex and 0.4393 for monthly family income were higher than P value of 0.05, the differences were not significant. The result implies that the perceptions were the same regardless of the respondents' age, sex and family monthly income.

Analysis of Variance to Test Significant Difference on the Perception of the Pupil - respondents towards Class Schedule. Since significant values of 0.5770 for age 0.0684 for sex and 0.2118 for monthly family income were higher than P value of 0.05, the differences were not significant. The result implies that the students' perceptions the difficulties towards class schedule were the same regardless of the respondents' age, sex and family monthly income.

Analysis of Variance to Test Significant Difference on the Perception of the Pupil - respondents on their Difficulties towards Subject Matter. Since significant values of 0.1417 for age 0.5281 for sex and 0.0917 for monthly family income were higher than P value of 0.05, the differences were not significant. The result implies that the perceptions were the same regardless of the respondents' age, sex and family monthly income.

Significant difference on the perceptions of the student and teacher respondents towards the seven domains

Table 14
Analysis of Variance to Test Significant Difference on the Perception of the Pupil – respondents and teacher – respondents towards their difficulties

Source of Variation		Sum of Squares	Df	Mean Square	F	Sig.	Decision
Understanding Nature and Context of Science	Between Groups	1.81	1	1.81	2.70	0.10	Not Significant Accept Ho
	Within Groups	166.74	249	0.67			
	Total	168.55	250				
Inquiry	Between Groups	0.05	1	0.05	0.08	0.78	Not Significant Accept Ho
	Within Groups	150.73	249	0.61			
	Total	150.78	250				

Class Schedule	Between Groups	1.16	1	1.16	1.87	0.17	Not Significant Accept Ho
	Within Groups	154.65	249	0.62			
	Total	155.81	250				
Subject Matter	Between Groups	2.88	1	2.88	4.15	0.04	Significant Reject Ho
	Within Groups	172.34	249	0.69			
	Total	175.22	250				

Table 14 shows the analysis of variance on the difference on the perception of the pupil – respondents and teacher – respondents towards their difficulties in the four areas when grouped according to profile variables. Since the value of 0.04 for subject matter is lower than the P value of 0.05, the differences was significant. On the other hand, the values of 0.10 for understanding nature and context of Science, 0.78 for inquiry and 0.17 for class schedule were higher than P value 0.05, the differences were not significant. The result implies that the teacher and student perceptions on student difficulties were the same whether in understanding nature and context of Science, inquiry or class schedule.

5. Significant relationship between the seven domains and NAT (National Achievement Test)

Table 15
Pearson (r) to Test Significant Relationship between Pupil – respondents perception on their Difficulties and Level of Mastery in National Achievement Test (NAT)

SOURCES OF CORRELATIONS		NAT	Decision	Interpretation
Understanding Nature and Context of Science	Pearson Correlation	-0.06	Not Significant Accept Ho	Slight Relationship
	Sig. (2-tailed)	0.39		
	N	208		
Inquiry	Pearson Correlation	-0.194**	Significant Reject Ho	Slight Relationship
	Sig. (2-tailed)	0.01		
	N	208		
Class Schedule	Pearson Correlation	-0.02	Not Significant Accept Ho	Slight Relationship
	Sig. (2-tailed)	0.82		
	N	208		
Subject Matter	Pearson Correlation	-0.167*	Significant Reject Ho	Slight Relationship
	Sig. (2-tailed)	0.02		
	N	208		
*. Correlation is significant at the 0.01 level (2-tailed).				
**. Correlation is significant at the 0.01 level (2-tailed).				

Table 15 shows the relationship between teacher and pupil perception of the difficulties and level of mastery in the students' achievement test. The values of 0.01 for inquiry and 0.02 for subject matter were lower than 0.05 Alpha Level of Significance, the relationship is significant, therefore the null hypothesis is rejected, hence it can be deduced that data provide sufficient evidence to conclude that there is a slight relationship between pupils' perception on inquiry and subject matter and the mastery level of the national achievement test (NAT).

On the other hand, the values of 0.39 for understanding nature and context of Science and 0.82 for class schedule are greater than 0.05 Alpha Level of Significance, the relationship is not significant, therefore the null hypothesis is accepted, hence it can be deduced that data provide sufficient evidence to conclude that there is a slight relationship between pupils' perception on understanding nature and context of science and the mastery level of the national achievement test (NAT).

V. CONCLUSION

Based on the findings of the study, the following conclusions were drawn: A typical teacher - respondent is 40.56 years old, female, married, with degree units, has a mean length of service of 14.16 years, and occupies a teacher position. A typical pupil-respondent is 11.03 years old, male, and has a mean family

income of Php 13292.80.3. The perception of teacher – respondents on difficulties of teaching and learning science as to the different areas is assessed to be moderately difficult. The perception of pupil – respondents on difficulties of teaching and learning science as to different areas is also assessed to be moderately difficult. There is no significant difference on the perception of the teacher - respondents as regards to the four domains when grouped according to profile variables. There is no significant difference on the perception of the pupil - respondents as regards to the four domains when grouped according to profile variables. There is no significant difference on the perceptions of the pupil and teacher respondents towards the four domains.

VI. RECOMMENDATIONS

The following are the recommendations as a result of the findings: Science teachers must pursue professional growth to enhance their knowledge and skills in their field and profession, Reward system and proper recognition should be given to those teachers with outstanding performance to motivate and sustain their level of performance, Instructional materials such as audio-visual materials, overhead projector, multimedia and computers should be provided in every school and necessary trainings on its use must be conducted among teachers, Enhance the supervisor-school head-teachers relationship to promote a conducive learning environment, They should help each other in the attainment of quality education. Support of the supervisors and school heads towards the improvement in the performance of the teacher and pupil must be extensive, Monitoring and evaluation of the teachers' and pupils' performance must be fair and done periodically, Trainings and workshops must be conducted to improve the teaching skills of the teachers particularly on the application of various instructional methods and strategies, Similar studies parallel to this study must be conducted in other Zones of Zambales to validate the result.

REFERENCES

- [1] Apostol, A. (2009) "Implementation of Philippine Informal Reading Inventory Oral Reading in Zone III, Division of Zambales.
- [2] Arcibal, R. (2002) "Learning Style and Factors Contributing to Success in an Introductory Computer Science Course, In IEEE International Conference on Advanced Learning Technologies.
- [3] Bernardo, I., et al (2008) "Goal Modification, Learning Styles and Achievement in Mathematics.
- [4] Bianchini, M. et al (2000) Using science fiction movies in introductory physics. *The Physics Teacher*, 43, 463-465.
- [5] Braimoh, K. et al (2001) A Study on Student's Characteristics and Programming Learning, In World Conference on Educational Multimedia, Hypermedia and Telecommunications, Chesapeake, VA.
- [6] Burke, S. T. et al (2006), *Student Team Learning: A Handbook for Teachers*, Boston.
- [7] De Frank, M. et al (2004), Applications, Reliability, and Validity of the Index of Learning Styles.
- [8] Dogu, H. et al. (2007), "Attitudes Towards Science: A Review of the Literature and Its Implications" *International Journal of Science Education*, 25(9), 1049-1079.
- [9] Favila, J. et al (2009), *Before It's Too Late: A Report to the Nation from the National Commission on Mathematics and Science Teaching for the 21st Century* Washington, DC, U.S. Department of Education.
- [10] Geddis, J. H. (2005) "Academic Performance and Learning Skills in English Among Student".
- [11] Magnusson, M. D. et al (1995) "Understanding Student Differences".
- [12] Prokop, C. S. et al (2009), *Psychological and Educational Research into Second Language to Young Children*, London: Oxford University Press.
- [13] San Esteban, N. (2001), 10 Steps to Success in Work, *The Modern Teacher*, January, Volume I. III, No. 8.
- [14] Sevilla, H. N. et al. (2000) Small Group Cooperative Learning in Mathematics: Selective View of the Study, in Slavin, R. (Ed), *Learning Cooperative, Cooperating to Learn*. NY: Plenum.
- [15] Smith, V. (2004) How is difficulty of subject matter? Factors affecting learning general Science. *Journal of Science Education*. Vol. 30. Issue 1.
- [16] Torregoza, R. (2012) "Using Learning Style Data in an Introductory Computer Science Course" in SIGCSE '99 New Orleans, LA, USA.
- [17] Umipig, J. (2007) "Factors affecting the Teaching Performance of Mathematics Teachers in Zone II, Division of Zambales. Overio, 2000