

Competence of Science Teachers, Learning Interest and Academic Performance of Grades Four-Six Pupils

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Abstract — This descriptive-correlational method of research was utilized to determine the teaching competence, academic performance and learning interest of grades four-six pupils in Punta Elementary School, Punta, Division of Ormoc City. The academic performance as dependent variable is correlated to the independent variable- the learning interest of grades four-six pupils in science.

The extent of the teaching competence of science teachers in the aspect of classroom management is interpreted as Very Good. The aspect of knowledge is interpreted as Excellent. The aspect of skills in science teaching is interpreted as Excellent.

The positive learning interest of pupils towards science is interpreted as Agree. This means that the pupils in science have developed high positive learning interests towards science subject.

The average weighted grade is interpreted as Satisfactory. The relationship between teaching competence and academic performance of pupils: The three variables in the teaching competence gained a significant relationship in the academic performance. This means that the classroom management of teachers has significant association to the academic performance of the pupils.

The classroom management of teachers has significant association to the academic performance of the pupils. Furthermore, the classroom discussion and experiments have developed positive learning interest of the students and return has degree of association with their academic performance. The proposed Enhancement Plan should be thoroughly implemented and should be adapted in the science curriculum for the pupils.

Keywords — *Competence of Science teachers; Learning Interest; Academic Performance*

I. Introduction

The question regarding ways to improve competence among our science teachers has been widely given attention. The most popular notion about science teaching is the act of transferring knowledge and information to students. Another school of thought defines teaching as the act of guiding students towards a love for learning and how to acquire learning skills or learning capability.

In Punta Elementary School, Ormoc City the science teachers teaches the pupils based on the curriculum provided by the Department of Education. Teachers in the school are accountable in the performance of the learners. The science teachers in the school provides learning experiences or situations that will ensure understanding among students. It requires rich environment and instructional materials and devices that will challenge the attention of the students, stimulate thinking, and make learning more meaningful.

In the Philippines, the government has led efforts to enhance the competence of science teachers through various in-service training programs. These in-service training programs conducted by the Regional Science Teaching Centers (RSTC), UP-National Institute for Science and Mathematics Education Development (UP-Nismed), Department of Science and Technology-Science Education Institute (DOST-SEI) and the Department of Education-Bureau of Secondary Education (DepEd-BSE) were interventions aimed at updating and upgrading the competencies of science teachers in terms of content, process skills and thinking skills (Bautista, 2008).

There is no other subject in the education curriculum today of our country that has drawn much attention than Science. Its aim is not only to produce more Scientists and Technologists but also to produce a new generation of enlightened Filipinos who are scientifically literate and who are better prepared to function in a world that is increasingly influenced by Science and Technology (Paño, 2006). However, the Filipinos are in crisis today because the state of science education in the Philippines is discouragingly poor as assessed by a renowned Filipino scientist both local and international. Results of the Third International Mathematics and Science Study (TIMSS) held recently showed the Philippines in the 38th rank among 40 countries studied.

In Punta Elementary School, the scope of a teacher's professional role and responsibilities for learner assessment may be described in terms of various activities. These activities imply that teachers need competence in student assessment and sufficient time and resources to complete them in a professional manner. Faced with the teaching-learning problems, this research will try to find some means of helping students achieve better. One of the ways identified is the teachers' competence in teaching that is believed to increase performance and favorable attitude of students towards science. Consequently, in the process of teaching science we should develop in the students a range of interpersonal skills based on the type of learning strategies and discipline they are specializing. The academic performance and attitudes of students in any subject are dependent on the competence of a teacher teaching the subject. It is for this reason that the researcher is opted

to conduct a study to determine the teaching competence and its significance on the student's academic performance and attitudes particularly in Science subject.

The aforementioned discussions are the reason why research in this field is important since the widespread quest for quality education is at the top of education agenda. The public concern about the urgency in improving the overall learner achievement in preparing the student for global competition makes scholarly work of learning environment and the learning process among Science students essential, thus, this investigation.

As a science teacher for almost three years, the researcher will try to find some means of helping the pupils to achieve better in science subject. One of the ways identified is to assess the teaching competence that is believed to increase the chance of high performance and favorable learning interest of grades four-six pupils towards science.

This study aimed to evaluate the teaching competence of science teachers and its association to the learning interest and academic performance of grades four-six pupils in Punta Elementary School, Punta, Ormoc City for school year 2021-2022. The findings of the study were the bases for an enhancement plan among science pupils.

Specifically, it sought to answer to the following questions:

1. What is the competence level of grades four-six science teachers in terms of:
 - 1.1 Classroom Management;
 - 1.2 Knowledge in science;
 - 1.3 Skills in teaching science?
2. What is the level of learning interest of grades four-six pupils in science with reference to:
 - 1.1. classroom discussion;
 - 1.2. class activities; and
 - 1.3. experiments?
3. What is the academic performance of grades four-six pupils in science?
4. Is there a significant relationship between the academic performance and the learning interest of grades 4-6 pupils in science?
5. What teaching plan can be proposed based on the findings of the study?

Statement of Hypothesis

Ho - There is no significant relationship between the academic performance and learning interest of grades 4-6 pupils in science.

II. Methodology

Design. This study utilized the Descriptive-correlational method of research. This descriptive-correlational method of research was utilized to determine the teaching competence, academic performance and learning interest of grades four-six pupils in Punta Elementary School, Punta, Division of Ormoc City. The academic performance as dependent variable is correlated to the independent variable- the learning interest of grades four-six pupils in science.

Sampling. The participants of the study included the complete enumeration of grades four-six science teachers and grades four-six pupils for SY 2021-2022. The school principal will be included as the evaluator of the competence level of the grades four-six science teachers. There are 88 pupils in Grade four; 85 pupils in Grade five and 69 pupils in Grade six.

Research Procedure.

1. The standard procedure in research preliminaries was done including asking approval from the school principal.
2. Orientation and short dialogue was made to the grades four-six teachers and letter of introduction to parents of pupils explaining the purpose of the research and its confidentiality was done.
3. Giving of the Teaching Learning Observation Chart and attitude scale checklist as done including the retrieval and the computation of the data.
4. The principal was the one who to evaluated the competence of the grades four-six teachers.
5. The grades four- six pupils did their self-evaluation on their learning interest through the evaluation form that was sent to the parents.
6. Statistical treatment was employed. Processing the data gathered into quantitative forms followed by the interpretation and analysis of data was done.
7. Synthesis of the findings followed and the researcher generated conclusion and recommendations.

Ethical Issues. The right to conduct the study was strictly adhered through the approval of the principal, approval of the Superintendent of the Division. Orientation of the respondents both the students and the teachers was done separately. In the orientation, the issue on, an Informed Consent Form was accomplished prior to the Focus Group Discussion. The need for the secondary data, a written permission was sought to the principal confidentiality and anonymity was discussed requiring them not to write names on the tools and will have assigned codes instead.

Treatment of Data. The Simple Percentage – this was utilized to quantify profile of the pupils with regards to their academic performance. Weighted Mean – this was utilized to determine the mean gain ratings of the interest of pupils in science and the competence level of science teachers. The Pearson r Product Moment was used to determine if a relationship existed between the learning interest and academic performance of grades four-six pupils in science.

III. Results and Discussion

Table 1
TEACHING COMPETENCE IN TERMS OF CLASSROOM MANAGEMENT

CLASSROOM MANAGEMENT	Weighted Mean	Interpretation
1.Focus attention on entire class	3.80	VERY GOOD
2.implement strict rules in chatting and talking	3.60	VERY GOOD
3.Silence can be effective	3.80	VERY GOOD
4.Use softer voice so students really have to listen to what you're saying	4.40	EXCELLENT
5.Direct your instruction so that students know what is going to happen	4.50	EXCELLENT
6.Monitor groups of students to check progress	4.40	EXCELLENT
7.Move around the room so students have to pay attention more readily	4.60	EXCELLENT
8.Give students non-verbal cues	3.90	VERY GOOD
9.Engage in low profile intervention of disruptions	3.90	VERY GOOD
10.Make sure classroom is comfortable and safe	4.50	EXCELLENT
Grand Mean	4.14	VERY GOOD

Table 1 presents the extent of the teaching competence of science teachers in the aspect of classroom management. The grand mean is 4.14 which is interpreted as Very Good. This means that the science teachers have efficient classroom management. According to Alejandro (1997), classroom management is necessary to establish organization in the class. Harmony and efficiency can only be attained if the teacher is a good classroom manager. The highest rated item is on “Move around the room so students have to pay attention more readily,” with a weighted mean of 4.60 interpreted as Excellent. This means that the teachers effectively act as facilitator to monitor

classroom activities. The lowest rated item is on “the teachers implement a strict policy on chatting and talking,” with a weighted mean of 3.60 interpreted as Very Good. There is an existing notice on observation of silence while the class is going on, however, teachers would encourage students for free discussion sometimes.

Table 2
TEACHING COMPETENCE IN TERMS OF KNOWLEDGE IN SCIENCE

KNOWLEDGE IN SCIENCE	Weighted Mean	Interpretation
1.Explains difficult terms or concepts in depth and in more than one way	4.40	EXCELLENT
2.Presents background of ideas and concepts in depth	4.50	EXCELLENT
3.Frequently presents best evidence and up-to-date developments in the field	4.00	VERY GOOD
4.Answers student's questions in depth and admits error or insufficient knowledge with commitment to seek out information	4.30	EXCELLENT
5.Provides to students the goals of assessment, along with criteria, instructions, and expectations. Also provides examples of expectations and type of feedback given	4.60	EXCELLENT
6.Provides beyond satisfactory number of assessments required by department	4.40	EXCELLENT
7.Assessments are of exceptional quality, have in-depth information including comments, and lend themselves to meaningful student feedback	4.10	VERY GOOD
8.Feedback to students is exceptional and allows for student's self-evaluation and reflection with steps for improvement	3.90	EXCELLENT
Grand Mean	4.28	EXCELLENT

Table 2 presents the extent of the teaching competence of science teachers in the aspect of knowledge in science. The grand mean is 4.28 which is interpreted as Excellent. This means that the science teachers are knowledgeable in the subject matter. This could be explained by the number of years of experience which most of the teachers have more than five years of teaching experience. Their trainings also in science teaching is an add-on factor to the high ratings. According to Manalastas (2002), science teaching needs expertise and well intensive background in handling the subject, pupils, materials and learning opportunities. The highest rated item is on

“Provides to students the goals of assessment, along with criteria, instructions, and expectations. Also provides examples of expectations and type of feedback given,” with a weighted mean of 4.60 which is interpreted as Excellent. This means that the science teachers have efficient instructional assessment strategies. A clear assessment tool is important in measuring authentic performance among students. The lowest rated item is on “Feedback to students is exceptional and allows for student's self-evaluation and reflection with steps for improvement,” with a weighted mean of 3.90 which is interpreted as Very Good. This means that the teachers may have an effective feed backing system but due to teacher-pupil ratio the personalized feedback is sometimes sacrificed.

Table 3

TEACHING COMPETENCE IN TERMS OF SKILLS IN TEACHING SCIENCE

SKILLS IN TEACHING SCIENCE	Weighted Mean	Interpretation
1.Frequently selects examples relevant to students experiences, "real world" applications, and/or teaching objectives	4.60	EXCELLENT
2.Relates content with what's taught before and what will come after	4.70	EXCELENT
3.Presents views other than own when appropriate and provides explanation for possible differences of opinion along with evidence	4.30	EXCELLENT
4.Uses a large variety of teaching strategies to address diverse learning styles and opportunities	4.40	EXCELLENT
5.Responds to changes in student attentiveness with comfortable transition of teaching strategies	4.40	EXCELLENT
6.Consistently speaks audibly and clearly	4.50	EXCELLENT
7.Establishes and maintains eye contact with students while communicating a sense of enthusiasm toward the content	4.50	EXCELLENT
8.Provides demonstrations as appropriate and has students demonstrate their understanding	4.40	EXCELLENT
9.Routinely mentors students in life-long learning skills	4.40	EXCELLENT
10.Guides students to be independent learners	4.00	VERY GOOD
11.Models professionalism and use of humor is positive and appropriate	4.20	VERY GOOD
Grand Mean	4.39	EXCELLENT

Table 3 presents the extent of the teaching competence of science teachers in the aspect of skills in science teaching. The grand mean is 4.39 which is interpreted as Excellent. This means that the science teachers are skilful in the subject matter. This could be explained by the number of years of experience which most of the teachers have more than five years of teaching experience. Their trainings also in science teaching is an add-on factor to the high ratings. According to Manalastas (2002), science teaching needs expertise and well intensive background in handling the subject, pupils, materials and learning opportunities. The highest rated item is on “Relates content with what's taught before and what will come after,” with a weighted mean of 4.70 which is interpreted as Excellent. This means that the science teachers always provide integrative mechanism to relate the lesson with the realistic situations or tangible results. The lowest rated item is on “Guides students to be independent learners,” with a weighted mean of 4.00 which is interpreted as Very Good. This means that teachers were good facilitators of learning and promotes independence in learning. However, students sometimes need monitoring and guidance for safety measures.

TABLE 4
LEARNING INTEREST OF PUPILS TOWARD SCIENCE

A. CLASSROOM DISCUSSION	WM	I
1. I learn interesting things in science discussion	4.50	SA
2. I look forward to my science lessons.	4.00	A
3. Science lessons are exciting and much fun in discussion	4.50	SA
4. I am excited in everyday discussion	4.00	A
5. I like Science better than most other subjects at school.	3.90	A
TOTAL	4.18	AGREE
B. ACTIVITIES		
1. Science activities is exciting.	4.50	SA
2. I like science activities because you don't know what will happen in the end.	4.40	SA
3. Science Activities are good because I can work with my friends.	4.60	SA
4. I like to work in science because I can decide what I can do.	4.20	A
5. I like to do more science related activities in school	4.00	A
6. We learn science better when we do activities	4.50	SA
7. I look forward to in doing activities in science	4.30	SA
TOTAL	4.36	STRONGLY AGREE
C. EXPERIMENTS		
1. I love to work science experiments	4.00	A
2. I am excited in doing experiments in science	4.30	SA
3. I learn science quickly during experiments	4.00	A

4.I get good mark in experiments	3.30	U
5.Understanding scientific ideas is more important than memorizing facts	4.00	A
6. The science principles in textbooks will always be true when doing experiments.	4.40	SA
7. Doing experiments is very important to me.	4.30	SA
8. I get good mark in experiments	3.40	U
TOTAL	3.96	AGREE
GRAND MEAN	4.16	AGREE

Table 4 presents the positive learning interest of pupils towards science. The grand mean is 4.16 which is interpreted as Agree. This means that the pupils in science have developed high positive learning interests towards science subject. According to Dr. Milagros Ibe (1994), the positive learning interest could be developed from the nurturing minds of the teachers. The classroom teachers have so much influence in the success of every subject matter. The teacher can make or break a pupil. The classroom discussion is rated 4.18 which is interpreted as Agree. This means that the interactive learning discussion is one of the positive learning interests liked by the pupils. The activities garnered a rating of 4.36 which is interpreted as Strongly agree. This means that the reinforcement through varied science learning activities have developed learning interest of the pupils. Science is a structured subject and so teachers should be very creative to provide varied learning opportunities for the pupils. The experiments was rated 3.96 which is interpreted as Agree. This means that the experiments have provided in depth analysis and critical thinking among pupils.

TABLE 5
ACADEMIC PERFORMANCE OF PUPILS IN SCIENCE

Grades/Ratings	Description	Frequency	Percentage
90 – 100	Excellent	13	5
85-89	Very Satisfactory	86	36
80-84	Satisfactory	102	42
75-79	Fair	41	17
70-74	Did Not Meet Expectation	0	0
Total		242	100
Average		83.30	Satisfactory

Table 5 presents the academic performance of the pupils in science subject. There are none 13 (5%) who got an excellent grades from 92-100; there are 86 (36%) who got a grade of 85-89 with an interpretation of Very Satisfactory; 102 (42%) with a grade range of 80-84 which is

interpreted as Satisfactory; and 41 (17%) with a Fair grade. This means that majority of the pupils in science have a grade range of 80-84 which is interpreted as Satisfactory/Good. However, there is also good number of grade one pupils who got a grade range of 85-89. The average weighted grade is 83.30 interpreted as Satisfactory.

According to Millimore (2018), science subject is one of the most difficult subjects in the school curriculum. Pupils are expected to master knowledge and skills. In the theory of constructivism, one cannot fully apply the knowledge learned without mastery of the skills and concept.

TABLE 6
TEST OF RELATIONSHIP BETWEEN ACADEMIC PERFORMANCE AND
LEARNING INTEREST OF PUPILS

Variables Correlated with Academic Performance in Science	R	Computed Value or t	Table Value @0.05	Decision on Ho	Interpretation
Classroom Discussion	0.69	1.665	0.94	Reject Ho	Significant
Activities	0.61	1.293	0.94	Reject Ho	Significant
Experiments	0.70	2.284	0.94	Reject Ho	Significant

Table 6 presents the relationship between teaching competence and academic performance of pupils. The three variables in the teaching competence gained a significant relationship in the academic performance of the pupils with a computed values of 1.665, 1.293, 2.284 which are higher than the table value of 0.94 and so the null hypothesis is rejected. This means that the classroom management of teachers has significant association to the academic performance of the pupils.

IV. Conclusion

The classroom management of teachers has significant association to the academic performance of the pupils. Furthermore, the classroom discussion and experiments have developed positive learning interest of the students and return has degree of association with their academic performance.

V. Recommendations

Anchored on the findings of the study, the following are recommended:

1. The proposed Enhancement Plan should be thoroughly implemented and should be adapted in the science curriculum for the pupils;
2. The positive learning interests of the pupils should be developed to maximize learning opportunities;
3. Teachers should maintain their good teaching performances;
4. The negative learning interest should be enhanced and improved;
5. Teachers should make the science teaching more creative and productive.

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