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Teacher Characteristics and Pupil Performance in Science and Health in the National Achievement Test of Iligan City Division

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Abstract - The research determined the educational qualification, experience, and the level of training objectives attainment of science teachers in relation to the level of performance of Grade VI pupils in Science and Health in the National Achievement Test (NAT) during the school year 2008-2009 of the rural and urban schools in the Division of Iligan City. The study used the descriptive research design and employed the 81 grade VI science teachers, 71 school administrators and 125 sample pupil respondents to answer the researcher- made questionnaire Data drawn from the data gathering process were analyzed using mean, t-test and multiple regression. Science teachers are not so interested about their own advance education. Science teachers are averagely experienced in teaching the subject. They highly attained the training objectives of the seminars they had attended. The advance education, experiences and the attainment of the

training objectives of teachers did not affect the way pupils performed in the NAT.

Keyword - Teacher Characteristic, Science and Health Result in the National Achievement test

INTRODUCTION

The Philippine Constitution of 1987 strongly emphasize in Article XIV Sec. 10, the value of science and technology in national development. In the recognition of this value of science and technology to national development and identifying the youth as the strategic population group to be instrumental in the technology transfer, the thrust is being supported by the DepEd Science teachers and educators. They are being delegated the imperative tasks for science and technology to penetrate the Filipino culture and for them to try their best in creating more opportunities in utilizing or harnessing the human resources particularly the students or the pupils (Sebolbora,1995).

Science is frequently perceived to be of great importance because of its link to technology and industry which, from a national perspective, maybe areas with high priority for development. Science is included as a core element in the elementary despite conceptual complexity and high cost of implementation. Another justification for the inclusion of science in the school curricula as that all citizens need to achieve a degree of "scientific literacy" to enable them to participate effectively as citizens in modern societies (Elementary Science and Health Handbook). Education is a way of survival. The role of teachers is very significant. Enhanced teacher quality leads to greater student achievement, and when teachers are more effective in the classroom they tend to stay longer in their positions, which greatly helps the overall culture (Wong, 2003).

Professional accountability starts from the presumption that the basis for quality teaching is knowledgeable and committed teachers who draw on knowledge about their diverse learners in deciding what and how to teach and assess student achievement. It maybe well for school heads, mentors and teachers to be alert on a shifting paradigm

– from a focus on what teachers do to a focus on "how they think and then on what they know and how they organize and use their knowledge" (Reynolds, 1992).

Studies indicate however, that many of our Filipino learners are not attaining functional literacy, without which they find it too difficult to meet the challenges posed by our rapidly changing world. Dr. Tan, who is the director of the National Institute of Science and Mathematics (NISMED) of the University of the Philippines stressed that one intriguing factor of the low performance of Science in national and international tests is the shortage of qualified teachers. Ideally, a qualified science teacher should have majored in science, or have undergone training in the subject equivalent to a major or a minor or professionals who have taken ample number of units on the subject.

The National Elementary Achievement Test (NEAT) started in 1993. Ten years after it was changed to National Achievement Test (NAT) in 2003. The NAT is an annual examination administered to Grade VI pupils in public schools throughout the country. This is a test designed to assess abilities and skills of Grade VI pupils in five (5) subject areas: English, Filipino, Mathematics, Science and HEKASI. The NAT is prepared by the National Education Testing and Research Center (NETRC) of the Department of Education (DepEd).

Achievement rates of elementary students in the National Achievement Tests remain far below the 75% mastery level. The results which started in 2003 has a dismal Mean Percentage Score (MPS) of 43.55, in 2004 its MPS is 50.13, in 2005 its MPS is 58.73, in 2006 its MPS is 54.66, in 2007 its MPS is 59.94 and in 2008, the MPS is 64.81.

The National Achievement Test (NAT) results for 2006 reflected a declining performance rate of only 54.66%. It has decreased by 4% from the previous year. Scores in all subject areas went down by 6%, an alarming situation that should be seriously addressed by the educators of the Philippines.

In Mindanao and Eastern Visayas less than 30% of students finish primary school. A recent study showed that scores of Filipino Children between 9 and 14 in Mathematics, Science and Reading were two standard deviations below the international mean. Not surprisingly, urban/rural differences were especially pronounced (World Bank, 1999)

Specifically, in the Division of Iligan City, NAT results in Science and Health remains the lowest in all subject areas tested (Division NAT Report 2006-2009). Observations showed that Science Teaching in the division remains below par. Despite of the presence of Science Laboratories, ready made Lesson Plans and series of Science trainings, there is a failure to increase the results in the National Achievement Tests.

The main factors which can be cited to account for the low performance in Science of the Filipino student include lack of science culture and deficiencies regarding the school curriculum, the teaching learning process, instructional materials and teacher trainings (Batomalaque, 2003).

Given these observations and output of science instructions, it is inherent that science education needs to be given utmost attention both by the Department of Education and researchers. This is to establish empirical data as foundation for recommendations and policies for the improvement of science education. In this study, selected factors that are related to the National Achievement Test (NAT) performance of Grade VI pupils in Science and Health will be investigated. These will be on teacher factors. It is hoped that this study can contribute to the improvement of science education not only in Iligan City but to the whole country as well.

FRAMEWORK

The study is anchored on the theory of Lupdag (1994) that says factors affecting pupils' learning are numerous and among them are the teachers, the learners themselves and the environment. The teacher plays a crucial role in the teaching-learning process while the learners carry with them variables that could influence the process and the environment that set the climate for the teaching-learning process.

Meanwhile, Grabatu (1999) points out that the teachers' competencies have many distinguishing characteristics such as certain domain of knowledge found in the teacher academic preparation which include teacher instructional qualification or degree earned. This educational qualification can be measured and can be related to job performance later.

Training teachers expand their knowledge that results to transformation, hard work and God inspired ways of teaching (Nitzel, 2009). In the process of training, teachers are given a chance to apply, explore and reflect to result in a shift of their views and beliefs through problem solving. It involves them to develop the best practices, implement new procedures, programs and techniques useful in their actual teaching. By this, training does not only develop teaching competencies but enhance also transformation.

Training involved skills development, creating and sharing knowledge and skills as intellectual capital as basic skills needed to perform tasks and advanced skills like the use of technology to share information with others understanding of pupils or the system and self motivated creativity. The goal of training is for teachers to master knowledge, skills and attitudes emphasized in training programs and to apply them to their daily activities. Training practices help create working conditions that encourage continuous learning, encourage teachers to think new ways, see relationships and feedback loop and test assumption. It also create a learning culture in the organization in which learning is rewarded, promoted and supported by management or organization's objectives. It makes teachers take risks, innovate, explore new ideas, try new process, develop new ideas, try new process, develop new services, and affects valuing of teachers (Noe,et al, 2005).

Doctor (1998) stresses that as key to quality education teachers need to have higher level of preparation and learning to equip students with better knowledge and skills." Education's bottom line" is teacher's teaching and students learning. Principals and superintendents, (Siedentop, 1991) believes, will say that lack of teaching skills is more an acute problem than lack of subject matter knowledge in regard to teacher failure.

Niltasquitz (1999) reveals that teaching efficiency is more on experienced teachers than on less experienced ones. The number of years a teacher experienced in the teaching profession was a determinant for his/her competencies.

Gene, et al (1998) stated that, teaching is used primarily to facilitate the growth and development of individuals. The teacher's professional knowledge gave this capacity to design learning activities such that the

learner will develop his full potential. To ensure effective instruction and functional planning, directing, controlling and evaluating the learning process, the teacher needs competencies to do the job.

The mentioned theories point out that the performance of pupils is influenced by teacher factors, Teacher factors constitute the educational qualifications, experiences, competences, achievement/ awards and trainings attended. These factors interact with each other to cause performance of learners in the National Achievement Test (NAT) specifically in Science and Health subject .How ever, pupils from different school setting may perform differently (Mangato, 1995). These school settings are classified as urban and rural schools.

OBJECTIVES OF THE STUDY

The study aimed to find out which teacher factors determined the Grade VI pupils' performance in Science and Health in the National Achievement Test (NAT) in the Division of Iligan City for SY 2008-2009. The specific objectives of the study are:

To determine the educational qualification, experience and training objectives attained by teachers;

To determine the level of performance in Science and Health subject area in the National Achievement Test (NAT) and the difference among pupils in rural and urban schools; and

To relate the teacher educational qualification, experiences and training objectives attainment and pupils performance in the NAT.

MATERIALS AND METHODS

The study used the descriptive research in determining the teacher factors that are determinants to the performance of grade VI pupils in the National Achievement Test (NAT) in Science and Health. Furthermore, this is appropriate in describing the relationship of performance of pupils and the factors presented by the study.

The study was conducted in the different schools in the Division of Iligan City during the SY 2008-2009. These schools are classified as to urban and rural. Standards in defining Urban Villages (per NSCB resolution No. 9 Series 2003): (1) If a village has a population size of 5,000 or more, then a village is considered urban. (2) If a village has at

least one establishment with a minimum of 100 employees, a village is considered urban. (3) If a village has 5 or more establishments with a minimum of 10 employees, and 5 or more facilities within two-kilometer radius from the village hall, then a village is considered urban Iligan City has 28 urban villages and 16 rural villages.

The city of Iligan is located in the Northern coast of Mindanao facing Iligan Bay, bounded in the north by the province of Misamis Oriental, in the east by the provinces of Bukidnon and Lanao del Sur and in the South by the province of Lanao del Norte.

It is approximately 795 kilometers southwest of Metro Manila at the boundaries of Regions 10 and 12. Geographical grid coordinates are 8* 13′ 56′ north latitude and 124 13 s4 east longitude. Iligan City encompasses 44 villages with a land area of 81,337 hectares, which is about 25% of the total land area of Central Mindanao.

The respondents of the study answered the instrument for data gathering. There were 81 Grade VI Science Teachers, 71 principals and 125 grade VI pupils. For teachers and principals the whole population will be taken as respondents. The 125 pupils will be selected from 6,172 total Grade VI pupils during the SY 2008-2009. In determining the number of respondents, the study will use the probability sampling.

Data were gathered in this manner, a letter of recommendation was obtained from the Dean of School of Policy Studies, Education and Management for the researcher to conduct her study. With the recommendation, the researcher proceeded to the office of the superintendent of the Division of Iligan City to ask permission from her .to administer her instrument to the respondents to the different schools. A prior visit to the office of the district supervisor would be done to inform that the researcher would distribute her instrument to science teachers in the different schools within her district. The researcher distributed the questionnaire to the science teachers and explained how it is done. The teachers are given thirty minutes to accomplice it and after that it would be retrieved from them. Data were checked, tabulated and analyzed.

The study used a researcher- made questionnaires for the respondents. For teacher questionnaire this contained the educational qualifications, experiences, evaluation of the objectives of trainings attended, NAT Result were be taken from the NETRC Office through a formal letter of request signed by the Dean of Graduate Studies

of Mindanao University of Science and Technology (MUST) The researcher made questionnaire was tried out and reliability test among ten try out respondents for each kind of school specified by the study. Reliability coefficient is .87.

The data were analyzed using, mean value, Pearson Product Moment of Correlation, t-test and regression analysis.

RESULTS AND DISCUSSION

Table 1 shows the educational qualifications of Grade VI science teachers in the Division of Iligan City. The highest percentage (70%) of science teachers has MA units and none has a Ph. D. degree. This implies that science teachers in the division are not so serious of having advance education. In fact, having MA units for them is just for the purpose of promotion since it is noted that even the district staff and some teachers having the position of master teachers are not MA degree holder nor have MA units. It must be known that graduate education can be a way to attain knowledge, skills, and attitudes (Mc Carron, 2002) These developments can contribute much for the acquisition of competencies and effective performance of teachers and enable them in performing their essential responsibility in molding the youth.

Table 1. Profile of Grade VI Science Teachers in the Division of Iligan City in terms of educational qualification

Educational Qualification	f	%
With no Advance Education	8	10
With MA Units	57	70
With MA Degree	15	19
With Ph.D. Units	1	1
With Ph.D. Degree	0	0
Total	81	100

As to the number of years in teaching, data shown in Table 2 indicates that the highest percentage (38%) of teachers has the 11-15 years in teaching. The lowest percentage of (16%) of teachers has 16-20 years of teaching. These results imply that science teachers are averagely experienced in teaching. It is expected that with the experiences, they are more efficient (Niltasquitz, 1999).

Table 1. Profile of Grade VI Science Teachers in the Division of Iligan City in terms of number of years in teaching.

Number of Years in Teaching	f	%
5 years and below	13	16
6- 10 years	25	31
11-15 years	31	38
16-20 years	5	6
21 years & above	7	9
Total	81	100

Table 3 is on the level of training objectives that teachers had attained. Results revealed that enhancement and improvement of competencies/capabilities of science and health teachers trainee for effective and efficient teaching and in preparing support instructional materials is very highly attained, however enhancement of science knowledge and application of knowledge into a research paper is also highly attained

Noe, et al (2005) stressed that trainings are for the mastery of content, develop skills in teaching the subject and effective behavior towards the discipline that could enhance teachers' competencies. Training involved skills in intellectual capital as basic skills needed to perform tasks and advanced skills. It makes teachers take risks, innovate, explore new ideas, try new process, develop new skills and affect valuing of teachers.

Table 3. Level of training objectives teachers have attained.

Objectives	$\bar{X}$	Sd	Qualitative Description
1. Enhancement of Scientific knowledge and application of the knowledge through organizing and analyzing information and developing the material into research paper.	3.45	.69	Highly attained
2. Enhanced leadership and communication skills and to learn the importance of cooperation with others in working towards a goal.	4.00	.57	Highly attained
3. Provide an opportunity for supervisors and school heads to understand and become part of a larger scientific community.	4.03	.83	Highly attained
4. Committed to service for excellence in the pursuit of scientific activities.	4.28	.72	Highly attained
5. Enhance and empower the competences/capabilities of Science and Health VI Teachers' trainee to enable them to teach more effectively and efficiently as well as enhances their capabilities in preparing support instructional materials.	4.35	.70	Highly attained
Total	4.02	.70	Highly attained

Pupils in Science and Health subject area in the National Achievement Test (NAT) were classified according to the classification of their schools namely: urban and rural schools. In table 4, results on the comparison of pupils achievement is shown. Findings show no significant difference in science achievement which are classified in the NAT between pupils in urban and rural school

Table 4. Performance of students in science and health when classified as rural and urban

Achievement Type	X	Sd	t-ratio	Interpretation
Urban	43.15	9.39	0.28	Not significant
Rural	42.48	10.47		

CONCLUSIONS

On the basis of the findings of the study, the following conclusions are derived: Science teachers are not so interested about their own advance education. Science teachers are averagely experienced in teaching the subject. They highly attained the training objectives of the seminars they had attended.

The advance education, experiences and the attainment of the training objectives of teachers did not affect the way pupils performed in the NAT.

RECOMMENDATIONS

Based on the conclusions made, the following are the recommendations being offered by the study.

The Department of Education may sponsor or give scholarship grants to teachers for their educational advancement.

Evaluation of teachers' training and other aspects of climate for training transfer must be monitored and evaluated.

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