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SCIENCE MENTORING PROGRAM AS IMPLEMENTED IN THE DEPARTMENT OF EDUCATION LEYTE DISTRICT, LEYTE DIVISION, PHILIPPINES

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ABSTRACT

The study generally aimed to determine the impact of science mentoring program as implemented in the DepEd Leyte District, Leyte Division. A total of 20 teacher-mentees from the different mentored schools were chosen as respondents of the study. Eight (8) or 40 percent were from School A, 7 or 35 percent were from School B and five or 25 percent were from School C.

Out of the 20 teacher-mentees, 1 or 5 percent had a master's degree; 7 or 35 percent had Bachelor's degree; and 12 or 60 percent had master's units.

Data reveal that 4 teacher-mentees or 20 percent were 21 years and above in the service and were considered experienced; 8 or 40 percent were 10-20 years in service and were considered mid-career; and the other 8 0r another 40 percent were considered novice.

Out of the 16 science mentoring interventions, 11 were found to be effective and 5 were less effective by the teacher-mentees.

On the teacher-mentees attitude towards teaching, majority of them perceived teacher-relationship, individual difference of the learners, teaching practices and norms as more important.

As to the pupils' performance in the National Achievement Test, the Science III Mean Percentage Score of the mentored schools got the Mean of 37.11 for the school year 2007-2008 and 74.81 for the school year 2008-2009, respectively. As for the Grade VI, the mentored schools posted the Mean of 34.73 and 71.41 for the school years 2007-2008 and 2008-2009 respectively. However, in the school year 2009-2010 the result had decreased; thus, it registered a total Mean of 99.82 for the 3 school years.

KEYWORDS: Science Mentoring Program, Department of Education, Leyte Division, teacher-mentees, National Achievement Test

INTRODUCTION

All teachers hold personal beliefs and dispositions about teaching, learning, and learners. Some teachers believe their responsibility is to teach the material, and the students' responsibility is to learn what is taught. If students struggle or fail to learn, the responsibility rests only with the students. Effective science teaching is a purposeful means to an important end, not the end itself. Teachers who embrace such a principle accept some measure of responsibility for their students' struggles and failure to learn. The degree of responsibility they accept depends on the students' level of effort to learn. If students and teacher both work hard, the teacher should accept a large portion of responsibility when students encounter difficulties or fail to learn. The teacher should also be able to modify instruction to help struggling and failing students improve.

Teaching is a purposeful means to help students learn. When students work hard but fail to learn, the teacher must accept a large part of the responsibility. Teachers must embrace the view that effective teaching means constantly being aware of and attending to students' struggles to learn science and continually adjusting their teaching strategies and techniques to help students work through difficulties. In doing so, teachers should set high learning expectations, focus on core scientific ideas, and aim for deep, integrated understanding of scientific inquiry and the core body of scientific knowledge. To help students reach teachers' aims and expectations, teachers must understand how learners actively construct new knowledge, as well as the complexity of the learning process, the importance of students' interests, and students' potential anxieties and conflicts with science concepts.

Teachers have long taught science as a sequence of lectures and reading assignments on its body of knowledge. If laboratory activities are included, they focus only on the development of lab skills and techniques, not on constructing new scientific ideas through inquiry. Today's students live in a world full of the products of scientific inquiry and engineering development. When students complete their formal schooling, they will enter a world filled with products that do not exist today—products that will be the result of scientific inquiry and engineering development.

Professor Arthur Eisenkraft (2003) believes that students learn Math and Science the way that practicing scientists and mathematicians do. They learn when something grabs their attention, when the content is relevant to their lives. They learn when teachers permit them to get their hands on the subject matter. In short, when teachers allow students to use all their senses, they make sense of Math and Science.

Today's students must learn how to do scientific inquiry and use scientific information to make decisions that will affect their personal lives, careers, and societies. To prepare students to live and work in tomorrow's world, science teachers must make room for scientific inquiry by decreasing their emphasis on teaching science as a sequence of lectures and reading assignments on the body of scientific knowledge. In addition, teachers must greatly decrease their coverage of non-core scientific knowledge. While doing so, they must retain the core knowledge in the scientific disciplines and increase their emphasis on scientific inquiry as a core part of science content and as a method of instruction.

Cesesta (1998) said that at the heart of the problem, it is the teacher who is identified to be the major factor which has a high and far-reaching influence on students' achievement. For the past few years teachers have been accused of the existing crisis. Transmission of knowledge, skills or competencies always involve instructional methodologies that are ideally at the disposal of the teacher. The choice of each approach, methodology or strategy is highly dependent on the teacher's definition of learning, teaching, knowledge and nature of learner.

The problem of poor quality education has been traced to a number of causes which includes, among others, teacher-related factors in terms of competencies and skills; the need for institutionalized support system to strengthen in-service training; clearly defining career paths and prospects of mobility in the teaching profession to enhance motivations to stick to the profession; and to regulate the teaching load, which according to studies conducted revealed that Filipino teachers have 72 percent tasks other than teaching.

The Department of Education today faces a great problem on poor quality education as seen and reported in many studies conducted by individuals and groups of people who are concerned with uplifting pupil performance.

The Educational Commission (Edcom) expressed its alarm on the present state of the Philippine educational system. They reported that the quality of education is declining continuously. Schools are failing to provide competence the average citizen needs to become responsible, productive and self-fulfilling (Lantajo, 2007).

According to Gloria, the result of the National Assessment Test given to Grade VI pupils completing elementary grades got a national mean way below the target mean score. Among those that get the lowest scores were Language, Reading, Science and Health, and Mathematics.

A parallel finding by Acuna in the National Secondary Achievement Test, from 1994-2000 showed Mathematics to be the second most difficult subject test, second only to Science and Health, which, in all those years, rank lowest. The Science Education Institute Achievement Test administered yearly from 1994 to the present confirmed this result.

The situation in the Department of Education (DepED) Leyte Division, Leyte District is just one case that alarmingly shows the pupils' low academic performance in Science 6 as reflected in the National Achievement Test III MPS for the School Year 2007-2008. Consequently, this problem has prompted the DepED for the implementation of the Science Mentoring Program in Leyte Division, Leyte District in the School Year 2008-2009 as an intervention to improve the performance of the schools in the National Achievement Test.

To find out whether the Science Mentoring Program is effective in helping the pupils improve their performance in Science, the researcher is highly motivated to pursue this study.

METHODOLOGY

The study utilized the descriptive-survey research design. Elementary schools of Leyte I and II districts were the venue of the study. These schools belonged to Leyte Division. There were a total of twenty (20) respondents in the study.

There were two instruments utilized in order to gather the necessary data. The first one is a questionnaire designed to collect data about the Science teachers. Part I dealt with the profile of the respondents. Part II focused on the attitudes of the teacher-mentees toward teaching. Part III covered the science mentoring program interventions (SMPI). The second instrument is the semi-structured interview using the focus-group discussion (FGD).

Data in this study were analyzed with the aid of the Statistical Package for Social Sciences (SPSS) version 11.5.

RESULTS AND DISCUSSION

Table 1. Profile of the Teacher-mentees

1.1 School Assignment	**Teacher's Profile**	
	f	**%**
School A	8	40
School B	7	35
School C	5	25
TOTAL	**20**	**100**
1.2 Highest Educational Attainment	**Teacher's Profile**	
	f	**%**
Doctoral	0	0
Doctorate Units	0	0
Master's Degree Holder	1	5
Bachelor Degree Holder w Masteral Units	12	60
Bachelors Degree	7	35
TOTAL	**20**	**100**
1.3 Number of years in Teaching	**Teacher's Profile**	
	f	**%**
21 years and above (Experienced)	4	20
10 - 20 years (Mid -Career)	8	40
1 - 9 years (Novice)	8	40
TOTAL	**20**	**100**

School assignment. There were three elementary schools where the 20 teacher-mentees came from and were taken as respondents. Eight (8) or 40 percent were from School A, 7 or 35 percent were from School B and five or 25 percent were from School C. These results show that teacher-mentees who were considered as respondents are coming from

those schools whose NAT ratings in Science are low. Thus, this may indicate that mentoring is intended to improve the performance of the low performing schools.

Highest educational attainment. Out of the 20 teacher-mentees, 1 or 5 percent had a master's degree; 7 or 35 percent had Bachelor's degree; and 12 or 60 percent had masteral units. Based on this result, it could be implied that most of the respondents are not yet master's degree holders. Moreover, this would also mean that the teacher-mentees have yet to continue upgrade their academic status by pursuing higher or graduate studies.

Number of years in teaching. Data reveal that 4 teacher-mentees or 20 percent were 21 years and above in the service and were considered experienced; 8 or 40 percent were 10-20 years in service and were considered mid-career; and the other 8 0r another 40 percent were considered novice. This would indicate that the greater number of the respondents who are novice and mid-career are equal and the experienced ones are very less. This may also indicate that senior or older teacher-mentees is less in number.

Science Mentoring Mentoring Program Interventions (SMPI)

As gleaned from the table, there were about 19 interventions adapted in the science mentoring program. It could be noted that mostly of these interventions were on the category more effective with an average weighted mean of 4.06 percent. For interventions 1, 2 and 3 which pertain on the process of test item construction and utilization, these were found to be more effective. Teacher-mentees used the pink, yellow and NAT 2008 booklets for Grade III and the previous year's NAT VI test booklets. The constructed HOTS and parallel test questions were considered primary review materials in Science. In an interaction with the teacher-mentees by the researcher, teacher-mentee 1 said that she found the test construction and utilization smooth and well-facilitated. Based on these data, it could be inferred that interventions 1, 2 and 3 were more effective.

Interventions 4 and 5 focused on the provision of comprehensive review materials to be used during review sessions. This attained a total weighted mean of 4.25 percent or more effective. Comprehensive review materials were either photocopied from high performing schools, district or division or bought from the bookstores. In an interview, one teacher-mentee happily expressed her appreciation of the immediate availability of supply of comprehensive review materials. "Daghang mga bag-o gyud nga review materials nga gamit kaayo sa mga bata" (There are really new review materials much needed for the pupils). Findings would suggest that review materials are well-provided and the respondents are well-equipped and better-prepared.

Interventions 6, 7 and 8 were on the conduct of INSET and demo-teaching on concept review. As revealed in the table, this obtained a total weighted mean of 4.00, 4.15 and 4.05 percent or more effective. Concept reviews were based on the monitoring test results. The analyzed least learned skills of the test were the focus of the concept review. The researcher observed that the teacher-mentees were much drawn and inclined to this activity since they all wanted the improvement of their pupils' learning as well as increase their performance in the NAT test. Teacher-mentee 2 expressed his approval on the selection of the least learned skills to be the focus of the concept review since it is where the teachers need to bridge the gap between them and the pupils' learning needs. This may indicate that the context of the review is appropriate and relevant to the objective it seeks to address.

Interventions 9 and 10 were on Remediation, Reinforcement and Enrichment (RRE). These attained total weighted mean of 4.10 and 4.05 or more effective. In application, there were reteaching of least learned and average learned skills, reinforcement of skills nearing mastery, and enrichment of mastered skills. The teacher-mentees found this activity totally engrossing and beneficial as they had been thought to level up. One group of teacher-mentees told the researcher that the solution to strengthen the weak areas was properly met and that there would be no reason something might be overlooked or neglected by any teacher. This would mean that the remediation, reinforcement and enrichment is properly done based on the identified needs.

Interventions 11, 12 and 13 entailed on the time observance of the mentoring activity for Grades IIII and VI low performing schools. With total weighted mean of 3.85, 3.85 and 4.15 these fell on the bracket effective and more effective. The researcher had ample time to visit the teacher-mentees everyday since he was deloaded with some subjects. He was able to review during the weekends two months before the NAT test schedule. Two teacher-mentees asked the researcher if he could conduct weekend reviews not just every Sunday but also every Saturday. They preferred the weekend schedules since these were the days they could better concentrate and be free from distractions

and disruptions from work.Results would suggest that the researcher must give more time or regularly conduct review sessions in the weekends to assist and facilitate the needs of the teacher-mentees.

Intervention 14 emphasized on the linkage with stakeholders. The researcher had pleasant encounter and experience. His attendance to the sessions had drawn positive response from the stakeholders. His mentees shouldered his transportation expenses. The PTCA allocated fund for the snacks of the pupils during special review sessions. The barangay as well as the municipal officials donated amount for the free lunch of the pupils during Sundays. As the science mentor, the researcher was given a laptop for his own utilization being the ICT coordinator of the district at the same time. Many of the teacher-mentees said that they were pleased and felt positive about the program. "Ang paghiusa sa eskwelahan ug sa kumyunidad dako gyud ug bili sa mentoring" (The unity between the school and the community have a strong impact to the mentoring program). This would mean that the community and local government are very supportive and cooperative to the school and that they are favorable to the science mentoring program. Furthermore, this would also indicate that the parents have strong commitment to the education of their children.

Intervention 15 was on provision of free review materials and lunch during special review sessions. This had a total weighted mean of 3.85 percent or effective. It was observed by the researcher that, because of this, the pupils were motivated to attend the review classes. The budget used in the reproduction of reviewers and for the lunch was solicited from the municipal officials. Results could infer that adequate supplies and materials are provided during the review and that the local officials are mainly concerned on education and better academic performance among the pupils.

Intervention 16 focused on the correct format of science lesson plans. This registered a total weighted mean of 4.00 percent or effective. The teacher-mentees noted that lesson plans serve as their guide in executing the lesson and good lesson plans are pre-requisite of an effective classroom instruction. In a conversation with the teacher-mentees, it was learned that some of the mentees do not follow the guidelines and requirements in lesson planning. Teacher-mentee 5 said that lesson planning is time-consuming and can affect his ability to give more time to students for lectures and other classroom activities. He further cited that sometimes he does not prepare lesson plans ahead of the class and he does it after discussing the lesson most of the time. Results would suggest that the wrong practice of the science teachers on lesson planning is remedied and proper execution of the lesson is valued.

Intervention 17 pointed on science vocabulary. This got a total weighted mean of 3.85% or effective. Majority of the teacher-mentees said that new science words had improved the pupils' science vocabulary and also better understanding toward the lesson. Teacher 15 shared her observation and said that higher scores were achieved by her pupils after she had utilized this intervention in her class. Based on this, it could be inferred that vocabulary skill is among the major considerations given emphasis in the program. Likewise, this would mean that vocabulary problem between the teacher and the pupil is addressed.

Interventions 18 and 19 covered the advocacy to Time-On-Task. This had total weighted mean of 4.25 and 4.25 percent or more effective. The 60-minute period for Science instruction was utilized effectively and efficiently for meaningful science activities like experiments, group activities, field exercises, and etc. Data would suggest that meaningful teaching-learning situation is reached with the time properly utilized by having different activities in class. Teacher-mentee 19 suggested the use of at least three science activities in order for the young learners to master the behavioral skill that they want to develop everyday. Results would imply that science teachers should be creative, innovative and artistic to make teaching-learning meaningful and fun.

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Table 2 Science Mentoring Program Interventions

Science Mentoring Program Interventions	5 Most Effective	4 More Effective	3 Effective	2 Less Effective	1 Ineffective	Total	TWM
1	7	11	2	0	0	85	4.25
2	6	10	4	0	0	82	4.10
3	5	12	3	0	0	82	4.10
4	6	13	1	0	0	85	4.25
5	4	8	8	0	0	76	3.80
6	4	12	4	0	0	80	4.00
7	6	11	3	0	0	83	4.15
8	6	9	5	0	0	81	4.05
9	8	7	4	1	0	82	4.10
10	6	9	5	0	0	81	4.05
11	6	7	5	2	0	77	3.85
12	5	8	6	1	0	77	3.85
13	5	13	2	0	0	83	4.15
14	7	8	5	0	0	82	4.10
15	6	7	7	0	0	79	3.95
16	5	10	5	0	0	80	4.00
17	6	7	5	2	0	77	3.85
18	7	11	2	0	0	85	4.25
19	9	9	2	0	0	87	4.35
						AWM	**4.06**

Table 3 Teacher-mentees Attitudes towards Teaching

Teacher-Mentees' Attitudes Towards Teaching	5 Very Much Important	4 Much Important	3 Important	2 Less Important	1 Not Important	Total	TWM
1	7	11	2	0	0	85	4.25
2	13	2	4	1	0	87	4.35
3	4	6	5	5	0	69	3.45
4	10	7	2	1	0	86	4.30
5	10	7	2	1	0	86	4.30
6	17	2	1	0	0	96	4.80
7	15	4	1	0	0	94	4.70
8	13	5	2	0	0	91	4.55
9	7	12	1	0	0	86	4.30
10	12	6	2	0	0	90	4.50
11	15	4	1	0	0	94	4.70
12	10	9	1	0	0	89	4.45
13	7	8	5	0	0	82	4.10
14	12	6	2	0	0	90	4.50
15	7	9	4	0	0	83	4.15
16	7	7	6	0	0	81	4.05
17	3	12	4	1	0	77	3.85
18	5	10	5	0	0	80	4.00
19	5	10	5	0	0	80	4.00
20	4	12	4	0	0	80	4.00
AWM							**4.25**

Teacher-Mentees Attitudes toward Science Teaching

The teacher-mentees attitudes toward science teaching was ascertained by assessing the degree to which teacher-learner relationships, individual differences of the learners and teaching norms and practices were observed by the respondents to be of importance. Presented in table 3 are the teacher-mentees attitudes toward science teaching.

Teacher-learner relationship. Under this aspect, the teacher-mentees registered under the total weighted mean of 4 percent which means more important. On the other hand, only the third item was considered by the teacher-mentees as important with a lower weighted mean of 3.45.The third item is: "If students and teacher both work hard, the teacher should accept a large portion of responsibility when students encounter difficulties or fail to learn". Based on the findings, it could be inferred that the teacher-mentees do not consider themselves to be of more responsibility and accountability on some learning difficulties and failure of students. This would imply that the teachers put a little gap between them and their students, making the latter more responsible and independent.

Individual differences of the learners. With each item having a total weighted mean of 4 percent which is more important, majority of the teacher-mentees regarded individual difference of the learners more important. With this data, it could be deduced that the teacher-mentees have positive attitude towards the individual difference of the learners. Hence, this would imply that the teacher-mentees are flexible in meeting the learning needs and considerate in terms of the types of learners they have in class.

Teaching norms and practices. Majority of the teacher-mentees thought of most of the items as more important with 9, out of 10, having each a total weighted mean at 4 percent. However, only 1 item which is number 17 had a total weighted mean of 3.85 percent or important, slightly of lower value than the rest of the items. Item number 17 is on the "use of science concepts and processes as contexts for students to write persuasive essays, engage in oral discussions, connect data with scientific theories, and solve problems requiring mathematical reasoning". Results reveal that the teacher-mentees do not highly consider content-based or contextual approach in teaching. Likewise, this would imply that higher order or critical thinking skills of the learners is on the average level.

Pupils' Performance in Science in the National Achievement Test (NAT)

Another very important objective in the study was to find out the performance of the pupils in the NAT particularly in Science. These included the Grades III and VI pupils of the enlisted mentored schools as indicated.

Table 4 Pupils Performance in the National Achievement Test in Science

	SCIENCE III MPS		
MENTORED SCHOOLS	**2007-2008**	**2008-2009**	**MEAN**
Parasan	26.67	77.22	51.95
Danus Elementary	41.03	68.89	54.96
Libas Primary	41.46	83.33	62.40
Parasan Primary	30.83	58.89	44.86
Tag - abaca Elementary	47.2	83.33	65.27
Tapol Elementary	45.22	92.15	68.69
Tinocdugan Primary	37.78	53.33	45.56
Toctoc Elementary	26.67	81.33	54.00
TOTAL	**37.11**	**74.81**	**55.96**

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MENTORED SCHOOLS	SCIENCE VI MPS			MEAN
	2007-2008	2008-2009	2009-2010	
Baco Elementary	39.93	72.07	73.3	136.43
Belen Elementary	49.64	75.69	0	74.87
Palid II Elementary	30.65	52.87	63.52	104.69
Salog Elementary	28.83	79.89	0	55.46
Toctoc Elementary	24.62	76.51	79.56	127.65
TOTAL	**34.73**	**71.41**	**43.276**	**99.82**

As shown in the table, the Science III MPS of the mentored schools got the Mean of 37.11 for the school year 2007-2008 and 74.81 for the school year 2008-2009, respectively. These schools garnered a total weighted mean of 55.96, indicating a very high MPS. It could be observed that the mentoring program had greatly contributed to the upsurge of the NAT performance of the schools comparing the results between school years 2007-2008 and 2008-2009, respectively.

As for the Grade VI, the mentored schools posted the Mean of 34.73 and 71.41 for the school years 2007-2008 and 2008-2009 respectively. However, in the school year 2009-2010 the result had decreased; thus, it registered with a total Mean of 99.82 for the 3 school years. Results indicate that the mentored schools are not consistent of their good performance as the last school year shows their sudden drop in ratings. This would mean that mentoring program needs to be strengthened or intensified in order to attain positive results in the NAT.

Significant Relationship of Grade III MPS and the Teacher-Mentees Attitudes Towards teaching Science Subject

Variables	α	df	r-value	t-value	implication
5.1	.05	6	0.59	.62	accepted
5.2 Comparative NAT III MPS in Science and Health and Teacher-Mentees attitudes towards Teaching Science subject			- 0.10 (slight Correlation)		accepted
5.2 Comparative NAT VI MPS in Science and Health and Teacher-Mentees attitudes towards Teaching Science subject			-0.54 (Moderate Correlation)		Accepted

5.2 Since the computed value of r is -0.10 is less than the tabular value of 0.62 at 0.05 level of significance with 6 degree of freedom, the null hypothesis is confirmed in favor of the research hypothesis. This means that there is no significant relationship between the NAT III and NAT VI MPS in Science and Health and Teacher-Mentees Attitudes towards Teaching Science subject. It implies that the lower performance of the MPS the lower

CONCLUSIONS

On the basis of the aforementioned findings, the following conclusions are drawn:
Most of the respondents are without master's degrees or higher educational qualifications. The interventions adapted in the science mentoring program are perceived by the teacher-mentees as effective and well-facilitated that it even encourages strong support from the community and local government officials.

The teacher-mentees manifest favorable response and positive attitude towards teaching. The science mentoring program brings different results between the Grade III and Grade VI mentored schools and therefore it is observed as very effective and successful to Grade III but not in Grade VI.

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RECOMMENDATIONS

Based on the results of the study, the following recommendations are suggested:

1. The teachers should continue pursue higher studies or graduate education in order to upgrade their professional skills, enhance their competence and broaden their academic qualifications which will be the adequate preparation for effectiveness and efficiency in teaching.
2. The Department of Education through the school administrators must evaluate or conduct assessment every now and on the interventions adapted in the mentoring program to determine which ones are really needed and to be kept and which ones are not and to be replaced.
3. The school administration should send teachers to seminar and trainings to hone their competencies and abilities and to expose them to new trends and innovations in teaching particularly in Science.
4. The teachers must strive to explore possibilities and exhaust all avenues to try their potentials and give their best in teaching by responding to the learning needs and levels of the students.
5. Parallel studies on science mentoring program maybe undertaken in other schools in regional or national scope.

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