The Implementation of K to 12 Science Program in Public Elementary Schools: Teachers' Pedagogical Practices and Problems Encountered in Teaching Science

Resttie S. Daguio, Department of Education, The Philippines
Eileen C. Bernardo, Isabela State University, The Philippines

Abstract
The study aimed at conducting formative evaluation of the implementation of K to 12 Science Program of public elementary schools in Santo Tomas District, Santo Tomas, Isabela for the first semester of school year 2017-2018. Specifically, the study aimed to determine the teachers' pedagogical practices along with the common problems encountered by teachers and administrators, and the degree of seriousness of these problems. The respondents of the study were nine (9) randomly selected public elementary schools in Santo Tomas District. From these randomly selected schools, nine (9) administrators, 36 teacher respondents were obtained and participated in the study. Following the CIPP (Content, Input, Process, and Product) evaluation model of Stufflebeam (1971), the study used quantitative and qualitative designs of research. Quantitative methods were used in generating numerical data through survey questionnaires. The survey questionnaires solicited for the extent of the implementation of teachers' pedagogical approaches and the degree of seriousness of problems encountered. Qualitative approach of research was used to uncover the common problems encountered by teachers, administrators, and learners in the implementation of K to 12 Science Program. Results of the study pointed out that generally, teachers of the district implement the prescribed pedagogical approaches of teaching K to 12 Science at a great extent. Pedagogical practices which are mostly implemented by teachers, include the use of 5-E Instructional model, Inquiry-based learning, contextualization, integration of concepts in other subject areas and the linking of what learners already know with the lesson or concepts to be tackled. The survey questionnaire revealed major problems on lack of K to 12 trainings, lack of resources and facilities, and curriculum enhancement. Responses of teachers and administrators from interviews exposed two broad categories of causes of problems arising in their classroom Science instructions: teacher factor and pupil factor. Pupil factor includes lack of prerequisite knowledge on contents, poor comprehension in the English medium and some topics are too high for the level of the pupils. While teacher factor includes lack of knowledge on the teaching approaches and techniques and contents in teaching Science, unavailability of teaching-learning resources and significant number of disrupted classes. The study suggests that the problems that teachers are facing particularly on the lack of trainings and learning materials should be addressed as soon as possible because these are the defining factors towards the successful implementation of the program and the attainment of its objectives.

Keywords: K to 12 Curriculum, Teachers' Pedagogical Practices, Problems Encountered in Teaching Science

Introduction

The general vision statement of the implementation of the new curriculum reform of the Department of Education (DepEd) states that, "Every graduate of the Enhanced K-12 Basic Education Program is an empowered individual who has learned through a program that is rooted on sound principles and geared towards excellence". DepEd considers that the enhanced curriculum would benefit Filipino learners and families, society and economy, in view of the fact that K-12 is affordable, conceived to produce more productive and responsible citizens equipped with the essential competencies and skills for both life-long learning and employment.

With its initial years of implementation, K to 12 has introduced significant reforms in curriculum and instruction and even series of changes of some aspects of its implementation. This is due to the aim of DepEd to ensure continuous improvement of its system to guarantee the attainment of the vision of the program. To achieve the goal of ensuring continuous improvement, sound information and data are required as bases for the improvement of programs for learner development, curriculum implementation and school effectiveness. This is where the essence of program evaluation and assessment comes in, which is to provide information and evidence to oversee the on-going implementation of the K to 12 Basic Education Program and to pin-point areas where improvements might be made.

Program evaluation is a valuable tool for both planners and implementers who are seeking to strengthen the quality of their programs and improve learning outcomes. It finds out "what works" and "what does not work." Knowing "what works" helps program implementers to focus and replicate inputs on the essential components of the program model that benefit participants and volunteers; knowing "what does not work" allows program implementers to improve and strengthen their service delivery models. Not knowing what is working may waste valuable time and resources, thus compromising the efficiency of the implementation of a program. Program evaluation answers basic questions about a program's effectiveness, and evaluation data can be used to improve program services (Metz, 2007).

Truly, the implementation of K to 12 Program of the Department of Education serves a noble purpose for every Filipino learner. Aimed at the successful implementation and realization of the program vision, DepEd has been very determined in pouring out its efforts in pushing open and consultative processes among stakeholders and major implementers, creation of task-forces for implementation monitoring and evaluation, regional consultations leading to national summits to solicit inputs and feedback, curriculum review and enhancement, massive teacher training and development of learning resources and infrastructures.

Monitoring and evaluation of a program is an essential activity and integral towards its successful implementation. Evaluation of K to 12 Basic Education Program particularly in its initial phase of implementation is necessary so as to draw feedback for its improvement. Through evaluation, a rich picture of the program will be learned, and doors will be opened for prospective learning. The success and failure of the on-going implementation of a program and the reasons behind these can be determined.

It is in this light that the researchers wanted to conduct formative evaluation of the implementation of K to 12 Basic Education Program in terms with the pedagogical practices of teachers specifically in the field of Science in public elementary schools in Santo Tomas, Isabela, Philippines.

More specifically, this study sought answers to the following questions:
1.   What are the Science pedagogical practices implemented by teachers?
2.   What is the extent of implementation of these pedagogical practices?
3.   What are the common problems encountered by teachers and administrators in the implementation of K to 12 Science Program?
4.   What is the degree of seriousness of the common problems encountered by teachers and administrators in the implementation of K to 12 Science Program?

METHODOLOGY

Research Design

To address the problem statement, this study utilized both qualitative and quantitative designs. Qualitative approach of research was also used to uncover the common problems encountered by teachers and administrators in the implementation of K to 12 Science Program. The researchers made use of individual and focus groups interview as data collection method. This data collection method provided an opportunity for a systematic, in-depth evaluation of the research questions. Furthermore, this method added to the quantitative results through explanations and clarifications from the respondents.

Quantitative Research method was used to quantify the problem by way of generating numerical data that can be transformed into useable statistics. It is used to quantify variables and generalize results from it. It uses measurable data to formulate facts and uncover patterns in a research. With the use of survey questionnaire, this study generated numerical data to describe the extent of pedagogical practices in the implementation of K to 12 Science Program and the degree of seriousness of common problems encountered by teachers and administrators in the implementation of the program.

Sources of Data

The study was conducted in public elementary schools in the district of Santo Tomas, Isabela. The population of the study includes all Science teachers and administrators from 18 public elementary schools in Santo Tomas District. Schools covered in the sampling were randomly selected by the researcher. Out of the 18 schools, nine (9) schools were included in the selection of respondents. All Science teachers and administrators from the randomly selected schools were part of the respondents of the study. The totality of the respondents of the study includes the 36 Science teachers and (nine) 9 administrators.

Research Instruments

The researchers made use of interview guide and survey questionnaire test in gathering and collecting data from the respondents.

A self-made interview guide was developed and used to determine the pedagogical practices and common problems encountered by teachers and administrators in the imlementation of K to 12 Science Program. Interviews were also meant to validate data from the questionnaire answered by the respondents especially on the problems encountered in the program implementation. Due validation by experts of the interview guide was also taken into account.

A self-made survey questionnaire was developed by the researchers. It was used as the primary data gathering instrument in collecting information regarding the level of implementation of the identified areas of implementation of the K to 12 Science Program of teachers and administrators along with the problems encountered in the implementation of the program. Prior to the development of the researcher-made survey questionnaire, pre-interviews were done among target respondents. This was done to solicit all possible problems encountered by the teachers and administrators and such findings were included as predetermined problems or items in the questionnaire. Other items or problems added in the questionnaire were based from related literature and studies. The instrument underwent content validation by three experts in the field of thesis writing.

Data Gathering Procedure

Primary data were gathered by means of interviews and floating survey questionnaires among Science teachers and administrators. The researchers personally floated the questionnaire to the respondents and subsequently validated answers of the respondent through follow-up interviews. While secondary data were obtained from related studies and literature.

Data Analysis

For a clearer interpretation of the data gathered from the survey questionnaire and interviews, the researchers used the following statistical procedures:

Mean was used in measuring the extent of implementation of the Science pedagogical practices of teachers and in describing the degree of seriousness of common problems encountered by teachers and administrators.

The following intervals were used in interpreting the computed weighted mean for the extent of implementation of Science pedagogical practices:

Table 1
Arbitratry Scale on Describing the Extent of Implementation of Pedagogical Practices

Weight	Scale/Range	Description	Code
5	4.50 – 5.0	Very Great Extent	VGE
4	3.50 – 4.49	Great Extent	GE
3	2.50 – 3.49	Moderate Extent	ME
2	1.50 – 2:49	Little Extent	LE
1	1.00 – 1.49	Very Little Extent	VLE

In describing the level of seriousness of problems, the following intervals were used:

Table 2
Arbitrary Scale on Describing the Degree of Seriousnes of Problems Encountered

Weight	Scale/Range	Description	Code
5	4.50 – 5.0	Very Serious	VS
4	3.50 – 4.49	Serious	S
3	2.50 – 3.49	Moderately Serious	MS
2	1.50 – 2:49	Slightly Serious	SS
1	1.00 – 1.49	Not a problem	NP

RESULTS AND DISCUSSION

Prior to the development of the survey questionnaire, the researcher conducted random pre-interviews among Science teachers and administrators. These pre-interviews solicited for the Science pedagogical practices of teachers and the common problems encountered by program implementers. Such findings were considered and included by the researcher in the items of the survey questionnaire.

Pedagogical practices which are implemented and verbalized by the teachers and administrators during the interviews are listed on the Table 3 with corresponding frequencies.

Table 3
Science Pedagogical Practices Implemented by Teachers

Common Pedagogical Practices	Frequency (f)	
	Teachers	Administrators
1. Uses Inquiry-Based Approach	18	8
2. Uses pupils' schema to encourage participation	24	3
3. Patterns instruction in the 5E Learning Cycle Model	26	6
4. Uses various teaching approaches in Science :	12	2
5. Uses Constructivist Approach	3	1
6. Employs contextualization in teaching the subject	24	8
7. Uses hands-on learning activities	20	7
8. Uses evidence in constructing explanation	7	2
9. Integrates Science lessons in other subjects	24	3

Based on the data table, it appears that pedagogical practices which are implemented by most of the teachers include the use of Inquiry-Based Approach, use of the 5^E Learning Model, employing contextualization, integrating Science lessons in other subjects and use of hands-on activities.

Table 4 shows the common major problems of teachers and administrators verbalized during the interviews. The table suggests that the most frequent problem encountered by teachers is the lack of Science facilities and equipment.

Science Pedagogical Approaches

Numerical data were gathered through the survey questionnaire distributed to teachers and administrators. The questionnaire solicited for their assessment on the extent of the implementation of Science pedagogical practices. Follow-up questions from the interviews served also as a way of validating numerical responses of the respondents in the questionnaire.

Table 4
Common Problems Encountered by Teachers and Administrators

Common Problems	Frequency (f)	
	Teachers	Administrators
1. Teacher's guides and learner's materials are insufficient and are not yet available	14	5
2. Lack of mastery on contents of Science	4	0
3. Lack of Science of K to 12 Science trainings	8	2
4. Lack of Science facilities and equipment	21	4
5. Lack of ICT equipment that could be used in Science instructions	16	4
6. Limited knowhow and skills on the different teaching approaches and techniques in Science teaching	11	0
7. My pupils poorly comprehend Science in English medium	18	2
8. Limited knowledge on enhancing Science Curriculum by means of contextualization and localization	14	1
9. Some Science topics are hard to teach for they are too high at the level of my pupils	8	1

Table 5 shows the extent of implementation of Science pedagogical practices by teachers and administrators. The over-all grand mean of 4.01 supports that teachers and administrators are implementing the identified Science pedagogical approaches to great extent.

The extent of implementation by teachers and administrators of K to 12 Science program in terms of the identified areas is shown in Table 7. The over-all extent of implementation is also reflected in the table.

An over-all grand mean of 4.09 was computed. It can be gleaned from this that in general, teachers and administrators are able to implement orders, policies and procedures related to the implementation of K to 12 Science program to a great extent.

It cannot be denied though from the findings that few aspects of the program are not implemented with considerable degree of extent. Confirmed by interviews conducted, some teachers admitted that they have not satisfactorily implemented the program in terms of achieving desired outcomes.

Common problems encountered by teachers and administrators were further translated by the researcher into more specific items and were classified into four (4) areas of problems in the survey questionnaire. The survey questionnaire determined the level of seriousness of the enlisted problems as encountered by the program implementers. The following discussions tackles the level of seriousness of common problems encountered by the Science teachers and administrators in terms of the following areas: Teacher Preparation and Preparedness, Learner Preparation/Readiness, Teaching Strategies and Techniques and Learning Resources and Facilities.

Table 5
Extent of Implementation of Pedagogical Practices of Teachers

Pedagogical Practices	Teachers		Administrators		Over-All	
	Mean	Description	Mean	Description	Grand Mean	Description
1. Makes connections to what students already know	4.25	GE	4.25	GE	4.25	GE
2. Use pupils' schema to encourage participation	4.22	GE	4.25	GE	4.23	GE
3. Patterns instruction in the 5E Learning Cycle Model	3.94	GE	3.88	GE	3.91	GE
4. Uses Multi-Disciplinary Approach	3.72	GE	3.88	GE	3.80	GE
5. Uses Inquiry-Based Approach	4.09	GE	4.25	GE	4.17	GE
6. Constructivist Approach	3.88	GE	4.00	GE	3.94	GE
7. Employs contextualization in teaching the subject	4.09	GE	4.38	GE	4.23	GE
8. Uses hands-on learning activities	3.91	GE	3.88	GE	3.89	GE
9. Uses evidence in constructing explanation	3.97	GE	3.88	GE	3.92	GE
10. Integrates Science lessons in other subjects	3.94	GE	3.63	GE	3.78	GE
Over-all Grand Mean					4.01	GE

Teacher Preparation and Readiness

Level of Seriousness of problems under the area Teacher Readiness/Preparedness is shown in Table 6. It reveals that problems under Teacher Readiness/Preparedness have an over-all grand mean of 2.65. This means that teachers and administrators encountered moderately serious problems regarding teacher's readiness and

preparedness which have direct effects on their capacity to implement the Science Program. However, teachers are still capable of addressing the problems and look into possible interventions in order not to compromise the intended implementation of Science Program. Based on interview, due to insufficient K to 12 training provided by DepEd, some teachers opt to enhance their teaching competencies, by accessing web-based portals and web-based readings. Science teachers have learned to utilize the internet as supplementary source and reference when it comes to dealing with Science contents and pedagogy.

Specifically, Table 6 shows that among the items under the area of Teacher Readiness and Preparedness, problem on Inadequate K to 12 Seminar/Training ranked first with mean rating of 3.55. This suggests that teachers and administrators met serious problems on the inadequacy of teachers' trainings on K to 12.

It can also be inferred that teachers in public elementary schools in Santo Tomas District are in need of trainings/seminars on teaching strategies and techniques related to K to 12. Trainings and seminars aim to equip every teacher with contemporary teaching strategies to be used in classroom instruction. In teaching to be able to give children quality learning, varied teaching strategies and techniques are necessary. These inspire pupils to learn more. This is based on the concept that education is a preparation for adult life, mental discipline, transfer training, acquire knowledge for its sake, seeking truth and perception, and habit formation.

Notably, Insufficient Knowledge on Educational Technology registers the item with the lowest mean rating of 2.21. It shows that problems encountered in terms of Educational Technology are slightly serious. This means that teachers possess basic skills and knowhow on Information and Communication Technology (ICT) in their instruction and clerical tasks. This may be attributed to the constant exposure of teachers to ICT demanded by the trend of today's education, yet some aspects on ICT-operation and integration are still needed to be improved.

All other problems under this area have mean ratings that lie from 2.33-3.35 which are categorized as slightly serious and moderately serious problems.

Table 6
Problems encountered in terms of Teacher Preparation and Readiness

Problems	Mean Rating		Over-all Mean Rating	Rank	Description
	Teachers	Administrators			
1. Inadequate seminars/ trainings related to K to 12.	3.57	3.53	3.55	1	S
2. Insufficient readings and study materials on K to 12	3.44	3.25	3.35	2	MS
3. Lack of knowledge, skills, attitudes, values pertinent to K to 12	3.07	2.25	2.90	3	MS
4. Poor awareness on the goals, purposes, and objectives of K to 12	2.94	2.13	2.54	5	MS

Problems					
5. Lack of confidence to appropriately teach K to12	2.94	1.88	2.41	6	SS
6. Inadequate knowledge on varied teaching strategies and techniques	2.82	2.38	2.60	4	MS
7. Insufficient knowhow on how to address the needs of learners	2.94	1.75	2.35	7.5	SS
8. Lacks mastery on teaching content and objectives	2.94	1.75	2.35	7.5	SS
9. Inadequate knowhow on the use of varied assessment tools.	2.66	2	2.33	9	SS
10. Insufficient knowledge on educational technology	2.66	1.75	2.21	10	SS
Grand Mean Rating			**2.65**		**MS**

Since teachers have the most direct, sustained contact with students and considerable control over what is taught and the climate for learning, improving teachers' knowledge, skills and dispositions through professional development is a critical step in improving student achievement. Various studies reached similar conclusions based on research that tracked the academic achievement of individual students over long time periods and have shown that well qualified teachers and high quality teaching can close the achievement gap between economically disadvantaged students and their more affluent peers.

Learner Preparation/Readiness

Problems encountered in terms of Learner Preparation and Readiness and their level of seriousness are shown in Table 7.

Table 7
Problems encountered in terms of Learner Preparation and Readiness

Problems	Mean Rating		Over-all Mean Rating	Rank	Description
	Teachers	Administrators			
1. Poor awareness on the goals, purposes and objectives of the K to12 curriculum	2.97	2.5	2.74	3	MS
2. Lacks orientation, symposium to broaden the knowledge in K to 12	2.91	2.75	2.83	2	MS
3. Lacks knowledge on the rationale why the enhanced basic education curriculum is implemented	2.50	2.38	2.44	6.5	SS
4. Lack of understanding on concepts and class activities	2.51	2	2.25	10	SS
5. Relating personal experiences for the long retention of learning are not observed	2.94	1.75	2.35	9	SS

Item				
6. Various materials needed for instruction are meager	3.10	2.13	2.61	5	MS
7. Shows passivity in class discussions and making projects	2.88	2	2.44	6.5	SS
8. Performance assessment tools are not clearly explained	2.94	1.88	2.41	8	SS
9. Lack of knowledge and poor understanding on underlying concepts and principles that can be applied to problems/ situations in new contexts	3.00	2.75	2.88	1	MS
10. No orientation about the new ways on how the lessons are presented	2.96	2.5	2.73	4	MS
Grand Mean Rating			**2.57**		**MS**

As a whole, items or problems under Learner Preparation/Readiness are moderately serious as encountered by teachers and administrators. This was justified by the grand mean of 2.57. It indicates that learners lack knowledge and have poor understanding on underlying concepts and principles that can be applied to problems/ situations in new contexts. Learners have poor awareness on the goals, purposes and objectives of the K+12 Science curriculum.

The findings also reveal that schools through school heads and teachers failed to conduct regular symposia/proper orientations to learners, parents, stakeholders about the K+12 Science curriculum. According the interview among administrators, there has been no formal orientation of pupils regarding the K to 12 Curriculum.

Learner Readiness is essential towards achievement. One of the most popular laws of learning by Thorndike, the Law of Readiness points out that one learns only when he is physically and mentally ready for it. In other words, preparatory set on the part of the individual is an important condition for learning. When the student is prepared to learn, the act of doing it is satisfying, and not doing it is annoying. Conversely, when he does not want to work, forcing him to work is dissatisfying. If students are not willing to learn, forcing them to learn will cause dissatisfaction and annoyance.

Teaching Strategies and Techniques

Table 8 presents the findings regarding the problems encountered by teachers and administrators in terms of teaching strategies and techniques. Generally, it reveals that teachers and administrators encounter moderately serious problem regarding in this area. This is supported by the computed over-all grand mean of 2.89.

Teachers' major problem under this area is the meager resources of the community for pupil exposure. Pupils are not given the opportunity to extend learning through out-of-school experiences due to meager resources in the community. It was also found out that schools do not use team teaching strategies and that teachers lack technology-assisted instructions, manifested by the mean ratings of 3.26 and 3.03 respectively. It is also revealed that teachers still have inadequate knowledge on contextualization as indicated by the item mean rating of 2.91 which means a moderately serious problem.

Based on these findings, it can be inferred that Science teachers in Santo Tomas District are in need of seminars and trainings to improve their technical knowhow on the pointed out weaknesses in terms of teaching techniques and strategies.

The fundamental importance of teaching strategies and techniques is to execute and carry out instructional plans effectively. Teaching strategies help students take more responsibility for their own learning and enhance the process of teaching for learning. Appropriate teaching strategies and techniques make the environment that are more interactive, where applicable and conducive for effective learning to happen.

Learning Resources

The degree of seriousness of problems encountered in terms learning resources and facilities is presented in the Table 9.

Among the four (4) areas on problems met by teachers and administrators in the implementation of K to12 Science Program, lack of learning resources appeared to be the major problem. Indicated by the computed over-all grand mean of 3.78, teachers encountered serious problems pertaining to Learning Resources.

Table 8
Problems Encountered in terms of Teaching Strategies and Techniques

Problems	Mean Rating		Over-all Mean Rating	Rank	Description
	Teachers	Administrators			
1. Team teaching to bring about effective teaching is not done	3.45	3.07	3.26	1	MS
2. Various assessment tools to rate students' performance are not used	2.85	1.75	2.30	7	SS
3. Lack of appropriate technology-assisted instruction	3.08	2.97	3.03	3	MS
4. Insufficiency of varied teaching strategies and techniques	2.91	2.13	2.52	6	MS
5. Limited incorporation of students practical experiences with the lessons	2.83	1.75	2.29	8	SS
6. Resources of the community are meager for student exposure	3.27	3.13	3.20	2	MS
7. Inadequate knowledge in contextualization (localization and indigenization of instructional materials)	3.00	2.82	2.91	4	SS
8. Groupings in accomplishing projects are not employed	2.69	1.5	2.10	10	SS
9. Difficulty improvising instructional materials in Science	2.94	2.13	2.54	5	MS
10. Monotonous use of teaching strategy and approaches	2.62	1.88	2.25	9	SS
Grand Mean Rating			**2.59**		**MS**

Problems ranked the highest include Limited Number of Books and References, Few available materials for projects and research work and No Available Laboratory Room and Equipment, with computed mean ratings of 4.28, 4.16 and 4.13 respectively. Other items under in this like no available learner's materials in the subjects, inadequate community resources as an aid of student learning an absence of library are all serious problems encountered by teachers and administrator in the implementation of the program.

Learning Resources according to Jocelyn Right (2014) are the resources teachers use to deliver instruction. Teaching materials can support student learning and increase student success. Ideally, the teaching materials are tailored to the content in which these are used, to the students in whose class these are used, and the teacher. Teaching materials come in many shapes and sizes, but they all have in common the ability to support student learning.

However teachers have been very resourceful in addressing such problems. Based on interviews, teachers mentioned that they learned to be resourceful in reproducing the learning materials. Teachers have also learned to download instructional and other teaching materials from web-based portals like the LRMDS and to make use of uploaded files from teachers Facebook groups.

Table 9
Problems encountered in terms of learning resources and facilities

Problems	Mean Rating		Over-all Mean Rating	Rank	Description
	Teachers	Administrators			
1. Insufficient computers in school to be used in teaching	3.13	2.88	3.00	9	MS
2. No available projector and ICT related materials needed in teaching-learning process.	3.10	2.88	2.99	10	MS
3. No available learner's materials in the subjects	3.88	3.75	3.82	7	S
4. Lack of textbooks needed in the lesson	3.82	4	3.91	5	S
5. Inadequate community resources as an aid of student learning	4.00	3.75	3.88	6	S
6. Few reference materials are found in the school library	4.07	4.25	4.16	2	S
7. No available laboratory rooms and laboratory equipment needed in laboratory activities or experiments	4.25	4	4.13	3	S
8. Limited numbers of books and references are found in the community	4.32	4.25	4.28	1	S
9. Few available materials for projects and research work	4.13	4	4.06	4	S
10. No available Teacher's guide in the subject	3.56	3.67	3.62	8	S
Grand Mean Rating			3.78		S

CONCLUSIONS

K to 12 curriculum is one of the biggest of educational reform in the Philippine educational system which commenced in the year 2013 as it was deemed necessary to cope with globalization. Since the program is new, evaluations must be done in order to see and monitor the progress made and its implementation which are necessary in decision-making. It is in these reasons that this study was conceptualized.

In terms of pedagogical practices, the implementation of K to 12 Science program in Santo Tomas, Isabela is on track. This is supported by the Science pedagoical approaches which are implemented by teachers and administrators at a great extent. The district of Santo Tomas therefore is compliant with the teaching experiences provided and learning outcomes demanded by the K to 12 curriculum. Teachers and administrators are doing and performing as the result is overwhelming.

However, despite the good implementation of K to 12 science program, there are still problems that require immediate attention to ensure that the objectives of K to 12 are met. Teachers still lack adequate trainings in implementing the K to 12 program and learning materials are still insufficient to satisfy the demands of the K to12 science program. While there are initiative made by the administrators, teachers and the Philippine education department, still there are more that should be done to successfully implement the program.

There may be inadequacies on the way, but Science teachers and administrators in Santo Tomas made sure that the curriculum prescribed the education department is followed. As manifestation, the performance of the pupils in science particularly in grades 3, 4, 5, and 6 is 78 which surpasses the 75 benchmark. Although it passed the performance threshold still the performance is quiet low but at least, the minimum program objectives are met. The problems that teachers are facing particularly on the lack of trainings and learning materials should be addressed as soon as possible because these are the defining factors towards the successful implementation of the program and the attainment of its objectives.

RECOMMENDATIONS

In the light of the findings in this study, the following are recommended:

1.   The education department shall provide more training/seminars for K to 12 teachers so they will be equipped with adequate knowledge and skills to effectively implement K to 12 curriculum.
2.   More intensive orientation should be done to increase the knowledge and eventually understanding of pupils on the underlying concepts and principles that can be applied to problems/ situations in new the contexts.
3.   Teachers and administrators shall strengthen community linkages and seek more educational partners that can be of help to minimize the effects of inadequacy of budget.
4.   The government shall increase the budget allotted in the education department to procure more learning materials and facilities which can eventually increase learning opportunities for learners.

5.	The education department shall conduct additional trainings and seminars on contextualization and localization to assist teachers in developing materials and strategies to enhance learning.

6.	Results of this study may be disseminated to the respondent schools for teachers and administrators to be informed on the extent of their implementation of the program and the problems encountered. By knowing the results, problems may be given constructive and immediate solutions.

7.	Since the study was limited to public elementary schools and teachers who handle Science subject, it is recommended that such parallel research study should be conducted to determine the extent of the implementation of K to 12 Basic Education Program in other subjects and even in secondary level considering their vital role in the totality of the program.

REFERENCES

Adanza, J. and J. Resurreccion. (2015). Spiral Progression Approach in Teaching Science in Selected Private and Public Schools in Cavite. DLSU Research Congress 2015, De La Salle University, Manila, Philippines.

Alamillo, J. L. and L. D. Crisol. (2014). A Comparative Study of the Attitudes between the Students and Teachers of Two Public Elementary Schools in Northern Mindanao toward the K to 12 Curriculum Shift. DLSU Research Congress 2014 De La Salle University, Manila, Philippines.

An Evaluation of Curriculum Implementation in Primary Schools. Department of Education and Science, Stationery Office, Dublin, 2005.

Bowie, L. and J. B. Tinkew (2008). Process Evaluations: A Guide for Out-Of-School Time Practitioners. Research-to-Results, Child Trends.

Braza, M. and S. Supapo. (2014). Effective Solutions in the Implementation of the K to 12 Mathematics Curriculum

Cabansag, M. S. (2014). Impact Statements on the K-12 Science Program in the Enhanced Basic Education Curriculum in Provincial Schools

Combalicer, L. (2016). Best Practices and Problems in the Initial Implementation of the K+12 Curriculum among Teachers in Infanta, Quezon: Implications to an Effective Implementation of Senior High School. Journal of Education and Social Sciences, V. 4.

Corpuz, B. B. (2015). The Spiral Progression Approach in the K to 12 Curriculum Criminal Justice Evaluation Framework (CJEF): Evaluating process and implementation, Criminal Justice Research Department of Premier and Cabinet.

De Justo, H. (2012). Analysis of the Policy: K-12 Education Program. College of Governance Business and Economics, University of Southeastern Philippines.

DepEd Curriculum Guide, Science 3-10, May 2014

DepEd Order No. 8, s. 2015 "Policy Guidelines on Classroom Assessment for the K to 12 Basic Education Program"

DepEd Order No. 29, s. 2017 "Policy Guidelines on System Assessment in the K to 12 Basic Education Program"

DepEd Order No. 31, s. 2012 "Policy Guidelines on the Implementation of K to 12 Basic Education Program

DepEd Order No. 36, s. 2016 "Policy Guidelines on Awards and Recognition for the K to 12 Basic Education Program.

Diez, R. and K. H. Tseng. (2010). Using the Context, Input, Process and Product model to Assess an Engineering Curriculum. World Transactions on Engineering andTechnology Education, Meiho University, Pingtung, Taiwan.

Duerden, M. D. and P. A. Witt (2012). Assessing Program Implementation: What It Is, Why It's Important, and How to Do It. Agri-Life Extension Service, College Station, Texas.

Dylan, W. (2014). The Formative Evaluation of Teaching Performance: An Occasional Paper. Centre for Strategic Education.

Enhanced K to 12 Basic Education Program: opportunities and challenges, Economic Issue of the Day, Philippine Institute for Development Studies, 2012.

Frye, A. W. and P. A. Hemmer. (2012). Program evaluation models and related theories: AMEE Guide No. 67, AMEE Guide, Web Paper.

Herman J. (2013). Formative Assessment for Next Generation Science Standards: A Proposed Model. National Center for Research on Evaluation, Standards and Student Testing (CRESST) UCLA Graduate School of Education and Information Studies.

Implementing Rules and Regulations of the Enhanced Basic Education Act of 2013 (Republic Act No. 10533)

Kusek J. Z. and R. C. Rist (2004). Ten Steps to a Results-Based Monitoring and Evaluation System. The World Bank, Washington, D.C.

Lindblom, K. and F. Twerky. (2012). Evaluation Principles and Practices: An Internal Working Paper. The William and Flora Hewlett Foundation.

Luistro, A. A. (2015). K to 12 Basic Education Program Midterm Report. Department of Education

Metz, A. J. (2007). Why Conduct a Program Evaluation? Five Reasons Why Evaluation Can Help an Out-Of-School Time Program. Results-to Results Trends

Montebon, D. T. (2014). K12 Science Program in the Philippines: Student Perception on its Implementation. Institute of Teaching and Learning, Philippine Normal University.

OECD, Education and Training Policy. Evaluation and Assessment Frameworks for Improving School Outcomes.

Overview of Sampling Procedures, Fairfax County Department of Neighborhood And Community Services, 2012.

Pierson, D. R. (2013). Elementary teachers' assessment actions and elementary scienceeducation: formative assessment enactment in elementary Science. Iowa Research Online,University of Iowa.

Program-Based Review and Assessment: Tools and Techniques for Program Improvement, Academic Planning & Assessment, University of Massachusetts Amherst, 2001

Republic Act No. 10533 "Enhanced Basic Education Act of 2013"

Science Framework for Philippine Basic Education, Science Education Institute, Department of Science and Technology, 2011.

Sergio, M. S. (2012). K-12 Education Reform: Problems and Prospects. Ateneo de Naga University.

Sirhan, G. (2007). Learning Difficulties in Chemistry: An Overview. Journal of Turkish Science Education.

Study Designs for Program Evaluation, 2006, Aguirre Division, JBS International, Inc., star@JBSinternational.com

Stufflebeam, D.L. (2000). The CIPP model for evaluation. In T.Kellaghan and D.L Stufflebeam (Eds). International handbook of educational evaluation, Part 1 (pp.31-62). Dordrecht: Kluwer Academic Publishers.

Takbir, A. (2012). A Case Study of the Common Difficulties Experienced by High School Students in Chemistry Classroom in Gilgit-Baltistan (Pakistan). SAGE Open.

The K to 12 Basic Education Program, Baseline Report, 2012

Tunc, F. (2010). Evaluation of an English Language Teaching Program at a Public University Using CIPP Model. Middle East Technical University, Ankara.

Worthern, B. R. and S. R. James. (1987) Educational Evaluation: Alternative Approaches and Practical Guidelines, p. 179

Zhang, G. (2011). Using the Context, Input, Process, and Product Evaluation Model (CIPP) as a Comprehensive Framework to Guide the Planning, Implementation, and Assessment of Service-learning Programs. Journal of Higher Education Outreach and Engagement, University of Georgia.