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**Harris Journal of Education**

The *Harris Journal of Education* is a multidisciplinary peer reviewed academic journal of Harris Memorial College. It aims to analyze issues, trends, policies, and practices in education in the Philippines and other countries especially among Christian schools. The journal offers well-documented points of view and practical recommendations on various areas like curriculum, administration, staff development, family-school relationships, equity issues, multicultural education, health education, learning environment, special education, Christian education, early childhood education, and music education. These include reports of empirical research, reviews of research, critique of research, and articles related to the application of research to practice.

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## Editor's Note

As Philippine education enters another era with the introduction of the new K-12 Basic Education Curriculum, the need for researches on curricular and instructional innovations is more evident than ever. In the second issue of Harris Journal of Education, four studies on curricular and instructional innovations are presented. The first study, "Curriculum Standards for Preschool Pre-service Teacher Education in the Philippines" by Dr. Greg T. Pawilen attempted to develop curriculum standards for preschool teacher education, particularly for preschool teachers who will serve in local communities. It tried to address the inclusion of kindergarten in Philippine Educational System and the challenge for teacher education institutions in developing effective preschool teachers who can address the needs of diverse learners. Using situational analysis, various curricular sources and influences were determined and considered in developing the standards. Analysis of the qualitative data resulted to the identification of 10 domains namely: (1) General Education, (2) Educational Foundations, (3) Learning Environment, (4) Diversity of Learners, (5) Curriculum and Instruction, (6) Planning, Assessing and Reporting Learners' Progress, (7) Community Linkages, (8) Professional Growth and Development, (9) Leadership and Management, and (10) Character Formation. Curricular standards for each domain were identified according to knowledge, values and skill. The study employed a model proposed by Dr. Pawilen in developing curricular standards for preschool teacher education. While Dr. Pawilen's study focused on the preparation of future preschool teachers, the next research looked into instructional innovation on teaching learners with special needs.

Learners with special needs find it difficult to cope with instructions developed primarily for average learners. In the study by Princess Zarla J. Raguindin titled, "Musical Activities and Science Performance of Pupils with Visual Impairment", innovative ways were explored in improving science performance of visually impaired pupils. The study investigated the difference in science performance of visually impaired pupils before and after utilizing musical activities in science lessons. The study was carried out in a school for the blind, which was participated in by six pupils whose visual impairments were due to retinopathy of prematurity. The study was implemented through a succession of 12 lessons. The lessons focused on Life Science and were developed using the Reiser and Dick Instructional Design model. A single subject design was employed to determine the changes in the behavior of participants. Traditional Science activities were implemented during the baseline period, while Music-enhanced Science activities were carried out in the treatment period. Interview with parents, observation, daily assessment and unit assessment were used to gather data and Wilcoxon Signed Rank was applied to statistically analyze the data. The study showed that there was a significant difference in the science performance of pupils with visual impairment before and after utilizing musical activities.

Irene G. Dela Cruz and Greg T. Pawilen narrates and chronicles their experiences in Kids Academia in the third study for this issue titled, " Transforming a University-based

Program to a School-based Innovation in Science Education: From Kids Academia to the Head Start Science Program of Carmona Elementary School, Philippines." Kids Academia is an example of a successful educational innovation in Japan targeting potentially gifted kindergarten and primary school children. The researchers cited teacher leadership and empowerment as factors that can inspire school-based curricular and instructional innovations. The study recounts the different stages of Head Start Science Program of Carmona Elementary School from its inception through its implementation as inspired by Kids Academia. Special features of the program were also discussed.

Finally, Dr. Thelma Co's study on "A School-based Curriculum Improvement Model for Public Elementary Schools" addressed the many challenges public schools in the Philippines face in developing schemes to provide the necessary support for the implementation of the K-12 Basic education Curriculum. The first phase of the study involved an in-depth analysis of 1) curricular issues, problems, demands, and needs experienced by the schools, (2) instructional innovations that were implemented to address these curricular problems, issues, demands, and needs, and (3) discussion on how schools administrators, teachers, and other stakeholders worked together for the curriculum improvement in the school. Results of the analysis became the basis for the development of the model. Many factors, both internal and external, that affect effective implementation of curriculum were revealed and these were included as essential component of the model. The proposed model also suggested curriculum improvement processes that will lead to not just an efficient curriculum implementation but also an effective school-based curriculum improvement system and improved school culture.

This issue is meant to provide a glimpse of what researches are being put forth in response to the challenges that the K-12 Basic Education Curriculum of the Philippines brings. Hopefully, more intensive discussions and study on the planning, implementation and evaluation of K-12 BEC will be brought to light along with other issues and concerns on education in both global and local setting. And Harris Journal of Education is determined to always serve as an avenue for the dissemination of academic researches in Education.

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## NOTES FOR CONTRIBUTORS

### Manuscripts

Papers should be encoded with double spacing and send to the editors. If this is not possible, three (3) hard copies of the article should be submitted to the journal editorial board of Harris Memorial College at G.K. Bunyi St., Bo. Dolores Taytay Rizal.

Articles submitted to the journal should have not been submitted in any other journal, or have been published elsewhere.

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Authors should send the final, revised version of their articles in both hard copy (paper) and electronic (CD) forms. It is essential that the hard copy (paper) version exactly matches the material on CD. Please print out the hard copy from the disk you are sending. Submit three (3) printed copies of the final version with the disk to the journal's editorial office.

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Tables must be typed on separate sheets and not included as part of the text. The captions to illustrations should be gathered and typed on a separate sheet. Tables should be numbered by Roman numerals and figures by Arabic numerals. The approximate position of tables and figures should be indicated in the paper. Please supply clear copies of artwork (preferably the originals) for figures in a finished format suitable for reproduction. Figures will not normally be redrawn by the publisher. The author(s) must arrange permission for the reproduction of illustrations and tables within articles. Figures may be sent electronically, preferably in either TIF (tagged image format) or EPS (encapsulated postscript) formats. However, we can also accept PICT or JPEG formats. The publisher will normally reproduce colored figures in black and white. All figures and tables should be mentioned in the text.

### Style

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# CURRICULUM STANDARDS FOR PRESCHOOL PRE-SERVICE TEACHER EDUCATION IN THE PHILIPPINES

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## ABSTRACT

The inclusion of Kindergarten in Philippine Basic Education system posed an immense challenge to teacher education institutions to do the task of developing effective preschool teachers who can address the needs of diverse learners. This study aimed to develop curriculum standards for preschool teacher education, particularly for preschool teachers who will serve in local communities. A situational analysis was used to study and analyze various curriculum sources and influences that should be considered in developing the proposed curriculum standards. The curriculum standards were examined to meet several criteria, including comments from administrators, faculty members, students, and professional organizations. The said standards were submitted to several experts on preschool education for comments and validation. The lists of standards were clustered into 10 domains, namely: (1) General Education, (2) Educational Foundations, (3) Learning Environment, (4) Diversity of Learners, (5) Curriculum and Instruction, (6) Planning, Assessing and Reporting Learners' Progress, (7) Community Linkages, (8) Professional Growth and Development, (9) Leadership and Management, and (10) Character Formation. The standards that were developed can be used in any teacher education institution to enhance their pre-service teacher education curriculum.

**Keywords:** curriculum standards; preschool education; local community

**Introduction**

The inclusion of Kindergarten in the formal education system in the Philippines necessitates the development of curriculum standards for *preschool pre-service* teacher education. The existing National Competency-Based Teacher Standard (NCBTS) that was released in 2007 in the Philippines was designed for all pre-service teacher education programs. There are no standards specifically designed for pre-service preschool teachers in the country. The researcher believes that the nature of preschool learners and the unique design of teaching and learning in pre-school require a separate set of standards for pre-service preschool teachers. The one-size-fits- all approach in curriculum development as practiced by educational institutions should be avoided in order to develop a curriculum that is more relevant and responsive to the needs of the society.

In the Philippines, the Commission on Higher Education Memorandum (CMO) No. 30 Series of 2004 and CMO 52 Series of 2007 were issued to prescribe a five-year pre-service teacher education curriculum by adding more professional education and major courses in the curriculum. In 2012, the CHED also released CMO 46 s2012 on policies and guidelines for an outcome-based quality assurance framework for all higher education. This memorandum order from the CHED also mandates all higher education institution to implement an outcome-based education (OBE) curriculum design for all undergraduate and graduate courses in the country.

The move for an outcome-based curriculum provides an opportunity to improve all existing curricular programs in the country. Consequently, this will improve the curriculum for pre-service teacher education. OBE calls for the development and review of all the existing programs to focus on outcomes rather than content. It demands the development of standards and competencies that define the type of graduates that an institution aims to develop. Standards embody the kinds of knowledge, skills, and dispositions that teachers need to practice responsibly when they enter teaching and prepare them for eventual success as certified professional teachers later in their careers. Standards provide bases for selecting courses and organizing learning experiences in the curriculum for preschool teachers.

Diane Ravitch (1995), commonly recognized as one of the chief architects of the modern standards movement in United the States, asserted that standards improved the effectiveness of education in the United States by clearly defining what is to be taught and what kind of performance is expected from the learners. Supporting the ideas of Ravitch, Kendall and Marzano (2000) pointed out that curriculum standards serve to clarify and to raise expectations, and provide a common set of expectations.

Such a view is apparently shared or supported by many educators. Farkas, Friedman, Boese, and Shaw (1994) observed that many people believe that higher expectations produce better performance. Johnson and Farkas (1996) also noted that teachers support initiatives to raise standards, which they expect will improve their students' academic performance. It

is also interesting to know that students also see much value in standards in that these make them work harder in their studies and to learn more as a result (Friedman & Duffet, 1997). Therefore, designing curriculum standards for pre-service teacher education curriculum for early childhood education is relevant and important in the Philippines. Standards define the quality of preschool teachers for Filipino learners, and prescribe a common framework for the education of preschool teachers who will serve in various local communities in the Philippines.

The study also aims to develop standards for preschool teachers who will serve in *local communities.* In general, teachers are seen as catalysts of innovations and responsible citizenship towards the development of a knowledge-based society whereby economies are driven by creativity and ingenuity (Hargreaves, 2003). As society becomes more complex and its values more pluralistic, so the ensuing changes rebound on the teacher; thus, widening the area of a teacher's responsibilities (Pelletier, 2004). However, many teachers are uninformed about cultural diversity. For example, Bennett (1999) observed that many teachers are not aware of their own prejudices that are likely to hinder the academic successes and personal development of many learners, and that they have limited understanding of the nature and needs of learners particularly when they are assigned to teach in local communities. This means that universities or teacher education institutions (TEI) should initiate reforms in the teacher education curriculum to prepare teachers who are capable of teaching in culturally diverse educational settings.

The Philippines is home to various cultural groups. This is enough to say that many Filipino preschool learners belong to an indigenous cultural community. The problem, however, is that teachers have had very little training on how to effectively instruct such cultural diversity. Moreover, there are insufficient indigenous instructional materials particularly for preschools (Lupdag, 1999). Thus, it is important to develop teachers who are competent in addressing the educational needs of preschool children in indigenous and local communities.

Currently, the Philippines institutionalized Kindergarten education into the basic education system of the country through the Republic Act 10157. This was reinforced with the released of Republic Act 10533 known as the Enhanced Basic Education Act. This law added two more years of education in the secondary level and reiterated the inclusion of Kindergarten in the basic education program of the Philippines. The inclusion of Kindergarten to the Philippine education system is one of our major responses to one of the

Education for All (EFA) goals of providing universal preschool education by 2015. Consequently, there is a high demand for preschool teachers who have the ability to teach in different local communities and who possess a high level of knowledge of teaching culturally diverse learners. Bennett (1999) points out that excellent education for culturally diverse learners depends on the ability of the teachers to help minority students excel in their studies.

The foregoing reasons and the current educational landscape in the Philippines necessitate the need for the creation of a model for developing curriculum standards for preschool teacher education. These reasons prompted the researcher to embark on this timely and relevant issue.

**Methodology**

This study focused on the development of curriculum standards for pre-service teacher education curriculum that are relevant and responsive to the need of developing teachers for preschool institutions located in different indigenous and local communities.

This study requires a wealth of qualitative data for investigation in order to develop standards for pre-service teacher education curriculum of preschool teachers who will teach in local communities. In developing the standards, the following processes were followed:

1. Examining the existing curriculum for preschool pre-service teacher education
2. Analyzing national competencies for licensure examinations
3. Checking standards produced by appropriate professional organization
4. Developing a comprehensive set of standards and aligning standards with government requirements
5. Inviting administrators and teachers from different local schools to discuss what knowledge, skills and attitudes are needed to be developed among preschool teachers who will teach in local schools
6. Securing teacher input. A copy of the checklist was distributed to college faculty members who are teaching in pre-service teacher education for preschool and to several stakeholders. The faculty members and stakeholders checked which of the standards are priority or important to be included in the pre-service teacher education curriculum.
7. Inviting experts in the field of preschool teacher education to give professional comments and evaluation on the proposed curriculum standards. Based on their comments and suggestions, the standards were revised and finalized. The result was the final standards that will be included in the preschool pre-service teacher education curriculum for teachers in indigenous and local communities.

These procedures were adapted from a model for developing curriculum standards for preschool teacher education that was developed by the researcher (*see Pawilen, 2012)*.

**Results of the Study**

**What curriculum standards should be developed for the pre-service teacher education of preschool teachers who will teach in local communities?**

After going through the process of analyzing documents and requirements from different curriculum sources and influences, the researcher was able to develop curriculum standards for preschool teacher education successfully. Based on the result of the study, the curriculum standards for preschool teacher education were clustered into 10 domains (see Table 1) that reflect the requirements of the several curriculum sources and influences.

**Table 1**

**10 Domains for the Proposed Curriculum Standards for Pre-service Preschool Teacher Education**

- General Education
- Educational Foundations
- Learning Environment
- Diversity of Learners
- Curriculum and Instruction
- Planning, Assessing and Reporting Learners' Progress
- Community Linkages
- Professional Growth and Development
- Leadership and Management
- Character Formation.

Based on the 10 domains that were identified, several curriculum standards were developed. The standards are divided into three: **K** stands for Knowledge Standards; **V** stands for Values Standards; and **S** stands for Skills Standards. The respondents believed that preschool teachers should be strong in content and pedagogy. These are some of the responses mentioned:

> *"Preschool teachers should have high level of PCK so that they can effectively teach young children"*

> *"It is imperative that preschool teachers should know the contents of the curriculum, and they should be very creative in in their teaching strategies and in designing assessment tools."*

> *"There is a need to define specific skills and knowledge that preschool teachers need to study in the undergraduate teacher education curriculum."*

The first domain is on General Education (G.E.). Based on CMO 20 Series of 2013, the new G.E. curriculum includes several outcomes categorized into: intellectual competencies, personal and civic competencies, and practical responsibilities. These subjects in the General Education curriculum aim to provide various thinking skills, values and knowledge that are interdisciplinary in perspective. It aims to connect the disciplines with life experiences by providing the pre-service teachers with a broader perspective in understanding the world around them. Table 2 shows the different curriculum standards identified by the respondents. Accordingly, the pre-service teachers from the different G.E. courses must learn these standards.

**Table 2**

**Curriculum Standards for General Education**

- K1: Working knowledge on various concepts and thinking skills specific to certain disciplines
- S1: Develop critical thinking skills and ethical reasoning
- S2: Develop aesthetic and interpretative understanding
- V1: Development of nationalism and appreciation of various culture

As future teachers, it is important for them to develop understanding of the different courses or disciplines that are considered *foundations* of education. Foundations of Education help the students appreciate the nature and purposes of education as a field of study. From these courses, the preschool education students will learn educational theories, principles and the legal foundations of education. Table 3 shows the curriculum standards that student teachers must learn from the Educational Foundation courses based on the results of the study.

**Table 3**

**Curriculum Standards for Educational Foundations**

- K1: Historical foundations of education specially on Philippine education, including contributions and ideas of individuals and groups from diverse backgrounds
- K2: Educational philosophies, theories, and researches about preschool education
- K3: Laws and policies related to education especially on preschool education
- K4: Social, cultural and economic factors that affect education of young children
- S1: Integrate ideas and theories to understand the purposes and nature of education as a discipline
- V1: Appreciation of the dynamic nature of education as a discipline

The learning environment is also an important variable in the teaching and learning process or in all education activities. The results of the data show that preschool education students need to have knowledge and skills in designing a good learning environment that

promotes healthy teaching and learning. Table 4 identified several curriculum standards for understanding the learning environment that should be learned or taught in the pre-service preschool teacher education curriculum.

**Table 4**

**Curriculum Standards for Understanding the Learning Environment**

- K1: Various types of learning environments that accommodate different types of learners
- K2: Importance of physical, social and emotional development on the learning process
- K3: Role of various agencies, families, and communities in supporting the development of learners
- S1: Design learning opportunities that nurture learners' talents, critical thinking, and creativity
- S2: Skills in classroom management
- S3: Create safe learning environment for young children
- S4: Create learning environments that promotes intercultural exchange among learners
- V1: Commitment to promote a learning environment that promotes respect, equity, and climate of high expectations

There are many kindergarten schools located in local communities. These kindergarten schools cater to the needs of different learners from various cultural communities. Hence, the participants of the research expressed concern about the importance of understanding the diversity of learners. The participants believe that it is important for the student teachers to learn the cultural factors that influence the learners. The standards for understanding diversity of learners are shown in Table 5.

**Table 5**

**Curriculum Standards for Understanding the Diversity of Learners**

- K1: Cognitive, affective, and psychomotor development of learners
- K2: Effects or influence of culture and environment in the development of individuals and families
- K3: Influence of diversity factors on preschool education
- K4: Learning styles and thinking preferences of learners
- V1: Integrate various educational ideas, perspectives, and theories in planning instruction for young children
- V2: Commitment to develop the full potential of the learners regardless of culture, language, socio-economic status, and learning styles

The participants also pointed out that good preschool teachers must know many things: the curriculum content, instruction, how to assess learning, and how to implement the curriculum to ensure the successful progress of individuals and groups. Accordingly, it is important that teachers must understand the individual strengths, needs, interests, and ways

of adapting curriculum and teaching. These are important to consider when developing preschool teachers who will implement developmentally appropriate practices in multicultural settings.

**Table 6**

**Curriculum Standards for Curriculum and Instruction**

- K1: Various curriculum models and programs that are developmentally appropriate for preschool children
- K2: Content knowledge in different learning areas in the preschool curriculum
- K3: Pedagogical knowledge that is culturally and developmentally appropriate for young children including those with special needs
- K4: Instructional planning models that consider the unique characteristics and needs of young children from various cultures and socio-economic background
- S1: Demonstrate mastery of the subject matter
- S2: Communicate clear learning goals that are appropriate for learners
- S3: Select teaching methods, learning activities & instructional materials or resources appropriate to learners & aligned to the objectives of the lesson
- S4: Apply pedagogical content knowledge to teaching young children
- S5: Using various instructional technologies for teaching young children
- S6: Engage learners in a challenging and multicultural curriculum
- V1: Commitment to implement a culturally relevant and responsive curriculum
- V2: Commitment to use strategies that are relevant and responsive to culturally diverse learners

Assessment is an important aspect of teaching and learning. The results of the study identified in Table 7 several curriculum standards for planning, assessing and reporting learners' progress. The participants stressed the importance of understanding authentic assessment for assessing young children's learning. Through these assessment tools, the parents should be able to understand the progress of their children. It is also important for preschool teachers to exercise fairness and professionalism in assessing, evaluating, and reporting learners' progress.

**Table 7**

**Curriculum Standards for Planning, Assessing and Reporting Learners' Progress**

- K1: Various forms of alternative assessment and other assessment tools that are used for evaluating preschool learners
- S1: Communicating promptly and clearly to the learners, parents, and superiors about the progress of the learners
- S2: Develops and uses a variety of appropriate assessment strategies to monitor and evaluate learning

- S3: Monitors regularly and provides feedback on learners' understanding of content
- S4: Observes learners' behavior to plan for effective lessons and address individual needs
- V1: Fairness and professionalism in assessing, evaluating, and reporting learner's progress

The respondents also shared that preschool teachers in local communities should be creative and be problem-solvers. They should know how to improvise or develop local materials for instruction since many schools do not have enough facilities and instructional materials. The preschool teachers should also be good in establishing community linkages. The standards in this area are listed in Table 8. Teachers should be good in dealing with parents and other community folks. The community officials and parents give high regard to teachers. The Barangay officials often consult the teachers whenever there are educational programs being started in the community. Hence, a good relationship between community leaders and members with the preschool teacher is important. The parents considered teachers as experts in child education and development; they seek advice and professional help from them.

**Table 8**
**Curriculum Standards for Community Linkages**

- K1: Culturally responsive behaviors that promote effective communication and collaboration with individuals, families, social agencies and other members of the community
- S1: Establishes learning environment that respond to the aspirations of the community
- S2: Respond to the needs and concerns of individuals and families
- S3: Collaborate with individuals and groups to support educational programs in the community
- V1: Willingness to collaborate with various individuals and groups for the education and welfare of the learners
- V2: Respect for the culture of the individuals and communities
- V3: Commitment to the educational goals of the society

Continuing personal growth and professional development is also very important for preschool teachers. The standards that were developed in this area are listed in Table 9. They need to be updated with the current trends and innovation in preschool education, especially with the developments in the K-12 program. Part of their personal development is the development and inculcation of important values that they should possess as preschool teachers.

**Table 9**

**Curriculum Standards for Personal Growth & Professional Development**

- K1: Professional organizations and publications relevant to the field of preschool education
- K2: Professional code of ethics for teachers
- S1: Builds professional links with colleagues to enrich teaching practice
- S2: Reflects on the extent of the attainment of learning goals
- S3: Improve practice through conduct of research and attendance to various professional activities
- V1: Takes pride in the nobility of teaching as a profession
- V2: Serve as a model to the community and to other professions
- V3: Regards teaching as a calling and mission
- V4: Commitment to make a difference in the lives of young children
- V5: Commitment to lifelong learning

The preschool teachers and administrators from local communities also stressed the need to prepare preschool teachers to manage a school. According to the respondents, based on their experiences, most of them do not just teach in classrooms. They also serve as pioneers in establishing preschool programs in the local communities where they are assigned. Consequently, they serve as principal, record keeper, and finance officer of the school. One of the respondents pointed out that a good preschool teacher for local communities should be "3 in one" because they serve as administrator, teacher and staff. Table 10 identified the curriculum standards for Leadership and Management.

**Table 10**

**Curriculum Standards for Leadership and Management**

- K1: Management skills and tools that are useful in the school
- S1: Evaluates the preschool curriculum in relation to its goals and objectives
- S2: Possesses leadership skills that that promotes healthy relationship among school personnel and stakeholders.

Preschool teachers are also expected to possess dispositions that will enable them to work through difficult challenges and stay committed to their profession. Some of these dispositions are included in the curriculum standards for character formation in Table 11.

**Table 11**

**Curriculum Standards for Character Formation**

- K1: Core values of the institution
- V1. Servant leadership
- V2: Commitment to make a difference in the lives of young children
- V3: Development of positive values and character

The standards have successfully integrated and considered all the requirements posed by various curriculum sources and influences. The standards have passed the rigorous scrutiny by curriculum experts. The curriculum standards that were developed will be very useful in the development of preschool teachers in the Philippines, especially to those who will serve in local communities.

One of the contributions of the study is the inclusion or development of *values standards* in the teacher education curriculum. All teachers should not just learn knowledge and skills. They should also develop or learn certain values, attitudes and dispositions that are important in the conduct of the teaching profession. Preschool teachers serve as a model for their pupils.

The inclusion of standards for management and leadership skills is also another contribution of this study. Standards under this domain address the unique needs of preschool teachers in local communities because majority of the preschool teachers in local communities also served as school administrators even if they have just finished a bachelor's degree, or during their first year of teaching.

## Conclusion

The study was able to develop curriculum standards for preschool teacher education successfully. The standards have successfully integrated and considered all the requirements posted by various curriculum sources and influences. They have passed the rigorous scrutiny by curriculum experts. The curriculum standards that were developed will be very useful in the development of preschool teachers who will teach in local communities in the Philippines.

One of the important contributions of the study is the inclusion or development of *values standards* in the teacher education curriculum. All teachers should not just learn knowledge and skills. They should also develop or learn certain values, attitudes and dispositions that are important in the conduct of the teaching profession. The inclusion of standards for management and leadership skills is also another contribution of this study. Standards under this domain address the unique needs of preschool teachers in local communities.

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# MUSICAL ACTIVITIES AND SCIENCE PERFORMANCE OF PUPILS WITH VISUAL IMPAIRMENT

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**Abstract**

This study investigated the differences in science performance of pupils with visual impairment before and after utilizing musical activities. A single subject design, particularly ABAB Design, was used in the research. Traditional science activities were conducted during the baseline periods while music-enhanced science activities were conducted during the treatment period. Wilcoxon Signed Rank was used for the statistical analysis. The study was administered to pupils from a school for the blind located in Cubao, Quezon City. Six pupils whose visual impairment was due to retinopathy of prematurity participated in the study. The thematic approach and subservient style in teaching music were utilized. Musical activities like listening, moving to rhythm, singing, using musical instruments, and improvising were used. Similarly, the science lessons focused on life science, particularly plants as living things, parts of plants, and different kinds of plants. The lesson plans used the format on instructional process recommended by Raiser and Dick (1996). Parents were interviewed to document the difficulties of their blind children in learning Science in terms of scientific attitudes and process skills. The results from observation, daily assessment, and unit assessment revealed that there was a significant difference in the science performance of pupils with visual impairment before and after utilizing musical activities.

**Keywords:** visual impairment, science performance, musical activities

## Introduction

According to the World Health Organization, there were over 285 million people with visual impairment across the globe as of 2010. Over 39 million were blind and 246 million had low vision. Ninety percent of those with visual impairment were widespread in developing countries. In 2010, visual impairment became a major global health concern (WHO.NMH.PBD.12.01).

Blindness is a public health problem when its prevalence is 1% or higher in the total population in developing countries. The first national survey on blindness conducted in the Philippines in 1987 showed blindness prevalence of 1.07%. The second national survey conducted in 1995 showed blindness prevalence of .07, showing an almost 25% decrease from the 1987 prevalence. The number of blind Filipinos rose to almost half a million (475,000) with an increase of almost 20% from 1987 to the present. In the latest and third survey done in 2002, of the 79,503,675 total country population, 3,673,070, or 4.62% comprised the blind community. Many were bilaterally blind, had low vision, or had monocular blindness. Also, childhood blindness constituted five percent of the total blind population. Blindness has remained a public health problem through the years (WHO.NMH.PBD.12.01).

Children with visual impairment, who go through a continuum from fairly useful sight to a total vision loss, are more likely put into an inhibiting condition, which makes their engagement with opportunities for learning almost inadequate. They struggle with concept development, motor development, predicting social cues, orientation, and mobility, to name a few. Thus, they undergo difficulties in and out school (Soliven, 2001).

Because of their visual deprivation, participation of pupils with visual impairment in science activities is greatly affected. There is a reduction of the possible amount of direct and vicarious contact with the environment (Scholl, 1986). As a consequence, the proportion of experience that must be classified as abstract is greatly increased. Moreover, they are caught in overlapping situations because they do not have a full grasp of the science content while engaging in the science process skills.

The K-12 program, which is being rolled out in phases in the public school system as the latest curricular trend developed by the Department of Education (DepEd), strongly focuses on science education. According to DepEd Order No.31, s 2012, Science aims to develop scientific literacy among students that will prepare them to be informed and be participative scientists who are able to make judgments and decisions regarding the application of scientific knowledge that may have social, health, and environmental impact on others.

The use of music in the classroom has been recognized as an effective curriculum for the blind, because it not only gives pupils pleasure, but also provides the best possible means for mental training (Governor, 2011). Basic science concepts are transferred into the medium of music, which helps the pupils with visual impairment to become independent learners. Repeated opportunities for mastering science concepts are very important to enable active participation in the performance of science process skills.

This study aims to explore how musical activities improve the science performance of pupils with visual impairment. It also documented the difficulties of pupils with visual impairment in learning Science.

**On Visual Impairment**

Visual impairment refers to any condition in which eyesight cannot be corrected to what is considered to be normal. It is the term used to refer to a loss of vision that makes it difficult or impossible to complete daily tasks without specialized adaptations. This is often due to a *loss of visual acuity* – the eye is not able to see clearly the details, and *loss of visual field* – the area that can be seen without moving is limited (Inciong, 2002).

Every child's development is individual. Visually handicapped children are likely to show differences in their understanding of concepts and in the acquisition of skills, just as all children do. They show delays in motor development, concept development, language acquisition, cognitive development, and social and emotional development (Chapman, 1986).

The provision of a wide range of activities to balance help and provide ample opportunities that are grounded and rooted both from theoretical and practical premises is found to be helpful (Chapman, 1986). If this is the case, then it is imperative to provide children with visual impairment with additional time for clarification of concepts learned, a wide repertoire and mastery of descriptive and expressive words, and allow them to gain information through the use of the intact senses.

**On Music**

Music as part of the accommodation plan for learners with visual impairment has been proven to be effective. Music is a part of the growth and development of the children's lives. Musical training can supply components critical to the children's holistic development, including their intellectual, emotional, physical, and spiritual levels (Campbell, 2010). The tune and rhythm of a song attract them to join whatever activity that goes with it; therefore, music helps the children to appreciate and enjoy what is heard accordingly. Engagement with music has strong benefits in the perceptual skills, spatial reasoning, self-perceptions, and development of social skills (Hallam, 2010).

Olson (1996) also claimed that music instruction could improve the child's spatial intelligence for a long time --- perhaps, permanently. Music helps their precognitive skills. Through music, children are provided with the capacity to trust their abilities through the provision of internal discipline by its repetitive structure, and the utilization of music is relevant in learning areas like Science and Mathematics.

Caine and Caine (2004), on the other hand, agreed that music enhances long-term memory. This long-term memory is always forming and reforming interconnections with information absorbed. They believed that adding music to learning activities helps establish memories more quickly and firmly.

The powerful integration of music stimulates children's intellectual, physical, social, and emotional development. Its active role of unfolding their potential is undeniable.

**On Science**

Pupils with visual impairment benefit considerably from music, especially in learning Science. As a major part in the school curriculum, Science education is described as an important part of children's educational experience and is seen as the foundation of future learning. Science is considered fundamental in the education of elementary pupils (Alcazar, 2009).

Science education is committed in helping the young develop basic concepts and skills, as well as values, which are guided to develop a conceptual framework as premise in viewing their improvement, increasing mastery of locomotors, and developing proficiency in science process skills (Bosi, 2007).

Science is both a body of knowledge and a means of acquiring knowledge. According to Bosi (2007), the two distinct yet inseparable aspects of science education arethe *what* and the *how* of science, with the content being the "what" and the process being the "how".

For pupils with visual impairment, the highly abstract concepts embedded in science make it more difficult to ensure success in the field. They always need a working knowledge of scientific terms as prerequisite to a higher level of scientific tasks. If science instruction places undue reliance on reading and lecture, then many handicapped, especially those with visual impairment, will experience academic failure.

This same thought was given credit in the study of Governor (2011). He said that a student can increase his achievement and interest in Science through an art-enriched program wherein music, dance, and arts are used. He summarized the benefits of the art-enriched curriculum: "Students retain their knowledge of science many years after they graduate and attribute this accomplishment to the fact that they used art, music, and dance

to internalize the learning process. Therefore, songs that carry content information in the lyrics have the potential to help students become familiar with science."

**On Music and Science Performance of Pupils with Visual Impairment**

With the difficulty in the development of psychomotor skills, psychosocial life, language and concept acquisition, children with visual impairment continue to experience delay in their academic integration in the educational setting. The delay comes from insufficient vicarious contact in their environment (Chapman, 1986). Also, the delay is brought about by the slow acquisition of new skills in comprehending new concepts. Much of these skills are important in experiencing success in a learning area like science.

Children with visual impairment have a very strong need to master the basic science concepts alongside the basic science process skills. Music's special capacity for involuntary recall means that it is possible for pupils to experience success in science (Governor, 2011). Soliven (2001) believed that repeated opportunities provide the pupils with visual impairment the needed support and skills to successfully benefit from the science curriculum.

Hallam (2010) posited that music influences a child's perceptual and literacy skills, numeracy, intellectual development, general attainment, and creativity.

Musical activities such as listening, moving to rhythm, and singing, playing instruments, and improvising are experiences that pupils with visual impairment can have to master central science concepts as prerequisite for the optimum development of central process skills. Music's special capacity for involuntary recall means that it is possible for science experiences to be stored and recalled as they are stocked in the working memory (Governor, 2011).

**Methodology**

The study utilized the Single Subject Design, particularly the ABAB design. ABAB design is commonly used to study the change in behavior of an individual or small group after exposure to an intervention or treatment (Fraenkel, 2001). Traditional science activities were implemented in the baseline period (A) while music-enhanced science activities were implemented in the treatment period (B). Wilcoxon Signed Rank was used to statistically analyze the data.

This research sought to explore the possibilities of utilizing music in enhancing the science performance of pupils with visual impairment. Specifically, it sought answers to the following questions:

1. What are the difficulties of pupils with visual impairment in learning Science?

2. Is there a significant difference in the science performance of pupils with visual impairment before and after utilizing musical activities?

The research was carried on in a school for the blind, which was participated in by six pupils whose visual impairments were due to retinopathy of prematurity. The study was implemented through a succession of 12 lessons. The lessons focused on Life Science, particularly, plant as living things, kinds of plants, and parts of plants.

An interview among parents of children with visual impairment was conducted to document the difficulties of their blind children in learning science. Furthermore, the researcher conducted an observation, daily assessment, and unit assessment in a succession of twelve lessons to know if there is a significant difference in science performance of pupils with visual impairment in learning science. The observation rubric is divided into three components, namely: assessment of inquiry, proficiency of process skills, and assessment of scientific attitude. The daily assessment is conducted every lesson while the unit assessment is done after every three lessons or phase. A scoring sheet was used along with daily assessment and unit assessment to translate their performance into numerical scores.

A non – parametric group comparison test specifically Wilcoxon Signed Rank, was used to answer the hypothesis whether or not there is a significant difference in the science achievement of pupils with visual impairment before and after utilizing musical activities.

**Results of the Study**

The results of the study are presented based on the research questions of the study.

**Research Question 1: What are the difficulties of pupils with visual impairment in learning Science?**

Parents who were interviewed reported the difficulties of their blind children. The result of the interview is presented in Table 1.

Table 1:
*Summary of difficulties of pupils with visual impairment in learning science and number of parents who reported the difficulty.*

| **Problem Area** | **Number of parents (n=6)** |
|---|---|
| **1. Scientific Attitude** | |
| a. Curiosity decreases overtime | 6 |
| b. Overdependence for explanation and validation | 6 |
| c. Environment not ready to give explanation and validation | 5 |
| d. Over protective environment | 6 |

| | |
|---|---|
| **2. Process Skills** | |
| a. Observing, Measuring, Classifying, Comparing | 6 |
| b. Difficulty talking about their observations | 6 |

Pupils with visual impairment are naturally curious but this positive attitude decreases overtime because they get tired of physically validating things happening in their environment. Even a subtle noise created in the science classroom is already a source of input, which needs to be investigated. However, Chapman (1988) reported that they undergo experiential poverty because of the deficit of vicarious contact with their environment. Because of the impairment, they have difficulty proceeding beyond operational stage. Hence, their sheer joy of discovering becomes tasking and excitement decreases because of inadequate visual stimulation.

All the parent-respondents agreed that their children became over dependent for explanation and validation. Because of the dearth in the opportunity to investigate, learners with visual impairment tend to rely on the opinion and judgment of others. Other than doing the task of investigation, they need to go to the sighted closest to them for validation, discrimination, identification, and manipulation of things around them. That is why they seldom desire evidence and proof and also do not strive for objectivity. Chapman (1988) reported in his study that it is important to provide a wide range of activities to balance help, and provide ample opportunities that are grounded and rooted from both theoretical and practical premises.

'Environment not ready to give them explanation they need' was also recorded in the list of difficulties reported by the parent-respondents. Five out of six parent-respondents said that their blind children undergo some difficulty in learning because adults in the family, more often than not, are not ready to give them explanation on questions regarding their environment. Martin (2009) agreed that it is important to provide learners with a climate of inquiry that is engaging and accessible.

Six out of six parent-respondent also agreed that an over-protective community prevents the child from investigating and looking for scientific explanation of things and phenomena. School (1986) reported that the blind children's opportunities for optimal learning are hindered because the immediate attempt of the community assisting them becomes overly protective. Stuart (1986) also noted that as vision loss increases, the parents' expectations about their children also decrease. This has detrimental effect to their later cognitive and affective development.

As for their blind children's proficiency in process skills, parents noted their children's difficulty in observing, classifying, and comparing. Meanwhile, they show a level of proficiency in measuring that do not necessitate the use of exact measuring tools, but

through alternative ones. Multiple tactile supplements for the loss of sight make the blind learner perceive size more easily (Erwin et al., 2001).

**Research Question 2: Is there a significant difference in the science performance of pupils with visual impairment before and after utilizing musical activities?**

Data yielded from the observation, daily assessment, and unit assessments were statistically analyzed using the Wilcoxon Signed Rank. Also, p-values were obtained during the baseline and treatment periods to know if there is a significant difference in the science performance of pupils with visual impairment before and after utilizing musical activities.

1. Observation

The observation rubric is divided into three components, namely: (a) assessment of inquiry, (b) proficiency of process skills, and (c) assessment of scientific attitude. The observation was conducted every lesson. Tables 2, 3, 4, 5, 6, and 7 shows the p-values obtained during the baseline and treatment periods.

Table 2:
*Wilcoxon Signed Rank Test p-values obtained during two baselines and two-treatment period in the assessment of inquiry.*

| | B1-T1 | T1-B2 | B2-T2 |
|---|---|---|---|
| p-values | .026 | .027 | .028 |

Table 2 shows the p-values obtained during two baselines and two-treatment period in the assessment of inquiry. Results clearly show that there are changes in the science performance of pupils with visual impairment in terms of the assessment of inquiry after employing musical activities.

Table 3:
*Wilcoxon Signed Rank Test p- values obtained during two baseline and two treatment periods in observing*

| | B1-T1 | T1-B2 | B2-T2 |
|---|---|---|---|
| p-values | .028 | .027 | .028 |

Table 4:
*Wilcoxon Signed Rank Test p- values obtained during two baseline and two-treatment period in classifying*

| | B1-T1 | T1-B2 | B2-T2 |
|---|---|---|---|
| p-values | .028 | .024 | .027 |

Table 5:
*Wilcoxon Signed Rank Test p-values obtained during two baseline and two-treatment period in measuring*

| | B1-T1 | T1-B2 | B2-T2 |
|---|---|---|---|
| p-values | .028 | .024 | .027 |

Table 6:
*Wilcoxon Signed Rank Test p- values obtained during two baseline and two-treatment period in comparing*

| | B1-T1 | T1-B2 | B2-T2 |
|---|---|---|---|
| p-values | .027 | .027 | .027 |

Tables 3, 4, 5, 6 shows the p-values obtained during two baselines and two treatment period in the assessment of proficiency of process skills namely observing, measuring, classifying, and comparing. Again, results clearly show that there are changes in the science performance of pupils with visual impairment in terms of the assessment of proficiency in process skills namely observing, measuring, comparing, and classifying after employing musical activities.

Table 7:
*Wilcoxon Signed Rank Test p- values obtained during two baseline and two-treatment period for assessment of positive attitudes in science.*

| | B1-T1 | T1-B2 | B2-T2 |
|---|---|---|---|
| p-values | .028 | .027 | .026 |

*Legend:* *B1-First phase of baseline period*
*T1- First phase of treatment period*
*B2 – Second phase of baseline period*
*T2 – Second phase of treatment period*

Table 7 shows the p-values obtained during the two-baseline period and two-treatment period on the assessment of scientific attitudes. The result shows the significant differences in the science performance of pupil with visual impairment in this area after employing musical activities.

Since the p-values obtained were less than the .05 level of significance, there is enough evidence to say that there is a significant difference in the science performance of pupils with visual impairment before and after utilizing musical activities.

Pupils with visual impairment significantly learn with the use of musical activities. The part of the brain that is less likely to be affected by their visual impairment is the same part that analyzes music (Schalkwuk, 1994). They benefit considerably with musical activities like listening, singing, using musical instruments, moving to rhythm, and improvising. This is evident in their proficient performance in the first phase of treatment period, declined performance in the second baseline period, and significant positive performance in the second phase of treatment period.

2. Daily assessment

The daily assessment was conducted every lesson for 12 sessions. The assessment is a two-item test wherein the scores are derived using the scoring sheet. The obtained p-values yielded from the performance of pupils with visual impairment during baseline and treatments period in daily assessment is shown in Table 8.

Table 8:
*Wilcoxon Signed Rank Test p - values obtained during two baseline and two-treatment period in the daily assessment*.

| | B1-T1 | T1-B2 | B2-T2 |
|---|---|---|---|
| p-values | .026 | .026 | .026 |

*Legend:* *B1-First phase of baseline period*
*T1- First phase of treatment period*
*B2 – Second phase of baseline period*
*T2 – Second phase of treatment period*

Since the p-values obtained were less than the .05 level of significance, the researcher arrived at the conclusion that there is a significant difference in the science performance of pupils with visual impairment before and after utilizing musical activities.

Berret (1996) claimed that music helps improve pre-cognitive skills that is why it is relevant in different learning areas like Science and Mathematics, while Madsen (1987) and Radocy and Boyle (1980) proved that the idea of possible transfer of cognitive abilities to

other curricular areas as the learner is exposed in various musical activities both in formal and informal situations. Hallam (2010) also reported the increase in the performance of pupils with visual impairment in the areas of numeracy, linguistic ability, cognitive ability, creativity, and wellness through music.

3. Unit assessment

The unit assessment was conducted after every three lessons to know the performance of pupils with visual impairment after baseline and treatment periods. Table 9 shows the p-values obtained in the unit assessment.

Table 9:
*Wilcoxon Signed Rank Test p-values obtained during two baseline and two-treatment period for the unit assessment.*

| | B1-T1 | T1-B2 | B2-T2 |
|---|---|---|---|
| p-values | .024 | .026 | .026 |

*Legend:* *B1-First phase of baseline period*
*T1- First phase of treatment period*
*B2 – Second phase of baseline period*
*T2 – Second phase of treatment period*

Since the p-values obtained were less than the .05 level of significance, the researcher rejected the null hypothesis in favor of the alternative hypothesis. Therefore, there is a significant difference in the science achievement of pupils with visual impairment before and after utilizing musical activities.

Other than having music as the substance of children's playful exploration and experimentation of the world around them, Campbell (1994) also agreed that music is the core of their socialization and expressive communication with one another and with the world around them. Oral language is developed as children compose their own rhythm and songs to express their ideas (Koster, 2009).

According to Berret (1997), music is cognition. Composition, analysis, representation, and reflection are all activities, which depend on mental skills and strategies. He also added that when children are engaged in music making, they see patterns and structures. Music allows children to investigate sequencing, and cause and effect. Cognitively, music also develops the discovery of pattern and organizational skills (Koster, 2009).

**Conclusion**

Pupils with visual impairment show significant difficulties in learning science, which are attributed to their visual loss. They range from difficulty in naming their observations, to difficulty in physically validating their investigations, difficulty in performing basic science process skills like observing, measuring, classifying, and comparing, to overdependence on the sighted for validation and explanation.

Solicited support of adults and peers to let the blind learners do and talk about science is important. It is always true that there is no learning without asking and trying. The blind learners gain insight when concepts are discussed and talked about. They are able to express and interpret input from their remaining sensory receptors. These expressions and interpretations are reinforced when they are processed and dealt with correctly and properly.

In the light of the findings presented in the analysis, the researcher concludes that musical activities have significant effects in the science performance of pupils with visual impairment. Music has a direct positive effect on the science performance of pupils with visual impairment. It holds a powerful role in the curriculum for all learners, especially the blind.

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# TRANSFORMING A UNIVERSITY-BASED PROGRAM TO A SCHOOL-BASED INNOVATION IN SCIENCE EDUCATION: FROM KIDS ACADEMIA TO THE HEAD START SCIENCE PROGRAM OF CARMONA ELEMENTARY SCHOOL, PHILIPPINES

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**Abstract**

This paper narrates a story of how the experience of a teacher trainee scholar of the Faculty of Education of Ehime University was inspired by her exposure to the Kids Academia Program to develop a pioneering school-based program for gifted students in science, called the Head Start Science Program. The paper shares the importance of developing partnership between higher education institutions and basic education schools. It highlights the immense need for schools and teachers to develop school-based innovations to help students learn and to improve the quality of basic education.

**Introduction**

The 21st century is an era of information and knowledge. Everyday, there are myriads of social, demographic, political, economic, and cultural changes happening in all places in the world. The changes happening in the society require dynamic educational reforms and innovations to be done. From preschool education to postgraduate education, there is a need for educational institutions to address the needs and demands of the changing times and the growing diversity of people. Educational innovations need to work collaboratively and start planning and implementing school-based reforms that will surely transform the landscape of education.

Offering cross-border education, establishing a satellite campus in different places, doing collaborative researches, and instituting mentoring programs are just few efforts done in many colleges and universities around the world. These endeavors are done to implement innovations and to learn more from good educational practices done in educational institutions in other countries. In many areas, higher education institutions (HEIs) are always the source of innovations, new knowledge, and new technology. These HEIs serve as pillars of economic growth and producers of knowledge. The scholars, both professors and students, from different HEIs continue to share their expertise and the results of their researches to help individuals and institutions.

Higher education institutions are also strengthening their ties with basic education schools to help millions of basic education students access quality education that will prepare them for studying in college and in helping them develop new knowledge, learn important values, and practice various skills needed for everyday. HEIs have developed projects such as science camps, adopt a school program, and other innovative projects aimed to improve the basic education schools. In some countries, joint research among professors and basic education teachers are done. Many basic education schools have also opened their classrooms for professors and instructors who would like to share their knowledge and expertise to elementary and high school students. Unfortunately, some of these reforms have not transformed schools and did little impact on attaining quality education because they were not sustained. However, there are good programs that have remained strong and successful. Sustainability of good programs is really important to ensure.

This paper narrates the story of how a university-based innovation on science education at Ehime University in Japan had inspired or influenced Carmona Elementary School, a public school in Cavite, a province of the Philippines, to implement an innovative program for science for its students. It is the story of how a Japanese professor inspired and mentored a teacher-trainee from the Philippines to create an innovative program that can be done to help the students in their school. This paper is more than just a recollection of events. It is a story of how teacher leadership and empowerment can inspire curricular and instructional innovations.

**The Idea of School-based Reforms**

Reforms in education are always started in the areas of curriculum and instruction. As early as 1976, Malcolm Skilbeck developed a school-based model for curriculum development that aims to help schools plan and implement school curriculum reforms. Skilbeck emphasized that curriculum improvement must be done in the school level in order to address the needs of the learners and to solve curricular problems.

Michael Fullan's works (1982,1993,1999) focused on educational change process and suggested strategies and principles that can be applied in various school settings. He commented that effective change agents neither embrace nor ignore mandates; they use them as catalysts to reexamine what they are doing. Fullan emphasized on the roles of individual teachers as change agents and the importance of collectivism in advocating positive changes in schools. More goals can be attained if schools, teachers, administrators, and other education stakeholders work together in the spirit of mutual respect and mutual goals.

Thelma Co (2012) did a good research on school-based curriculum improvement in Philippine public schools, particularly in the Division of City Schools in Quezon City. Her study found out that collaboration with different institutions and other stakeholders is one of the keys for introducing school-based reforms in education. The successful collaboration between her school and with higher education institutions is one promising program that could serve as a model for other schools. Higher Education Institutions (HEI) have the edge of having many experts in different fields. This repertoire of expertise can be useful in basic education. HEIs can provide content experts to help basic education teachers improve their content knowledge of the subjects they are teaching. Joint researches can be done and various projects can be developed to involve basic education teachers.

Guico (2004) also stressed in his study the importance of teacher empowerment as a major key in planning and implementing various educational reforms. His study pointed out that local teachers should be given the opportunity to participate in making curricular and instructional innovations that will benefit the students and the school. Galos (2013) also observed that most activities in the School Improvement Plans of some selected school principals in the Philippines can be attained best through collaboration and teacher leadership.

It is part of the Basic Education Reform Agenda (BESRA) for the Philippines to improve the quality of basic education and address issue of access to education. However, Ocampo, Bautista, and Bernardo (2010) lamented the fact that the "*top down"* approach for introducing educational reforms in the Philippines has not accomplished much or did nothing at all to improve Philippine education. Thus, there is a need for empowering schools in doing school-based innovations that work well in solving their school problems and in improving learners' performance.

The 21st century requires institutions and individuals to collaborate to work for common good. The formula is *greater collaboration equals greater success* or there is a greater possibility of attaining more goals. However, it seems that there is a weak or segmented relationship between basic education and higher education in many countries leaving basic education to the Ministry or Department of Education. Worse, many educational reforms are enforced to local schools from the national government or from education authorities rather than empowering schools and teachers to initiate curricular and instructional reforms. Developing an effective partnership between higher education institutions and basic education schools could be a good model for improving the current system of basic education in any country.

**The Kids Academia in Japan**

The Kids Academia is an example of a successful educational innovation to help basic education particularly in the field of Gifted Education in Science in Japan. Dr. Manabu Sumida developed it in 2010. The program was inspired by the Center for Gifted Education of the College of William and Mary in the United States. Kids Academia is a program for young Japanese children ages 5-8. The program is designed to provide excellent science experiences for gifted children in Japan. Since 2010, many gifted children in Matsuyama have benefitted from the Kids Academia program.

Since its inception, Kids Academia has caught the attention of local and international researchers and it has become a training ground for pre-service teacher education in science. It is an excellent venue for mentoring student-teachers and for nurturing gifted learners in science. Every year, many young children would apply to participate in this unique program. Japanese parents are also excited to enroll their children in this program that is unique in the whole of Japan.

The interesting part of this program is its influence to pre-service and professional teachers to envision curricular and instructional innovations that they can implement in their schools. Kids Academia is a perfect example of a product of internationalization of education; an America university-inspired program designed and perfectly implemented in a Japanese university context.

The program was based at the Faculty of Education of Ehime University in Matsuyama City. There are several programs being done in this university to promote greater collaboration and academic exchange programs both local and international. These are strategies for positioning the university in the internationalization of education and to attain its goal to become a radiant university in the Asia-Pacific region. They envision the university to be one of the centers for innovations in the world. Kids Academia is one of their outstanding innovative programs that continue to earn respect among scholars and other stakeholders.

**Improving Science Education in the Philippines**

Improving science education in the Philippines is one of the goals of Philippine education. Since the publication of TIMMS Results in 1999 showing the Philippines to be one of the lowest among the countries who participated in the survey, several reforms have been introduced. For example, the University of the Philippines National Institute of Science and Mathematics Education is advocating the use of video-lesson studies approach.

In the public schools, Practical Work Approach (PWA) was reinforced by the Department of Education to be used in teaching science. Emphasis on developing questioning techniques of science teachers was also done. On the part of the students, emphasis on development of higher order thinking skills (HOTS) was also implemented on science lessons. Due to lack of science equipment to be used in science lessons, the Department of Education also implemented the "Do It Yourself Science Equipment" project that was started in Cebu few years ago. The focus of this project is to encourage teachers and students to develop indigenous and local instructional materials for teaching and learning science.

Mentoring program was also introduced to help neophyte teachers in developing their skills and content knowledge in teaching science. Scholarships for teacher development were also made available for teachers. Examples of these scholarships are those offered by the Department of Science ad Technology for Science teachers, and CHED Faculty Development Program for tertiary level teachers.

A project of the Department of Science and Technology (DOST) known as Learning Physics as One Nation (LPON) in many ways is now changing the way science is taught in basic education, especially in secondary. LPON makes use of an instructional module with a CD developed by science experts to enhance the teaching of physics in the country. This was pioneered at the Central Visayan Institute of Technology (CVIT). A Dynamic Learning Program (DLP) was developed as an approach to implement this program. Currently this instructional approach and their instructional materials are being used in many private schools in the Philippines. Several subjects like Chemistry, Biology, General Science, and Mathematics subjects now use the DLP modules.

Much of these innovations were introduced for all regular school students. The programs for science for the gifted were concentrated in several science high schools such as the Philippine Science High School System, Manila Science High School, Quezon City Science High School, and other local government supported science high schools in the country. The Department of Education also introduced the Special Science Elementary School Project in 2007 to help develop the interest of fast learners and potentially gifted elementary students in science.

Although these projects and innovations have different claims to success, still there is a need to do more innovations in science education for basic education in the Philippines. There is a need to address equity and access issues. Good science programs should be made accessible to all types of learners, especially in rural areas in the country. Good science

programs should also be made accessible to gifted and talented students as well as those who are below the normal norm.

**Objectives of the Study**

The objective of this study is to describe how the Kids Academia experience of a teacher trainee made her establish a school-based program for potentially gifted learners in a local school in the province of Cavite in the Philippines. This program was known as the Head Start Science Program of Carmona Elementary School.

Documenting a success story of a school-based innovation initiated by a single classroom teacher is an opportunity to encourage other local teachers to innovate in their own schools. This paper will narrate the experiences of the lead teacher and the local school in:

1. Special features of the Head Start Science Program
2. Selecting the student-participants
3. Developing the program curriculum
4. Developing the instructional materials
5. Getting the school's and stakeholders' support

Direct statements from the lead teacher are reported in this paper to support some ideas and generalizations presented in this study.

**Results of the Study**

Inspired by the philosophy of Kids Academia, the Head Start Program was developed to motivate potentially gifted students to study science. It is a school-based innovation adapted abroad, but inspired by an intense desire to develop an innovative science program for Filipino children, specifically those enrolled in rural public schools. According to the lead teacher:

Carmona Elementary School has fast learner classes from Kinder to Grade Six. Unlike other schools with fast learners, we do not offer Science in grades 1 and 2. Since there was a new implementation of the curriculum, I decided to plan for a program where I can integrate the use of mother tongue, which is the primary content of the K+12 Curriculum.

The idea of coming up with this program happened to be the challenge given to her by her Japanese Supervisor, Dr. Manabu Sumida of Ehime University. Dr. Sumida, or Sumida-sensei, is one of the great scholars in the field of science education in Japan. He is a well-known scholar in advocating gifted education programs for science. He is the father of the

innovative program in Japan known as the Kids Academia. Dr. Sumida is an outstanding research supervisor. He always challenged his students to develop innovative and creative ideas. His deep sense of nationalism and his dedication to scholarship influenced his students to develop research and programs aimed to help the country and foster good relationship with other countries around the world.

## A. Special Features of the Program

The following are the special features of the Head Start Project of Carmona Elementary School.

- **Use of Local Language for Instruction**

  Science is basically taught in English in the Philippines, although the DepEd is now introducing the use of mother tongue as medium of instruction in early grades. For the Head Start Science Program, Tagalog was used as the medium of instruction. The purpose is to make science concepts understandable by the students and to help the students communicate their ideas, questions, and observations through their local language. The use of the local language made the interaction between and among students and the teacher more meaningful and active.

- **Multi-grade and Differentiated Instruction**

  The learners are varied in terms of their biological age. The students come from preschool to the second grade. One lesson or topic is prepared for all of the learners. Differentiation was done in some science activities to make sure that the activities are appropriate to the age and level of understanding of the students.

- **Focus on Science Process Skills and HOTS**

  One of the goals of the program is to teach science process skills and develop higher order thinking skills (HOTS) among the learners. In the Head Start Science Program, several lessons were developed to make sure that these important skills were developed through the science activities that were designed for the students. The program ensures that students should enjoy learning and doing science activities and as they do, their science literacy increases and they develop important thinking skills and science processes.

- **Developing Gifted Potentials in Science**

  The main goal of the program is to develop science program for young children who are showing potentials in learning science. Lessons and activities were carefully designed to be appropriate and responsive to the learning styles and cognitive abilities

of the learners. The program also ensures that learners' motivation for learning science will be greatly improved and developed.

## B. Selecting the Student-Participants

The school's Guidance Counselor and the teachers of preschool, Grade I, and Grade II selected the learner-participants for the program. The advisers in each grade level nominated at least ten pupils using the pupil nomination form. Then, the pupils were given tests for pupils' interest in science and the OTIS Lennon Mental Ability Test (OLMAT). The lead teacher mentioned:

> After the teaching materials were made, instruments for selection followed. The tests on pupils' interest in science and the science test on process skills were originally made by the researcher. The instruments for selecting the participants were adopted from Rimm and Taber such as the pupil nomination form and the program evaluation form. For the mental ability test, a standardized test called OTIS Lennon Mental Ability Test (OLMAT) was used.
>
> The pupils who got high in both tests were selected as the participants for the Head Start Science Program. This ensures that the selected students have the ability and capacity to study practical and advanced science topics.

## C. Developing the Curriculum

Kids Academia had greatly influenced the development of the curriculum of the Head Start Science Program. This was the story of the lead teacher:

> *Since I am a teacher-trainee in Japan, I was able to join their special programs for the gifted pupils in science. I studied the approaches and teaching strategies used by the teachers in the program. I also examined their teaching curriculum and instructional materials. I also did interviews and researches on how they conducted their selection of participants for the said program.*
>
> *After analyzing the special programs such as Omoshiro Rika, Science Innovation Program, and most especially Science Kids Academia at Ehime University, I started making of my own analysis with regards to our science programs for the gifted children in science in our school. I realized that we do not have such programs for the gifted science. From this analysis, I come up with an idea of having our own science program for the gifted in our school.*
>
> *After this realization, I made a plan on how I can implement the program in our school. Since there is no science in grades 1 & 2 in the existing curriculum, I decided that the program would be participated by selected grades 1 & 2 pupils. During my involvement in Japan's Science Kids Academia, I observed that even Kindergarten*

*pupils could participate in the program. It was through these observations that I decided to include kindergarten pupils in the program.*

*Then, I analyzed the learning competencies for grade three sciences in the regular class. Since according to Sec. Luistro, the science competencies for the regular class will also be the same for the gifted class, I based the teaching modules on the new learning competencies under the new curriculum. I chose topics from the competencies that I thought to be interesting for the pupils and within the comprehension of the pupils especially the kindergarten. The lessons contained different activities suited to the learning abilities of the pupils. I originally made some of the activities.*

It can be noticed here that in spite of the rigid prescription of a curriculum for public schools in the country, there are still myriads of rooms for introducing innovations. The ultimate goal of the curriculum is to develop students to their fullest potential. Hence, it is possible to modify, enhance, or develop a support mechanism for the implementation of the curriculum. In this endeavor, teacher leadership is important. Learning to value the dreams and aspirations of teachers and empowering them to be innovative are noble tasks that should be supported and nurtured.

The important lesson here is the experience of the teacher-trainee in Japan that much educational goals can be accomplished if it is supported by a moral purpose to help students learn and develop. Evans (1996) provided an insightful idea and framework of understanding which he called the *human side of school change*. Evans's idea of a school reform is characterized by clarity of shared leadership and moral purposes, and something that empowers individual teachers to take the lead in school reforms. The experience of the lead teacher from Carmona Elementary School in embarking on this type of innovation is an exemplar of an act of moral courage.

## D. Developing the Instructional Materials

From the Kids Academia experience, the instructional materials should come from materials and objects that are found in their locality. No sophisticated equipment was used, except when the activity requires students to use some specific science equipment. Improvisation was used to develop science-teaching materials. Students are also encouraged to make some science projects from indigenous materials found in their locality. The idea here is to help students develop their creativity and skills in creating and designing materials that can be used in science.

Kid's Academia is more fortunate to be based in a university; thus, it has all the access to all science equipment needed in doing science experiments. In the case of Carmona Elementary School, where the Head Start Science program is based, not all science equipment needed is available. Teachers need to improvise and develop their own instructional tools. Oftentimes, they buy using their own money.

When the Head Start Science program started, the lead teacher tried her best to provide the materials needed that are not available in the school. Taking the initiative and deep commitment are her initial capital for realizing the goal of establishing the Head Start Science program. Teacher leadership and empowerment are seen to be the driving force that pushed the lead teacher to pursue this kind of innovation in their school.

**E. Support from the School and other Stakeholders**

This innovation is the first of its kind in the whole division of Cavite. Teachers and other education stakeholders gave their support in different ways. According to the lead teacher, the following are the important ways where teachers and stakeholders show support to the Head Start Science program.

1. The respective advisers were responsible in selecting the pupils through the nomination form.
2. Since the test was a standardized test, the guidance counselor was responsible in assessing the result of the mental ability test.
3. During the actual teaching, there were some teachers that served as teacher assistants.
4. During the conduct of the program, since there were classes, the principal allowed the participants to join the program in the afternoon from 1:30 to 4:00 PM. There were no problems for kinder pupils since they had classes only in the morning and so with the grade 1 pupils since they end their classes at 2:30. For the grade 2 pupils who missed some of their subjects, their respective advisers provided them extra time after the program for make-up classes.
5. There was a special room provided where the study was conducted.

The parents of the participants also showed their support during the implementation of the program. They cooperated with the school and supported all the necessary activities proposed and organized by the teachers. Some of the parents donated equipment and other instructional materials that are used in the implementation of the program. They were appreciative that a school-based program such as the Head Start Science Program was introduced in their community.

## Conclusion

Collaboration and partnerships between and among institutions is an important thing to do to sustain excellent education projects and programs. Educational goals are attained successfully when there is unity among institutions. The experiences of every student-teacher and teacher-trainee in Ehime University Kids Academia were positive, meaningful, and challenging. It rekindles individual's motivations to strive to make a difference in unique, different ways. It is a nationalistic instinct that motivated the lead teacher to develop an innovative program that will benefit the students in public schools.

This experience affirmed that teacher empowerment and teacher leadership are important in introducing any form of curricular and instructional innovations. It asserts that school-based curricular innovations are possible amidst several reservations and fear of possible problems related to the sustainability of the program. The Head Start Science Project is an imported idea coated with its relevance and responsiveness to the Filipino culture and planted in the Philippine educational context. It was the Japanese sensei that gave the seed; it was the Filipino teacher-trainee who sowed the seed and saw it grow.

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# A SCHOOL-BASED CURRICULUM IMPROVEMENT MODEL FOR PUBLIC ELEMENTARY SCHOOLS

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**Abstract**

The study aimed to develop a school-based model for curriculum improvement. The research was conducted in fourteen (14) public elementary schools located in the fourth Congressional District of Quezon City (Congressional District IV). This district was selected due to its outstanding performance in the Division Achievement Test (DAT) and National Achievement Test (NAT) in some areas within the Quezon City Division. These schools are now in the process of actively instituting much needed support system to ensure the successful implementation of the K to 12 Curriculum. The result of the study, that is, a curriculum improvement model, can be followed by private or public schools in planning for an effective support system as they implement the K to 12 curriculum and other types of curricular reforms.

**Introduction**

The implementation of the K to 12 Basic Education Curriculum required the principals and school owners in public and private schools to train teachers, provide instructional support system, introduce new teaching and learning strategies, and develop stronger partnership with the different stakeholders to support whatever curricular and instructional reforms they need.

Based on the K to 12 curriculum, there is a need for schools to plan for the implementation of several curriculum reforms such as: mother tongue-based multi-lingual education, standards-based teaching and learning, standards-based assessment, development of multiple and functional literacy, and integration of technology in teaching and learning (Quijano, 2011). The inclusion of kindergarten education in the elementary schools also created immense challenge for elementary school principals and teachers (Pawilen, 2012).

Public schools in the Philippines are faced with the enormous challenge to develop different schemes to provide the necessary support for the implementation of the K to 12 Curriculum for basic education and to respond to various global issues and challenges. It is therefore imperative to develop a school-based model for curriculum improvement. According to Doll (1992) *curriculum improvement* refers not only to improving the structure and the documents of the curriculum but also to stimulating learning on the part of all persons concerned with the curriculum. Curriculum improvement results primarily from improving individual persons and organizations of people (Doll, 1992). In the context of this study, curriculum improvement is a curriculum activity that includes effective planning for the implementation of an existing curriculum or for developing an efficient support system for implementing curriculum reforms and instructional innovations.

As early as 1976, Malcolm Skilbeck developed a school-based model for curriculum development that aimed to help schools plan and implement school curriculum reforms (Print, 1993). The model, which included the various curriculum workers, prescribed a curriculum development process, which can be followed in a particular school. It highlights the importance of involving teachers in curriculum development and analyzing the context in which the curriculum is developed. Skilbeck (1976) also emphasized that curriculum improvement must be done in the school level in order to address the needs of the learners and solve the curricular problems.

With the implementation of school-based management (SBM) in the Philippines, public school principals are now empowered to develop effective measures to improve and support the implementation of the curriculum in their specific schools. For example, in Metro Manila, there are public schools that are performing based on the results of national exams and other success indicators provided by the Department of Education (DepEd). These

schools are successful not only in implementing the curriculum but also in rallying support from different sectors and stakeholders to sustain innovative curricular programs in their schools. Posner (1998) pointed out the importance of documenting curriculum activities; thus, curriculum scholars must study successful efforts done by individual schools in improving their curriculum.

This study aimed to analyze several successful curriculum reforms done in public schools in Quezon City. To talk about a school-based curriculum improvement model is to recognize the successful efforts of how school administrators and teacher work together to improve the quality of curriculum and instruction in a particular school. It also aimed to contribute to the growing field of curriculum studies in the Philippines by developing a school-based curriculum improvement model that can be used and followed by the other schools. This school-based curriculum improvement model was based on Philippine experience and context; thus, it is distinct and unique compared to its western counterpart.

**Methodology**

The study aimed to develop a school-based model for curriculum improvement for public elementary schools. Specifically, it aimed to answer the following:

1. What are the curricular issues, problems, demands, and needs experienced by the school?
2. What instructional innovations were implemented to address these curricular problems, issues, demands and needs?
3. How do the school administrators, teachers and other stakeholders work together for the curriculum improvement of the school?
4. What model for school-based curriculum development can be developed from the experience of public elementary schools?

The first phase of the study involved a situational analysis that presented the following: (1) curricular issues, problems, demands, and needs experienced by the schools, (2) instructional innovations that were implemented to address these curricular problems, issues, demands, and needs, and (3) a discussion on how schools administrators, teachers, and other stakeholders worked together for the curriculum improvement in the school.

The second phase presented a model for school-based curriculum improvement based on the result of the first two phases. The school-based curriculum improvement model proposed by this study includes procedures planned and undertaken by the school participants to effectively implement the curricular and instructional reforms required in the implementation of the K to 12 Curriculum.

**Research Venue**

The research was conducted in fourteen (14) public elementary schools located in the Fourth Congressional District of Quezon City (School District XVIII). Congressional District IV was selected based on the following:

- All schools in the Congressional District IV attained higher than 75% Mastery of Percentage Score (MPS) in the Division Achievement Test administered last March 2012. 75% is always the target of the Division when it administers division achievement tests.
- Two of the fourteen (14) schools belong to the top ten performing schools in terms of the Division Achievement Tests for school year 2011-2012.
- Extreme schools in terms of population could be found in the district.
- The Division Office of the Department of Education notes almost all of the schools for outstanding performance.
- The principals have all been awarded outstanding principals within the division based on their school's performance.
- All the schools are actively involved in addressing effectively the issues, concerns and needs of the implementation of K to 12.

**Research Participants**

The participants of the study included the principals of the fourteen (14) elementary schools in Congressional District IV. These fourteen schools fall under School Districts XVI, XVII, XVIII, and XIX. Of the fourteen schools, the smallest in terms of population has a total number of 522 pupils, and the biggest has a population of 4,505 pupils. In terms of academic excellence, the school with the highest percentage of academic excellence registered a Mastery of Percentage Score (MPS) of 86.63% with 37.01% as the lowest Mastery of Percentage Score (MPS) based on the results of the National Achievement Test (NAT) released by the Division of Quezon City Schools in its Executive Meeting of June 2012.

**Results of the Study**

This chapter presents and discusses the findings of the study. The data are presented and discussed following the five research questions of this study.

**1. What are the curricular issues, problems, demands, and needs experienced by the school?**

A focus group discussion was conducted with all the principals of the district to identify and discuss specific curricular issues, problems, demands, and needs experienced by the schools. Table 1 shows the curricular issues faced by their schools.

**Table 1: Curricular Issues, Needs, and Demands**

- Implementation of the K to 12 program
- Lack of preparation among teachers in the implementation of Department of Education programs
- Lack of teaching materials
- Sustainability of good programs
- Low achievement level of the school

The result of the FGD with the principals revealed that the implementation of the K to 12 Curriculum is the main issue among the schools in the Congressional District IV. The principals also faced the challenge of implementing curriculum reforms such as the mother tongue-based multilingual education (MTB-MLE), development of multiple and functional literacy, and integration of technology in teaching because the K to 12 curriculum is not yet complete. Some of the comments of the principals were:

**Principal 1:** We are all waiting for DepEd's instruction about the K to 12 Program. Many teachers and parents are asking about it; however, the direction is yet to be clarified with us.

**Principal 3:** There is a need to hire kindergarten teachers but there are no qualified Kindergarten education majors.

**Principal 12:** Some of the teachers are resistant to changes. There are also half-baked teachers implementing the new K to 12 Program. *Misplaced din yong iba;* they are teaching subjects which are not their expertise. They need training. (Some teachers are misplaced since they are teaching subjects which are not their expertise so they need to be trained.)

One of the perennial issues mentioned by the principals was the lack of preparation among teachers who will execute the DepEd programs. Since DepEd should do teacher training and preparation simultaneously with the implementation of DepEd's programs, there are cases when it was just merely entrusted to the discretion of the principals. DepEd issues directives to each school to send representative to attend seminars that DepEd will conduct. The principals usually send their master or senior teachers.

**Principal 5:** *Madalas bahala na ang mga principals sa paghanap ng paraan para ma-train ang mga teachers or para magkaroon ng seminar.* (Most of the time, it is the responsibility of the principals to look for ways to train teachers or make them attend seminars.)

**Principal 8:** If there are trainings and seminars given by DepEd, the number of representatives allowed to attend from each school is limited; therefore, only few teachers are able to go. They are expected to echo what they have learned from the seminar/training to their fellow teachers.

**Principal 10:** Sometimes the seminars and trainings provided by DepEd are not enough to train all our teachers. We find ways to augment this oversight by going into partnership with some organizations and individuals who conduct teacher trainings.

The schools also lack the necessary instructional materials such as manuals, modules, and other equipment needed for the execution of the curriculum. For example, there is not enough science laboratory equipment in each school considering that science is one of the priority subjects. ICT integration is also another priority program in public schools but not all schools have enough computers. Teachers need manuals and other instructional materials for different subjects but the government cannot provide everything they need. It has become a challenge for the principals to look for private partners who are willing to donate instructional materials to their schools.

The new teaching materials that were distributed for use by the schools are also inappropriate to the contexts as well as the needs of the learners.

**Principal 2:** Teaching aids such as teacher manuals are lacking for the successful implementation of the program. There is a need to provide suitable instructional materials for specific learning competencies. DepEd should also provide important references for teachers.

**Principal 4:** The government introduces many innovations but they failed to provide all the necessary materials needed to implement the reforms.

**Principal 11:** I guess DepEd was in a hurry to distribute the manuals to teachers so they were not able to check or evaluate these materials carefully.

All the curricular issues, needs, and demands mentioned here are not new in the Philippine public school system. There were the same problems found in the EDCOM Report of 1991. Hence, the principals are all in agreement that there is a need for school administrators to be creative and resourceful in responding to the different issues, needs and demands as they implement the new curriculum. The principals must not rely only upon DepEd or the government. They are compelled to take the leadership initiatives in the improvement of the K to 12 Curriculum in their respective schools. The important traits of the principals such as ***creativity, resourcefulness to generate the wherewithal, moral integrity, strong leadership, and strong commitment*** are important components in the improvement of various curricular and extra-curricular programs of the Department of Education.

Aside from the major curriculum issues, needs and demands identified by the principals, there are also other concerns that they have encountered in the implementation of the new curriculum. Table 2 will show:

**Table 2 Other Problems and Issues Confronting the Principals in the Implementation of the Curriculum**

- *The teachers do not observe time on task*.
- Teachers are only focused on extracurricular activities.
- Teachers are not motivated and inspired enough.
- There are no security guards in the campus.
- The presence of undisciplined and unruly pupils.
- The lack of support from various stakeholders.
- Pupils who are sexually abused.
- The divisiveness and factions among faculty members.
- Teachers who are not ICT literate.

In some schools, teachers do not meet their respective classes because they prefer to do other activities that they use as an excuse. In the FGD, the principals made the following remarks:

**Principal 1:** Nagsimula na ang klase pero and mga bata ay nasa labas pa ng classroom naglalaro o di kaya, naglilinis ng kanilang mga assigned areas. (Classes have begun but the pupils are still playing outside the classrooms while others are cleaning their assigned areas.)

**Principal 14:** Kapapasok pa lang ng room ni teacher, puro sermon na siya. Naubos na ang oras na hindi nakapagturo si teacher because of "sermonizing." (Upon entering her classroom, the teacher has not done anything but scold the pupils. The whole session was spent without any learning-taking place because of her sermon.)

**Principal 3:** The teacher arrives late for her class but leaves before the class is over.

**Principal 6:** Contact time of teacher with pupils is wasted because she is busy doing unnecessary errands and routinary works.

**Principal 9:** The assigned substitute teacher does not go to the class of the absent teacher because no one will take care of the substitute teacher's advisory class; hence, domino effect happens to all the other classes.

**Principal 11:** Teacher simply sends to the class some ready-made activities for them to work on, without bothering to look at them later. As pupils would say, *"Nagbiyahe lang po ang mga manila paper, hindi naman po itinuturo, ginawa namin, 'di naman tiningnan."* (The manila paper with the ready-made activity will only make its way into our classroom. The teacher will not even teach what was written on it; we've done what we have been told but she will not even look at our outputs.)

Teachers also tended to pay more attention on extracurricular activities because they are not prepared to teach their lessons (hence they do not need to write their lesson plans). Teachers who are also retiring soon are no longer motivated to teach.

**Principal 2:** Teachers no longer teach. Instead, they just train pupils during their teaching period despite reprimands from the administrators as they do not want to be observed. When teachers are asked to train pupils, they are not required to make their lesson plans. If the pupil/s being trained wins, a certificate is awarded to the teacher/trainer that she uses for her promotion.

**Principal 3:** *Walang gana si teacher magturo, kasi hindi niya hilig. Linya niya ang mag train sa cultural group.* (There is the lack of enthusiasm from the teacher

because her subject is not her field of interest. She prefers teaching in the cultural group.)

*Mas gusto kong magturo ng sayaw kasi "give up" na ako sa mga bata. Puro mahihina ang utak. Wala akong ma-compute na grade nila.* (I would rather teach dancing because I see no hope in stupid children. Their grades are so low, I cannot even compute them.)

Teachers play a crucial role in implementing the curriculum (Oliva, 2005, Doll, 1999); however, in the case of some schools in the Congressional District IV, sustaining the motivation and interest of the teachers in doing their job is also a problem. In the FGD, the principals shared the following observations:

**Principal 5:** *Umaga pa lang, mainit na ang ulo ni teacher. Pinagalitan lang ang mga pupils, tapos umalis na.* (It is still early in the morning, yet the teacher is already angry. She just reprimanded the pupils and then left them.)

**Principal 7:** *Mukhang pasan-pasan ni teacher ang mundo sa dami ng problema.* (Teacher looks like she is carrying the weight of the world on her shoulders because of her problems.)

**Principal 9:** *Walang kasundo si teacher kasi laging nakasimangot.* (Teacher has no friends because she is always frowning.)

**Principal 10:** Teaching has become simply an unchallenging task merely routine for the teachers. They do not even have plans of improving in their crafts. They just say that they have done their best.

**Principal 9:** Every time I pass by the room of the teacher, I always see her seated at the back writing something while her pupils just copy whatever is written on the board.

**Principal 14:** Teachers cannot obtain perfect attendance for one straight month. They will definitely be absent once or twice every month.

**Principal 1:** Some teachers encounter problems with the parents and pupils.

While school security is not a major problem due to parent and community volunteers, the principals believe that schools should be provided with security guards. Since the schools are located in the metropolis, the guards' visible presence will ensure the safety of students and teachers from external threats.

**Principal 2:** School grounds are always noisy and disorganized. People come and go because there are no guards in the school entrance.

**Principal 4:** Losses in their valuables happen not only among students but to teachers as well. Strangers frequently victimize pupils.

Fullan (1999) pointed out that schools should be free from external threats. Considering the various crimes happening now in the society especially in the big cities, there is a need to prioritize the safety of students and teachers. Maintaining the peace and order situation inside the school guarantees their safety and security. This is one of the priorities of the school that is a part of the hidden curriculum of the school. Caine and Caine (1999) posit that providing a safe environment in the school is important in developing a positive learning environment for the student.

The presence of unruly or undisciplined students was also one of the concerns mentioned by the principals.

**Principal 4:** The school has a lot of values formation programs for the pupils, but we seem to fail in instilling/inculcating discipline in them.

**Principal 3:** The school gets apprehensive in imposing discipline on problem pupils because of the Child Protection Policy mandated by the government.

**Principal 13:** Positive discipline is a stranger to teachers.

**Principal 12:** Wala naman pakialam ang mga magulang kapag isinusumbong ang maling ginawa ng mag-aaral. (Parents disregard mischiefs done by their children.)

**Principal 14:** *Magmula noong Grade 1 pa lang, ganyan na iyan. Wala na tayong magagawa.* (Since the child was in Grade 1, it was already his habit to do the same offense over and over. There is really nothing we can do about it.)

Developing a good partnership with the stakeholders is also important. The schools in Congressional District IV are good candidates to receive generous support from taxpayers. The members of the community should also throw their support for the curricular programs of the school. However, in the FGD, there are also schools that receive negligible support from politicians and other stakeholders.

**Principal 1:** Communications sent to external stakeholders are simply ignored.

**Principal 2:** *Puro pangako lang ang mga pulitiko, wala naman nangyayari.* (Politicians utter empty promises, never fulfilling any of them.)

**Principal 3:** LGUs only visit the schools during graduation time.

**Principal 4:** *Kodakan lang ang mga halal ng bayan pag pumupunta ng school. Wala namang naitutulong.* (These elected officials are only in for the publicity. They never really do anything to help.)

**Principal 5:** They only know that the schools exist during election time.

**Principal 6:** Ma'am, kaya naming dinala dito sa school kasi hindi na naming alam ang gagawin. Nagawa na naming lahat ng aming makakaya, kayo na po ang bahala. (Ma'am, the reason we brought it to your school is because we have ran out of ideas on what to do. We have done everything we need to do. Now, it is up to you.)

**Principal 7:** Parents file complaints against the teacher without finding out/investigating what actually happened.

**Principal 8:** Parents run to the media or the Division Office or DepEd with their problems without even consulting the teacher concerned or talking with the principal for that matter.

**Principal 9:** Parents try to *make bantay* (watch out) for their children because teachers might retaliate to the students.

**Principal 10:** When the teacher is absent, pupils are usually fused together with the other classes. Parents would opt to bring their children home since they claim that the children of their neighbors tag along.

**Principal 11:** Indifferent parents who do not even support these programs are the very same people who spread nasty rumors at the expense of the teachers.

**Principal 12:** Parents always find reasons for not going to the school when they are especially requested to see the teacher.

During the FGD, a school principal mentioned the presence of sexually abused pupils as another problem. Details were not provided by said principal but according to the other principals, this is an isolated case in the elementary school.

One of the schools in the Congressional District IV also experienced a problem related to divisiveness and factionalism among faculty members. Personal issues are the reasons cited rather than school-related or professional matters. Since the teachers play an important and supportive role in the school (Oliva, 2005) as curriculum workers, they should all be united.

To summarize, principals and teachers in Congressional District IV shared a common core of values and beliefs that guided programs and practices, including high expectations for all students, education of the whole child, so all students will be successful, and a dedication to a coherent curriculum, student-centered instruction, and the effective use of formative and summative student data. Principals viewed themselves as collaborative leaders as they fostered collegiality and the opportunity for collaborative work among teachers centered on curriculum, instruction, and assessment.

Teachers were also strongly committed to collaboration, fulfilling school-wide roles as decision-makers, coordinators of professional development, and leaders in the efforts to improve classroom instruction across the whole school.

Student and adult learning was the focus of the schools, with all adults committed to continual learning for student and themselves. Principals and teachers indicated that building "relationships" among adults was a major factor in creating their effective school cultures, with principals and teachers regularly discussing the importance of relationships and the part relationships play in the difficult decision-making, problem-solving tasks that a faculty/staff must address.

**2. What instructional innovations were implemented to address these curricular problems, issues, problems, demands and needs?**

Data generated from the research demonstrate that there have been school improvements and student achievements resulting from the implementation of instructional innovations. The policies and programs have created better teaching/learning environments and student achievements. The research also suggests that continuous developments and capacity building such as training on school leadership and management, workshops, and increased funding from the private sectors and government are needed to effect further improvements in the effectiveness of the school.

**Table 3: Instructional Innovations**

- Basic literacy program for teachers
- English speaking zone
- Mother Tongue Based Multilingual Education
- Information and communications technology literacy

**All Principals:** The schools administered the Intensified Reading Program for all grade levels specifically SREA for Grade 1 and the PHIL-IRI to the other grade levels to identify the reading levels of our pupils.

We strengthened our reading programs, provided remediation in major subjects, and strengthened our parents' learning support system.

We also made the renovations and improvement of the physical facilities of the school to make it more conducive to learning.

**Principal 1:** The existing library was repaired and also an e-library was put up. Learning areas for remediation, enhancement and enrichment classes were constructed. We also built a center for instructional materials so the teachers can borrow teaching aids.

**Principal 2:** Computer assisted instruction was introduced to make the teaching-learning process more interactive and innovative. We also intensified our reading programs with SAS (*Sa Aklat Sisikat*) and Project Read-A-Thon. There are also our special learning systems such as the alternative learning system and the MADRASHA class for Muslim children. We also focused on our English Language Teaching (ELT) and pupil-centered instruction program. There is also the feeding program for these students.

**Principal 3:** Like the other schools, we focused also in the remedial programs especially in the three (3) basic subjects namely: English, Science, and Mathematics. A remedial reading program was set up to support ECARP that aimed to make every Filipino child a reader by Grade 3 with the mastery of literacy skills at his/her level. We have the young writers' club to strengthen reading and writing skill of our students as they are encouraged to exercise their imagination in the art of creative writing and gain exposure with other people who want to become writers someday. There is also our basic computer literacy program as well as the alternative learning system.

In reading interventions, early intervention is key, but not before there has been an opportunity for effective classroom instruction. First grade interventions are the standard time to begin. The successful interventions involve well-trained teachers with emphasis on ongoing professional development opportunities for teachers.

Effective interventions are more intense and linked to the typical classroom experience, providing personalized, assessment-based instruction; more time and practice on selected skills, concepts and strategies; and smaller adult-student ratios.

**Principal 4:** Our school also provides supplementary feeding program. We have the Bright Smile, Bright Future program to promote good dental hygiene pupils among our pupils so they take good care of their teeth. They also receive free dental screening and education to help build healthy habits and self-esteem.

We have the Parents Learning Support System because we believe that parent participation helps to build community as it builds ties, as children and parents work together toward a common goal (basic education).

Our Clean and Green Campaign promotes awareness and appreciation for a clean and green environment.

With the new science curriculum, we set out the very highest expectations for all pupils in this subject as well as in English and Math through the MTAP.

**Principal 5:** We have our demonstration lessons to offer teachers the opportunity to see a master teacher/literacy coach deliver a lesson and to reflect on how they might apply what they see to their own practice.

**Principal 6:** The various reading intervention programs being undertaken by our school make it possible to help all students become confident, skilled readers.

We adhere to the principle of Child-Friendly School (CFS) because we believe that schools should operate in the best interest of the child. We foster an educational environment that is safe, healthy and protective, endowed with trained teachers, complete with adequate resources and appropriate physical, emotional and social conditions for learning.

We also have our free feeding program. Hunger is one of the most severe roadblocks to the learning process. Lack of nutrition may set up a cycle for poor academic performance. Hunger also makes children more prone to illness and other health issues.

The environment of the classroom offers a unique context in which all children have the opportunity to experience social and academic success with the help and support from the school principals, teachers, non-teaching staff, and other stakeholders. In addressing hunger, these schools through these feeding programs encourage families to keep their children in school and help them build better futures. If children are not hungry, they will also concentrate better on their lessons. With a solid education growing children have a better chance of finding their own way out of hunger.

**Principal 8:** Since teachers exhibit leadership skills in multiple, sometimes overlapping ways some with designated responsibilities, others are more informal as they interact with their peers, the roles they take ensure that teachers can find ways to lead as they see fit for their talents and interests. Regardless of the roles they assume, they shape the culture of their schools, improve student learning, and influence practice among their peers.

> The improvements in the facilities we made in our school have made us responsive to the changing programs of educational delivery as it provided a physical environment that is comfortable, safe, secure, accessible, well illuminated, well ventilated, and aesthetically pleasing. Included in our facility are the furnishings, materials and supplies, equipment and information technology, as well as various aspects of the building grounds. The modernization of school facilities has faced new challenges in recent years with the advent of the personal computers. As new technologies are integrated into programs of instruction, we face the challenge of adequately financing the acquisition of this equipment as well as the infrastructure to support this technology.

**Principal 11:** We also have our classroom monitoring because we believe that we need activities to keep track of student learning and providing feedback to students about their progress. We: (1) question students during classroom discussions to check their understanding of the material being taught; (2) circulate around the classroom during seatwork and engage in one-to-one contacts students regarding students their work; (3) assign, collect, and correct homework; record completion and grades; (4) conduct periodic reviews with students to confirm their grasp of learning material and identify gaps in their knowledge and understanding; and (5) review student performance

data collected and recorded and use these data to make needed adjustments in instruction.

Through the adequate use of aids and improvisation of instructional materials, lessons become more enjoyable and understandable.

Teachers are able to offer increased opportunities so each student can learn social communication, peer affiliation, frustration, tolerance, flexibility, adaptability, and a myriad of other skills associated with competence, self-esteem, and increased educational achievement.

**Principal 14:** Through focused supervision of instruction, our school reinforces and enhances teaching practices that will contribute to improved student learning. As we analyze performance through the given data, we are able to provide meaningful feedback and direction to teachers that have a profound effect on learning. There is also the visibility of the principal which breeds reassurance and familiarity, while at the same time offering a healthy dose of fear and order.

We provide programs on staff improvement, which comprises of leadership techniques and procedures designed to change the teachers' role performance thru: classroom visitation, observations, conferences, seminars, and workshop, professional associations, in-service educational programs and ensure a conducive environment that enhances teachers' work performance. With the continued training of our teachers (for which all member of staff share responsibility), we take into consideration the professionalism of teachers and the importance of providing opportunities for them to exercise some autonomy in articulating their professional needs. We also help them analyze their professional needs, knowledge, and skills and used as starting point for their continuing professional development initiatives.

The study only reinforces that the expertise of the well-educated teacher must lie at the heart of continuing professional development if the best of educational reform initiatives are to be implemented in the pursuit of educational improvement.

**Principal 12:** Since it is our mission to serve our students and promote academic achievement, career development, and personal and social growth, we restructured our guidance program dedicated to the needs of our

students. They work collaboratively with parents, teachers, staff, and administration to provide a positive school atmosphere.

An educational remedial program that consists of extra-class time is offered to low-achieving students in order to improve their performance in one or more subjects. We also instituted the test and test analysis which focus on mastery of basic skills.

**3. How do the school administrators, teachers and other stakeholders work together for the curriculum improvement of the school?**

Although these are different schools with different programs, they all have one commonality. They are strong advocates for academic excellence and train globally competitive pupils.

Principals reach out to probable benefactors and present concerns they have identified in their schools. Concerns are listed according to their priorities that also include possible solutions. It is the option of sponsors and benefactors which program/s they would like to help (if they are willing to help at all). Some principals even accept all invitations of would be sponsors in the hope of meeting other potential sponsors. Sometimes private individuals reach out to the school out of curiosity. If the principal is able to "sell the school" and both parties agree to the details of the undertaking, a harmonious partnership develops.

The outstanding benefactors of principals are taken with these principals wherever their new assignments are (new schools). Being results oriented, these benefactors and donors stick with principals whom they trust with their grants so they go wherever he/she goes.

Through School Based Management, external stakeholders are informed of the concerns of the school. Composed of external and internal stakeholders, they are invited to meetings to organize the school governing council. Officers are elected to represent the different sectors involved with the different activities in the school. The first meeting of the SGC is called to draft the so-called School Improvement Plan. The plan serves as guide or direction for the school as to where it is and wants to go.

All the principals in the Congressional District IV worked to diffuse power throughout the school organization to solidify and increase commitment to the reform. They promoted school-wide staff development to improve the whole school. If the school could not afford to train all staff then a small group was trained with the expectation that the teachers would share their new knowledge and skills with the whole faculty. These principals also encouraged

on-site, continuous staff development and not the one-shot, "go and get" variety, which is more fragmented in nature.

When schools, families, and community groups work together to support learning, children tend to do better in school, stay in school longer, and like school more. Though they cannot do it alone, school principals are key players in making these connections.

The principals were resourceful in obtaining professional development for the school as they tapped private industries for trainings to optimize resources. Bringing these resources together was part of a larger staff development strategy in which the principal and various stakeholders defined the school's knowledge and training needs and how services would be delivered.

School-based management moves the control to individual schools as a way of giving its constituents – the principals, teachers, parents, and community members- more control over schools. By empowering groups who are closest to the students, school decisions were better tailored to the particular needs of students, and school performance improved.

As decision-making becomes a participative activity shared among various school constituents, roles within schools for principals and teachers change under SBM. Whereas principals are accustomed to being the primary decision-maker at the school site, teachers, parents, and community members became empowered to make decisions that were formerly in the principal's exclusive domain.

Principals also helped to develop decision-making teams that involved various stakeholders to provide them with opportunities to contribute something for the school. These leaders encouraged staff development as an ongoing, school-wide activity. They provided tangible resources (money, equipment and materials) and intangible resources (time, opportunities) to staff to assist in the school improvement process. They brought into the school new ideas and research for thinking about teaching and learning as well as solicited donations of funds and materials to boost school resources.

Schools, families, and communities interact in numerous ways, from parent-teacher conferences, to parents serving on local school councils, to community health services provided on school grounds, to after school programming for children, youth, and adults. As the school leaders strove to understand the kinds of connections on what makes an impact, they also recognized that different players—students, parents, teachers, principals, business leaders—have different goals, beliefs, and conceptions of their roles in supporting student learning and community partnerships. When a good relationship exists between the school and community, then the school prospers academically. This involvement takes the form of participation in school programs; being role models or instructors; encouraging, supporting and enforcing discipline at school, at home and in the community; and contributing resources

to improve the social welfare and academic performance of students, teachers and the school in general. Even more specifically, the parents and other members of the community can participate in the process of school-based curriculum development and implementation through the provision of teaching/learning materials and facilities like their gardens and workshops for teaching and demonstration purposes.

Summing up, the responsibility to address the needs created by this change lies with the principal, classroom teachers, non-teaching staff, stakeholders, and community leaders. The result of this study clearly indicates that attention to instructional supervision could offer significant improvement in the successful implementation of effective curriculum revision efforts. It is incumbent upon the school leader to develop a process that will achieve effective curriculum revision. Teachers must also be clarified on their perception of how curriculum is defined and the ways in which it operates inside the classroom.

**4. What model for school-based curriculum improvement can be developed from the experience of public elementary schools?**

The model proposed shows the different factors that work together to come up with a school-based curriculum development plan.

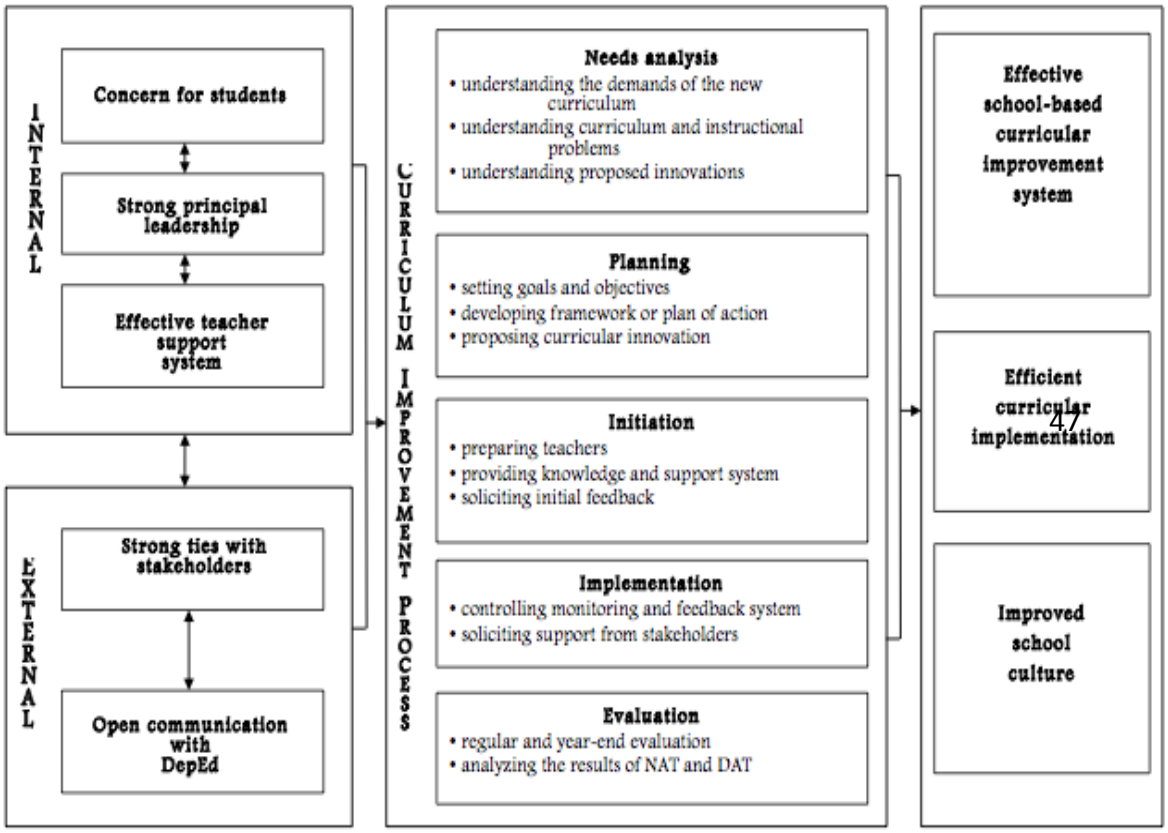
Composed of the internal factors namely: concern for students, strong principal leadership and effective teacher support system and the external factors: strong ties with stakeholders and open communication with DepEd, these contribute to the overall curriculum improvement process.

The curriculum improvement process is influenced the internal and external factors to come up with the following: the needs analysis (understanding the demands of the new curriculum, and understanding curriculum and instructional problems, understanding proposed innovations); planning (setting goals and objectives, developing framework or plan of action and proposing curricular innovation); initiation (preparing teachers, providing knowledge and support system, and soliciting initial feedback); implementation (controlling monitoring and feedback system and soliciting support from stakeholders); and, evaluation (regular and year-end evaluation and analyzing the results of NAT and DAT).

With the linear as well as the dynamic relationship and right combination of these factors: strong principal leadership, effective teacher support system, and concern for students, coupled with strong ties with the stakeholders and maintaining an open communication with the Department of Education affecting the curriculum improvement process the results are (1) improved performance in the National Achievement Test (NAT) and Division Achievement Test (DAT); (2) empowered teachers and improved teacher and curriculum developers; (3) trust in school leadership embodied by principals as curriculum

leaders; and, (4) good relationship with the stakeholders who are the curriculum support system. These result to effective school-based curricular improvement system, efficient curricular implementation, and improved school culture. Figure 4 illustrates the framework.

*Figure 1:* **Model for School-based Curriculum Improvement**

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**On effective school-based curriculum improvement system**

Drawing on the results from this research, it is argued that in order for school-based management to work, it must provide a series of organizational conditions at the school level. Schools must use these conditions to work on and improve the dimension of schools that most directly impacts student achievement - the curriculum and instruction program. It must also be coupled with school-level accountability for results.

Operationally, systemic change means that every principal and every teacher is responsible for continuous instructional improvement in the key elements of their work. Instructional improvement is not the responsibility of a select few who operate in isolation from others, but rather a joint, ***collegial*** responsibility of everyone in the system, working

together in a variety of ways across the schools. So while they create the expectation that instructional improvement is everyone's responsibility, they also focus improvement efforts on specific parts of the curriculum and on specific dimensions of teaching practice. Improvement efforts were focused on literacy, reading, and writing that have also branched out into other areas, including math and science. The underlying principle is that even though instructional change efforts need to be focused and gradual, they should be universal. Everyone in the system should be engaged in instructional improvement as part of the routine work.

Effective school-based curriculum leadership is essential if students are to achieve targeted education outcomes. The critical role of principals as the curriculum leader in school improvement and provision of the highest quality of education clearly demonstrate that effective leadership delivers sustained and positive impact on students' performance at all levels.

**On Effective Curriculum Implementation**

The task of curriculum implementation is complex; it requires school administration, teachers, non-teaching staff, parents, and stakeholders to lead the implementation of change in the school as an organization.

The research suggests that the majority of schools and teachers are successfully implementing most aspects of the revised subjects and that the supports provided for curriculum implementation have assisted teachers in adopting new approaches to teaching.

**On Improved School Culture**

As school administrators struggle with reform to improve students' academic performance, their concerns must encompass more than instructional change. Researches on effective school-based management strategies dispersed decision-making powers to all teachers through a series of horizontal and vertical teacher decision-making teams. The abstract and elusive notions of "teacher involvement" and "shared decision-making" were transformed into the concrete specifics that were needed to make restructuring work, such as: changing the mathematics, science, and reading programs, creating instructional practices that worked in the school; linking professional development to required new pedagogical strategies, reflecting on and assessing instructional practice; and continuously improving school strategies.

It has also shown that discipline knowledge, pedagogical content knowledge and passion for the curriculum area are key factors in effective teaching. Instructional improvement depends heavily on people willing to take the initiative, the risks, and the responsibility for themselves. This can only be possible when people cultivate a deep personal and professional respect and caring for each other. Schools are places of learning, not just for students, but also for educators. Teaching is a complex activity that involves ongoing

development and requires continuing support. These schools also organized themselves around their most important responsibility: helping students learn as it promotes high expectations for students.

Marzano, Waters, and McNulty (2005) described the link among school culture, leadership, and student achievement. They stated, "Fostering school culture that indirectly affects student achievement is a strong theme within the literature on principal leadership" (p. 47). They described the following key leadership behaviors: (a) promote cohesion among all staff, (b) promote a sense of well-being among all staff, (c) develop an understanding of purpose among all staff, and (d) develop a shared vision of what school should be like (p. 48). They concluded that each of these leader behaviors directly related to school culture and school culture related to student achievement. In another comprehensive synthesis of the leadership literature associated with student achievement, Cotton (2002) described 26 principal behaviors that contributed to student achievement. The behaviors fell into five categories, one of which was characterized as school culture. It is evident from these two comprehensive studies of the literature that the educational research community has concluded that leadership influences school culture and school culture influences student achievement.

In the curriculum improvement process, the following ensues:

1. Needs analysis
    - Understanding the demands of the new curriculum (K to 12 Curriculum)
    - Understanding curriculum and instructional problems
    - Understanding proposed innovations
2. Curriculum planning
    - Setting goals and objectives
    - Developing framework or plan of action
    - Proposing curriculum innovation
3. Curriculum initiatives
    - Preparing teachers
    - Providing instructional support system
    - Soliciting initial feedback
4. Curriculum implementation
    - Continuing monitoring and feedback system
    - Soliciting support from stakeholders
5. Curriculum evaluation
    - Evaluating regularly (yearly)

- Analyzing the results of the National Achievement Test (NAT) and Division Achievement Test (DAT)

**Conclusion**

The study was successful in achieving its aim of creating a model for school-based curriculum improvement. The following are the conclusions of the study:

1. It is possible that a proposed school-based curriculum improvement plan can be used as they look at how the local schools prepare their teachers, students and non-teaching staff as they promote a positive school culture; thereby making the principal able to formulate choices that transforms into desired actions and outcomes. This was manifested in the level of empowerment practices that were administered in the instructional, and administrative experienced by the principals in Congressional District IV.

Schools that have little restrictions in the implementation of their instructional and economic functions result to better instructional leadership and management. Teachers want schools with a strong instructional culture that fosters great teaching. They value schools where the entire faculty shares a clear vision of excellent instruction, and where the principals' focuses on helping the teachers reach their full potentials in the classroom. Schools with strong instructional cultures help students learn more. School leaders, both formal and informal, help shape the nature of school culture (Leithwood, 2005) and the nature of school improvement. Leadership and school culture go hand in hand, in both the development and the sustainability of school reform.

2. As curriculum innovators, principals create a positive school culture conducive to nurturing empowerment as they show it in their support of all empowering undertakings and recognition of successes.

3. Successful school-based management and its curricular innovations that are supportive of school efforts improve student achievement.

4. The resourcefulness of the principals benefitted their schools when they allocated resources on particular curricular innovation through involvement in professional networks and local business communities.

5. The development of knowledge and skills is an ongoing process oriented towards building a school-wide capacity for change, creating a professional learning community, and developing a shared knowledge base.

6. The proposed school improvement plan is possible as they look at the preparation of local schools in the student achievement development of the teachers and their students.

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