Research Article

Special Science Elementary School: Project and Prospects for Gifted Education in the Philippines

Joel Bernal FAUSTINO, April Daphne Floresca HIWATIG
Faculty of Education, Ehime University

Abstract
In response to the growing importance of science and gifted children in the Philippines, the Special Science Elementary School Project (SSES Project) was implemented in 2007. This project is intended for gifted children in public elementary schools, and aims to produce scientifically literate students who will opt to be educated in special science high schools. The purpose of this study was to analyze the SSES Project and compare it with the regular elementary school program. Specifically, it sought answers to the following questions: what is the process in identifying children for the project?; what type of science curriculum is offered for the children?; and what are the qualifications required to become an SSES teacher? The results of the analysis revealed that the SSES Project, although a part of the public school system, was different from regular public elementary school in terms of: selection process for students; qualifications of teachers; and science curriculum. Evidently, the SSES Project implements the elements of an effective program for gifted children. However, the study recommends that further research should be done to probe: standardization of psychological tests and evaluation of the enhanced science curriculum and performance of teachers, children, and schools involved in the project.

Key words: Special Science Elementary School Project (SSES Project), science, gifted children, Philippines

I. Introduction
Every child has a gift. Every child is unique. However, every child, regardless of whatever gift, uniqueness, and needs, has a right to education as stated in the 1987 Philippine Constitution. These points were supported by the report of former Department of Education Secretary Jesli Lapus (2008) presented at Geneva, Switzerland. Specifically, he reported that the country is enthusiastically participating in the global movement on Education For All or EFA 2015, which states that by that year every Filipino child is expected to be functionally literate, including children with special needs. In recognition to the fact that there are children with special needs, this paper highlights the responsive education that is being provided by the government in the Filipino setting. Future projects and recommendations of the study are also discussed.

Giftedness draws multiple meanings from different sources. In general, gifted children exhibit exceptional abilities different from children of their age. They show extreme curiosity, ask a lot of questions, learn quickly, and think about the world more extensively (Smutny, 2000). Dr. Leticia Peñano-Ho, president of the Philippine Association for the Gifted (PAG) denotes, “Giftedness” as a condition resulting from a responsive biological and social environment that can be manifested during the early developmental period of life. In addition, giftedness can provide estimates of future performance. In totality, gifted children make up the 3% of the total population of the Philippines.

For many decades, the need to educate gifted children has been recognized in the country, particularly since national laws and policies support endeavors pertaining to giftedness. Education and counseling have been provided for gifted children since 1960. The University of the Philippines in Diliman started offering a teacher training program for the gifted as early as 1966, which eventually led Republic Act 5250 to be mandated. This training program for public school teachers of the gifted spanned for 10 years, and was spearheaded by Matilde Valdez, one of the pioneer teachers of UP College of
Education (Wong-Fernandez & Bustos-Orosa, 2007). From then on, many laws were made to support gifted education in the country. For example, the constitution under Article XIV affirms that the state should take appropriate steps to make education accessible for all, and that the state should provide incentives and scholarship grants in science to deserving gifted children. As a result, the Presidential Decree 603 (PD 603) of 1974, stressed the importance of providing opportunities and encouragement for gifted children to develop their special talents. Consequently, the decree under Article 74, which states that there shall be special classes in every province and if possible special schools for children with special needs including gifted children, was also formulated. Most of these laws and provisions emphasize the importance of providing science education for gifted children.

Hence, in response to what is stated by the law and because of the growing recognition of the importance of educating gifted children in the country, schools for the gifted were established. Special science schools were built in different provinces all over the country. One of the pioneers and most popular public science high schools in the country is the Philippine Science High School (PSHS), which was established in 1970, even before PD 603 was promulgated. This school is among the many science high schools where a special science curriculum for gifted children is offered. Its primary goal is to train future scientists (Wong-Fernandez & Bustos-Orosa, 2007).

To cater to those who opt or wish to enroll in a Special Science School, the Philippine government, in its pursuit of providing an appropriate education for all gifted children, introduced a program under the Department of Education (DepEd)-Special Education Division called Special Science Elementary School Project or the SSES Project, in 2007. The goal of this project is to produce scientifically literate children starting at the primary level. Graduates from these schools are highly expected to continue their secondary education in science high schools all over the country. Although SSES is also part of the public school system, the project provides physical infrastructures and methodology different from other science classes being held at the primary level. As mentioned, much of the analysis in this study delves into the processes of selecting students, science curriculum, and qualifications of teachers for the SSES project from grades one to 6.

II. Methodology

The purpose of this study was to analyze the SSES Project for gifted children in the Philippines. Specifically, it sought answers to the following questions: (1) What are the processes used for selecting students for the SSES Project?; (2) What type of science curriculum is provided for the students?; and (3) What are the qualifications to become an SSES Project teacher?

This study mainly employed document analysis for gathering data. The researchers gathered data from: available documents on the projects, articles about the SSES Project through the official homepage, Department of Education Memorandums and Orders, existing Philippine elementary science curriculum extracted from RBEC 2002, and copies of curricula for the SSES Project. Additionally, this paper delved on the difference between schools with SSES project and regular public schools in terms of admission process, science curriculum, and hiring requirements for science teachers.

III. Results of the Study

This section presents the SSES Project in terms of program management, curriculum and instruction, identification of students, and teachers’ qualification and professional development. Thereafter, a comparison between elements of the SSES Project and features of a regular elementary public school is discussed.

3.1 The Special Science Elementary Science Project (SSES Project)

The Philippines, among other countries, aims to give much importance to developing scientifically literate children, due to the benefits of doing so. Pawilen & Sumida (2005) stated that children who are well versed in different scientific skills, could make important contributions to the economic development of the country. Then four years ago, before the implementation of the new educational system, the SSES Project was implemented in elementary schools. This action was in response to the
call of former President Gloria Macapagal-Arroyo to revisit the importance of Science and Technology or S&T, which basically helps “put food on the table, save lives and prevent calamities, harness renewable and indigenous energy, cure and prevent illnesses, and create more high-quality job opportunities.” Although some might argue that the statement focused on economic growth rather than educational reform, the SSES Project for elementary school gifted children was introduced.

The SSES Project is designed to develop grade school children with high aptitude in science and mathematics, which are among the underlying connotations of giftedness among Tagalog-speaking Filipinos (angat, hindi pangharamisan, matalino or high level, is extraordinary, and intelligent) (Wong-Fernandez & Bustos-Orosa, 2007) through an enriched science curriculum. Lupus (2009) highlights that this project provides opportunities for gifted elementary children to develop understanding and skills needed to become productive problem-solvers in a scientific and technological world. They also serve as feeder schools to S&T-oriented high schools all over the country.

57 selected public schools in 16 regions of the country participated in the pilot implementation of the SSES project. The schools were selected based on the following criteria: above average performance in the division, regional and national achievement tests; strong leadership of school head, commitment of teachers and supportive parents and community; and availability of facilities and equipment relevant to supporting science and technology.

As of 2010, the number of public schools involved in the project increased to 100 (Department of Education Order No. 51 series of 2010). Every year the number of schools becoming involved with the SSES Project increases. Table 1 shows the number of schools with the complete cycle of the SSES Project in 16 regions of the country. The table also indicates the percentage of school districts compared with the number of districts per region involved in the project as of 2010.

Notice that the distribution of the project in districts per region is uneven due to the following reasons: 1) schools in the district do not meet several of the criteria for an SSES school; 2) lack of sufficient manpower to lead the school in implementing the necessary provisions; and

<table>
<thead>
<tr>
<th>Region</th>
<th>Number of Schools with SSES Project</th>
<th>Percentage of District Schools with SSES Project</th>
<th>No. of district per Region</th>
<th>Region</th>
<th>Number of Schools with SSES Project</th>
<th>Percentage of District Schools with SSES Project</th>
<th>No. of district per Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Region I—Ilocos Region</td>
<td>7</td>
<td>5.0%</td>
<td>140</td>
<td>Region VIII—Eastern Visayas</td>
<td>7</td>
<td>3.5%</td>
<td>198</td>
</tr>
<tr>
<td>Region II—Cagayan Valley</td>
<td>6</td>
<td>4.2%</td>
<td>140</td>
<td>Region IX—Zamboanga Peninsula</td>
<td>6</td>
<td>5.3%</td>
<td>113</td>
</tr>
<tr>
<td>Region III—Central Luzon</td>
<td>7</td>
<td>3.9%</td>
<td>179</td>
<td>Region X—Northern Mindanao</td>
<td>6</td>
<td>4.1%</td>
<td>144</td>
</tr>
<tr>
<td>Region IV—A.CALABARZON</td>
<td>7</td>
<td>3.6%</td>
<td>194</td>
<td>Region XI—Davao Region</td>
<td>6</td>
<td>6.2%</td>
<td>96</td>
</tr>
<tr>
<td>Region IV—B-MIMAROPA</td>
<td>6</td>
<td>5.1%</td>
<td>106</td>
<td>Region XII—SOCCSKSARGEN</td>
<td>4</td>
<td>2.9%</td>
<td>136</td>
</tr>
<tr>
<td>Region V—Bicol Region</td>
<td>7</td>
<td>4.2%</td>
<td>166</td>
<td>Region XIII—CARAGA Region</td>
<td>7</td>
<td>10.6%</td>
<td>66</td>
</tr>
<tr>
<td>Region VI—Western Visayas</td>
<td>6</td>
<td>2.8%</td>
<td>214</td>
<td>Cordillera Administrative Region (CAR)</td>
<td>6</td>
<td>4.9%</td>
<td>122</td>
</tr>
<tr>
<td>Region VII—Central Visayas</td>
<td>5</td>
<td>2.8%</td>
<td>177</td>
<td>National Capital Region (NCR)</td>
<td>7</td>
<td>6.6%</td>
<td>106</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>100</strong></td>
<td><strong>4.35%</strong></td>
<td><strong>2296</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3) capability of the local government to support several schools of the district at a time may be insufficient.

a. Program Management of the SSES Project

The goal of the project is to produce scientifically literate children with ages ranging from 6 to 12 years. The management of the program is envisioned through the following mission and vision (Guidelines on the Implementation of the Special Science Elementary School Project, 2007):

Vision—The SSES envisions developing Filipino children who are equipped with scientific and technological knowledge, skills and attitudes, creative and have positive values, lifelong learning skills to become productive partners in the development of the community and society.

Mission—The SSES provides learning environment to science-inclined children through a special curriculum, which recognizes multiple intelligences and is geared towards the development of God-loving, nationalistic, creative, ecological aware, scientifically and technologically oriented and skilled individuals who are empowered through lifelong learning skills.

b. Curriculum and Instruction of the SSES Project

The science curriculum for the project is provided by DepEd, and is designed to develop children with higher aptitude for science as well as mathematics. This project offers an enriched science curriculum anchored in the national curriculum from grades one until 6. The competencies listed in the SSES curriculum are Higher-Order Thinking Skills (HOTS)-based and learner-oriented activities are highly recommended. It also provides children with extended opportunities to develop communication, decision-making, teamwork and lifelong learning skills through different enriched and hands-on science activities.

The SSES curriculum utilizes varied teaching approaches/strategies to address the multiple intelligences, unique learning styles and needs of the students (Practical Work Approach, Interactive Teaching-Learning, Cooperative Learning, Computer-Aided Instruction, Independent Learning or Self-Study).

The science curriculum designed for the project is divided into three areas: Life Sciences (People, Plants and Animals); Physical Sciences (Materials, Energy, Force and Motion); and Earth and Solar System (Earth and Space). Each area is composed of several themes with different competencies that children need to acquire in one year. For grades one and two, the curriculum offered contains concepts that are benchmarked in regular curriculum for grade three. For example, a lesson about Parts of the Head is provided for Grade 1 students. The teacher asks the class to identify the different parts of the head (e.g. eyes, nose, ears, hair, mouth) and the function of each using pictures and fill in the blank sentences.

More importantly, curricula for this project are provided with ICT-enhanced instructions, i.e. technology such as computer is integrated in teaching and learning science. In addition, selected schools where the SSES Project is implemented are prioritized to acquire “state-of-the-art” technology. Ideally, a standard SSES classroom should have at least two computers, a television set, cassette player/recorder, LCD projector, OHP, and VHS/VCD/DVD player. Moreover, the school should have a science laboratory besides a science room, a computer laboratory equipped with multimedia and Internet facilities, a speech laboratory, a music room, and a gym with functional sports facilities. To support the continuous improvement of the project facilities, DepEd is expected to continuously allocate financial assistance to the participating schools (DepEd Order No. 73 series of 2008).

With regard to contact hours, longer time is allotted to teaching and learning science concepts and processes. Specifically, for grades one to three, children study science for an hour. Subsequently, an hour and 20 minutes are the allotted time for grades four until 6. Teachers use English as medium of instruction in teaching the subjects except for teaching Filipino. This is in response to Executive Order No. 210 series of 2003, which aims to strengthen the use of English language as a medium of instruction in the Philippine educational system.

c. Admission of Students

The SSES Project is intended to cater to children who are recognized to possess exceptional abilities and skills
far more advanced than those of average children. Hence, children who have intentions of being included in the class need to undergo a rigid screening process. The Department of Education Central Office and Regional Offices collaborate to administer the screening process for selecting children with exceptional abilities and talents. The screening of children is regularly done in May before the new school year starts. Schedule of screening days varies from one school to another. Figure 1 shows the process of selecting the children for incoming grade one at the elementary level.

Based on the figure above, all incoming grade one Filipino children, or those who are 6 years old are given a written test in each of these subjects: English, Science and Mathematics; Student’s Reading Ability test (SReA), and are interviewed. The Central or Regional Office of DepEd administers these elements for the initial screening. The scores of the children are given corresponding ranks and the top 50 scorers move to the next step of the screening procedure.

In addition, a written agreement is given to each set of parents to sign and show their willingness to give their children and the project whatever need is warranted. The SSES Project recognizes the importance of parents’ positive attitude toward the project. Teachers and children need support from parents, with regard to activities and such of the SSES Project.

For phase two, the top 50 children take a psychological test administered by the Regional Office. Next, these children are ranked based on this distribution: 50% psychological test and 50% average of the first screening.

The top 35 scorers are assigned to the entry level of the SSES class, which is in first grade. In case anyone from the top 35 children does not opt to enroll, the child in the 36th rank, and subsequent, normally replace(s) the vacant slot(s). Phases one and two are also applied to incoming grade two students until the 6th grade.

The project accepts transferees only for grades two and three. Additionally, they are allowed to apply for vacant slots provided that they belong to the top 15%–20% of their previous class. They are also subjected to the two-phase screening process. For example, in a school where there were 147 incoming grade one pupils, 27 (15%) passed the complete screening procedure and were admitted for the project.

After a year, these children are evaluated based on their academic performance. In order for a child to remain in the project, he/she should maintain the following requirements: (1) no grade lower than 80% in any subject in any grading period; (2) must have a final rating of 85% in English, Mathematics, and Science subjects; and (3) continuously exhibits character traits defined in the standards for SSES children.

Otherwise, despite of remediation by the teachers with the assistance of the parents, a child should be advised to move to the regular program in the succeeding school year. Alternatively, parents may voluntarily pull out their child any time in the academic year.

d. Teachers’ Qualifications and Professional Development

Teachers play important roles in the teaching and learning process. Children’s success in gaining mean-
ingful and relevant learning experiences, among other things, rests on the effectiveness of teachers. Suffice it to say that gifted children need teachers who also possess exceptional abilities. Therefore, aside from the minimum qualifications stated by the law to become classroom teachers, the project requires additional qualifications for teachers to be eligible. Teachers for the project should: (1) be willing to participate in the project; (2) have teaching experience for at least 3 years or more and are not about to retire within the next 5 years; (3) possess good moral character and positive work ethics; (4) have specialization in Science and/or relevant training in the subject; (5) have very satisfactory performance rating; and (6) be willing to undergo and attend professional development programs/studies (Guidelines on the Implementation of the Special Science Elementary School Project, 2007).

Likewise, teachers with ICT orientation or those who are willing to undergo ICT training; with experience in conducting research; and who have initiated innovations in teaching science and/or mathematics are given much priority in being taken on as an SSES teacher. These criteria are added to ensure the capacity and passion of teachers to handle the children and to participate in the undertaking. These characteristics of teachers will inevitably contribute to the success of the project.

Once teachers are selected, professional training is provided for them in compliance with DepEd Order No.73, s. 2008. The training focusses on enhancement of teachers’ and school heads’ capability. Furthermore, RECSAM and University of the Philippines-National Institute for Science and Math Education (UP-NISMED) conduct special training for some SSES teachers. For example, a 3-day training program in 2009 was provided for SSES teachers in Lemery, Batangas, that emphasizes teaching through problem solving and science inquiry and highlights connections of concepts, principles, and procedures in topics within the same grade level and across grade levels. The training is expected to increase their competency as teachers of SSES students.

3.2 Comparison between Schools Involved in the SSES Project and Regular Elementary Schools

a. On Science Curriculum and Instruction

Regular public elementary schools uses the mandated science curriculum as a guide in providing children with the prescribed learning competencies. The central office of the Department of Education mandates the curriculum. The curriculum used for both the SSES and regular programs is divided into several themes: People, Animals, Plants, Matter, Energy, and Earth and Solar System. The competencies are spiral in nature; concept becomes more complex in the succeeding grade levels. Health is also integrated in both curricula. However, the SSES Project uses an enhanced science curriculum anchored in the regular curriculum, which was designed to develop higher order thinking skills and to address the multiple intelligences of young gifted children.

In a regular public school setting, teaching science formally starts in grade three. There is no separate science subject for grades one and two. On the other hand, in the SSES setting, science is formally taught in grade one. The list of the subject for the SSES class is the same as that of regular classes, except for the inclusion of science in grades one and two. Table 2 compares the subjects for regular schools and those involved in the SSES Project (Grades 1 and 2).

Longer contact hours are allotted for science in SSES classes. Grades one to three students study for an hour. Students from the next three levels need to study for an hour and 20 minutes. Table 3 shows the allotted time in minutes (daily and weekly) for science in the regular and SSES class respectively.

There is no difference with regard to the medium of instruction used for both the regular schools and SSES.

Table 2. Comparison of subjects offered in regular school and SSES Project (Grades 1 and 2)

<table>
<thead>
<tr>
<th>Regular School</th>
<th>SSES Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>English</td>
</tr>
<tr>
<td>Filipino</td>
<td>Filipino</td>
</tr>
<tr>
<td>Mathematics</td>
<td>Mathematics</td>
</tr>
<tr>
<td>(No separate science subject)</td>
<td>Science</td>
</tr>
<tr>
<td>MAKABAYAN</td>
<td>MAKABAYAN</td>
</tr>
</tbody>
</table>
classes. Both classes use English as medium of instruction in teaching science as mandated in the Philippine curriculum.

A typical science curriculum designed for the SSES Project appears to be clearly stated and documented. It has a list of competencies that is expected to help children acquire thinking skills that they need. However, one of the main concerns for curriculum and instruction is the lack of a uniform approach to teach science concepts to these gifted children. One approach in addressing this concern on curriculum and instruction is through differentiation. Tomlinson (2005) reiterates the importance of differentiating the curriculum for gifted children because it can address the individual differences of children with regards to their interest, needs and learning profile. Hence, it is essential that teachers of the SSES class learn how to use a differentiated curriculum, or any other approach that may be deemed effective through longitudinal studies in the Philippine setting, in preparing learning experiences for gifted children in their classroom. Furthermore, the mission and vision of the project may be achieved through differentiation.

b. On Students' Admission

In regular public elementary schools, as long as children have copies of their birth certificates and consent forms duly signed by their parents, they immediately get accepted. Under the restrictions set by the SSES Project, children need to undergo a rigid screening procedure. Stricter requirements are set for incoming SSES students. Further, children should pass written, reading, interview and psychological tests before they can be accepted to the class. Students who pass the rigid screening procedure must maintain a minimum average grade expected of all SSES learners. Otherwise, they will be pulled out of the project. In contrast, in the regular public school students are only expected to achieve a minimum level of performance. Table 4 shows a comparison between the regular public elementary school and those participating in the SSES Project in terms of selection of students, the grade that each child should maintain, and the number of children per classroom.

The regular school program and the SSES Project sets maintaining grade. For example, in the regular program a child as long as he/she achieves a grade of 70% in all subjects can pass and move to the next grade level after a year. However, children in the SSES class should maintain a grade of 85% particularly in major subjects, namely: English, Mathematics and Science.

Furthermore, as shown in the table, the number of students per classroom also differs between the regular classroom and the SSES class. Under the Philippine law, it is stated that no children should be refused access to education. Hence, in the regular public elementary school setting, regardless of the number of students in a classroom, administrators do not have the right to reject or refuse children who want to go to school. Therefore, a regular classroom is mostly composed of more than 35 students. However, in the SSES class the number of students is set to a maximum of 35 per classroom to make sure that all students are equally served and challenged.

Giftedness need to be be meticulously identified. The

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Regular Program</th>
<th>SSSES Project</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Daily (Minutes)</td>
<td>Weekly (Minutes)</td>
</tr>
<tr>
<td>Grade 1</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Grade 2</td>
<td>*</td>
<td>*</td>
</tr>
<tr>
<td>Grade 3</td>
<td>40</td>
<td>200</td>
</tr>
<tr>
<td>Grade 4</td>
<td>60</td>
<td>300</td>
</tr>
<tr>
<td>Grade 5</td>
<td>60</td>
<td>300</td>
</tr>
<tr>
<td>Grade 6</td>
<td>60</td>
<td>300</td>
</tr>
</tbody>
</table>

- No separate science subject.

Table 4. Comparison of two schools based on selection process, minimum grade requirement and number of children per classroom

<table>
<thead>
<tr>
<th>Area</th>
<th>Regular Public Elementary School</th>
<th>Special Science Elementary School Project</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selection Process</td>
<td>No Rigid Screening Process</td>
<td>Has Rigid Screening Process</td>
</tr>
<tr>
<td>Minimum Grade Requirement (Science)</td>
<td>70%</td>
<td>85%</td>
</tr>
<tr>
<td>Number of children</td>
<td>Minimum of 35</td>
<td>Maximum of 35</td>
</tr>
</tbody>
</table>
SSES Project implements an organized step-by-step procedure for screening children. It also has a list of common characteristics a SSES candidate should possess; however, the absence of standardized test instrument that can be used to assess children is one of the concerns of the project. As of 2010, there are 100 public schools in 16 different regions in the Philippines that integrated SSES Project into their system. Each of them administered different teacher-made tests to prospective SSES children, which contributes to in consistency of items included in the test questionables. Test questions in one school could be relatively easy or hard for test-takers in other schools. Hence, the validity, uniformity, and reliability of the test instruments can be questioned.

c. On Teacher’s Qualifications and Professional Development

Republic Act No. 4670 (1966), also known as The Magna Carta for Public School Teachers, gives a list of qualifications to become a public school teacher in the country. According to the Act, teachers in elementary should have earned a bachelor’s degree in Elementary Education. Otherwise, those who are non-education graduates must have earned 18 units of Certificate of Professional Education taken from any teacher-education institutions. Other requirements include passing the Licensure Examination for Teachers (LET) administered by the Professional Regulation Commission (PRC).

Teachers of the SSES class should possess the qualifications mandated by the law. However, there are additional qualifications that SSES teachers should have. These additional qualifications make SSES teachers different from regular science teachers. Gifted children need teachers who also possess exceptional characteristics. Hence, teachers should have additional characteristics that will enable them to teach the science-inclined and the gifted alike.

Due to the characteristics of the children in the project, it is imperative that teachers should be provided with the necessary and up-to-date training and workshops. Once teachers have been selected for the project, training is provided for them in compliance with the Department of Education Order No. 73, series of 2008. RECSAM and other educational institutions provide special training and workshops for teachers during the year and the summer vacation. The training conducted in UP-NISMED is one examples of the training provided to teachers in the special science project. The training focusses on the enhancement of teachers’ and school heads’ capability to handle the SSES Project. Furthermore, Department Order No. 88 released by the DepEd in 2011 provided financial/budget allotment for the enhancement of capability of teachers and school heads through participation in local and international conferences, training, seminars, and immersion for science oriented schools like the SSES Project. Attending these conferences, workshops and training could help teachers to improve their skills in teaching science to children in this project.

Aside from their demanding intellectual needs, teachers should learn how to deal with the affective aspect of gifted children. Hence, seminars and training that deal with handling the affective aspect of gifted children should be provided for the teachers. Furthermore, teachers’ ability or experience in teaching gifted children could be an additional criterion that can be stated in selecting teachers for the SSES Project. If the teachers do not have the ability, knowledge and passion for teaching, as well as sufficient experience, the expected mission and vision of the SSES Project will all be hard to attain. Also, the program manager should be strict in selecting teachers and monitoring teacher’s performance. Constant evaluation of teachers’ performance should be made.

3.3 Implications for Science Education

The Philippines and Japan are two countries with different national educational goals and orientation, and inevitably, different educational systems. The Philippines follows a 6-4 educational system for its primary and secondary levels, for a total of ten years. Although the present government has proposed a K+12 Program that will add another two years to the basic education level, the details of the implementation will not be officially distributed until 2012. On the other hand, Japan’s educational system is composed of 6-3-3 years allotted for elementary, junior high school, and senior high school respectively, for a total of 12 years. However, these differences seem to be more than the educational structure itself.
For years, science remains to be one of the important subjects in school in both countries, which aims to develop scientific attitude, ability, and thinking skills, the focus and emphasis vary greatly (Pawilen & Sumida, 2005). Specifically, in Japan, the use of practical work is highly emphasized and its grand theme is nature, but in the Philippines science’s emphases are health and Filipino values; science is viewed as a tool for industrial change in the country.

In addition, like most countries, which integrate western theories into its educational system, giftedness has been acknowledged in the Philippines for more than four decades. Specifically, in the Philippines, aside from the regular school program, a special project for children with exceptional skills and abilities or gifted children is also officially offered. As mentioned, the project provides special science curriculum for gifted children starting in Grades 1 and 2; this project will continue until schools across the nation have their own SSES class. At present, research on giftedness in science remain to be of special interest in the Philippines. On the other hand, like most Asian countries inspired by Confucian heritage, which pays tribute to diligence more than the talents at birth, giftedness and gifted science education remains to be virtually supplemented through programs that cater to gifted young children. For instance, a science program called Kids Academia, which is in its second year, aims to provide science experiences for selected young gifted children in Matsuyama City, Ehime Pref., Japan. This program provides a specially tailored science curriculum that is intended to address and develop scientific thinking of gifted young children from kindergarten to grade 2 (Faustino, Hiwatig, & Sumida, 2011). Research in psychology that pertains to giftedness and gifted behaviors remains far from ubiquitous, but recent interest in the existence of twice-exceptionality is gaining much needed recognition. For example, Sumida (2010) conducted a study on identifying a child with a special need (a child with ADHD), but possesses a gifted potential in science. Thus, giftedness and gifted science education may remain virtually supplemented for the years to come in Japan.

IV. Conclusion and Recommendations

The Philippines is a developing country that is striving to achieve further economic development and stability. The country believes that people who are well versed in science and mathematics can make a great contribution in achieving this goal. This is also mentioned in much research on the importance of science to the economic development of the country. Creating future scientists and mathematicians start in school. With these things recognized, it is a must for a school to offer science curriculum that help young children to develop scientific literacy and skills.

At present, the Restructured Basic Education Curriculum (RBEC) 2002 is the mandated curriculum for primary education. Science is one the five main subjects that are included in the curriculum. The goal of the subject is to help Filipino students develop a functional understanding of science concepts and principles linked with real life situations; acquire science skills as well as scientific attitudes and values needed in solving everyday problems (see RBEC Handbook, 2002). It prescribes a list of minimum competencies that children need to acquire after a certain grade or year level. Indeed, science is beneficial for gifted children. However, since the establishment of special science high schools in the public high school system more than four decades ago, it has been only much later that the SSES Project was first implemented. One of it goals is to develop scientifically literate students through their enhanced science curriculum, which deals with the development of higher-order thinking skills and address the multiple intelligences of gifted children.

In less than five years, the project gained significant achievements. For example, the project has already organized a full-grade cycle, produced more trained teachers and school heads that have the capability to pioneer and manage a project in their assigned schools, create provisions for financial support for the implementation of the project and provision for the implementation of team teaching. Furthermore, the first batches of SSES students are expected to graduate by 2013.

The SSES Project and the regular elementary school program are different in the following aspects: admission of students, science curriculum and teachers’ qualifica-
tion.

First, to be admitted in the SSES Project, students should undergo a screening process, which is not done in the regular program. The procedure is done to identify who among the incoming students possess exceptional abilities and skills far more advanced than other students. Proper identification is needed to ensure that students can cope with challenging tasks at hand. Identifying who are gifted children is a difficult task. Valid instruments are needed to make sure that students are properly assessed and identified. However, as noted, one of the concerns of the SSES Project is the unavailability of a standardized mental-ability test instrument. This scenario revealed that each school implementing the SSES Project is using different psychological testing. Due to this situation, the question of the reliability and validity of the test instruments poses a concern.

Second, there are remarkable differences between the science curriculum provided in the SSES Project and in the regular classroom. One of the distinct features of the SSES Project is its enriched science curriculum grade one—the contents are normally taught at grade three regular public elementary school students. In addition, ICT-instructions are also integrated in the SSES curriculum. For example, the use of computer and the Internet give students an access to a wide range of information. However, one of the concerns in this area are the instructional methods and approaches used by the teachers. As stated in the mission and vision, the project aims to develop the multiple intelligences of gifted children. Gifted children possess extraordinary abilities and each of them have varied needs, interests, and learning profiles—thus the use of single type of instruction may give less opportunity for them to develop students’ multiple intelligences. Therefore, to address this concern, the use of a differentiated curriculum is recommended.

Finally, because the project aims to cater for children with exceptional skills and abilities, teachers should also possess the capability to effectively teach these children. Aside from the minimum qualifications mandated by the law to become a public school teacher, there are additional qualifications for teachers who will be assigned to teach in this project. The additional criteria ensure that teachers in the SSES class are qualified for the position. However, it is recommended that aside for the abovementioned qualifications, the project should include qualifications such as background in teaching gifted children. Furthermore, to make sure that the vision and mission are employed in the classroom, constant observations and evaluations should be done.

The SSES Project is another way of providing education for gifted children in the Philippines. Many countries around the world recognize the importance of educating gifted children. However, there a few countries like Japan, where the concept of giftedness is yet to be acknowledged. It neither recognizes that giftedness is a part of special education, nor believes that gifted children have any special cognitive and psychological needs. In terms of admission, there is no officially enforced admission process in Japan, although teachers generally agree with individualized learning, which are often used for gifted children. Furthermore, because gifted education does not exist in Japan, teachers consciousness of it is no different from that of general population. Recognition of giftedness in Japan will be a long process because of different factors such as the culture and educational system, although various research on gifted education in Japan is carried out at present. This study could give an idea for Japanese educators on how gifted education for young children is done in country like the Philippines.

In summary, based on the findings of the study, the researchers recommend the following: (1) instruments used to screen students should effectively set apart students who really have high aptitude and positive inclination toward science from those students who simply received high grades in science and thus may be accepted without further screening; (2) evaluation of teachers’ abilities and skills in teaching gifted children should be done meticulously to avoid mismatches; (3) materials used in teaching science such as textbooks and laboratory equipment should be thoroughly studied so that they continue to be effective in stimulating students’ curiosity; (4) surveys on the attitude/perception of teachers, students, and parents on the project should be conducted to serve as basis for identifying area that need improvement and give rise to action for improvement; and (5) studies on the
emotional development of gifted students in the project should also be conducted. It seems that the project solely focuses on the cognitive development of the students, while skipping the affective aspects. Various studies show that gifted children are also prone to emotional problems. Hence, it is essential that the project includes a program for emotional development of gifted children in the SSES Project. Ultimately, addressing these concerns can help contribute in achieving the goals of the SSES Project to develop scientifically literate gifted children in the Philippines through science and become noble scientists in the future.

Acknowledgement

The author and co-author would like to thank Dr. Manabu Sumida, Faculty of Education, Ehime University, Japan for his utmost support and meaningful and valuable suggestions for this study.

Note

Correspondence should be sent to Joel Bernal Faustino.
Email: joelbfaustino@yahoo.com.ph

References


Executive Order No. 210 series of 2003: Establishing the Policy to Strengthen the use of the English Language as a Medium of Instruction in the Educational System. Manila, Philippines.


(Received September 30, 2011; Accepted April 1, 2012)