Senior High School Curriculum in the Philippines, USA, and Japan

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Abstract: The study is a review of the literature on the basic education (k-12) curriculum specifically the senior high school (SHS) of the Philippines, Japan, and the US. Results of the review show that the SHS curriculum is intended to prepare students to enter into college/university or to work in the industry or be an entrepreneur. The SHS program is the last level in all basic education programs of the countries reviewed. The Philippines has a clearer model with at least four tracks (academics, tech-voc, sports, arts & design) and at least ten strands. Japan has two tracks in academics and tech-voc. The US basic education system varies from state to state, similar to its SHS curriculum. There is no definite track as this is left to individual state and their school districts to decide. There are purely academic, tech-voc and other types of schools. The majority of those who choose academic track are students who plans to proceed to college. There are still a stigma in selecting tech-voc and other courses as this are seen by many as the course for poor performing/problematic students. The enrolment in tech-voc schools in the US is declining despite the surge of demand for skilled workers. In the three countries, the availability of qualified teachers is still an issue. This situation is very real in the Philippines as it started the SHS program in June 2016. Other problems includes the need to construct a huge number of classrooms and facilities. All of these are currently being addressed too by the government.

Keywords: K12, basic education, DepEd, career path, tech-voc, academics

1. Introduction

The Philippines was the last country in Asia having a 10-year basic education and pre-university program (SEAMEO & INNOTECH, 2012). Worldwide, the Philippines were joined by Djibouti and Angola of Africa having the shortest pre-university education system with other countries having 13 or 14-year cycles (Senate of the Philippines, 2011). The 12 years or more is in accordance with international practice as stipulated in the Washington Accord, Bologna Process as well as in the ASEAN and APEC Mutual Recognition Projects and much more. The much-needed overhaul of the Philippine basic education system becomes a reality through Republic Act 10533, also known as the Enhanced Basic Education Act which was passed last May 2013 making the pre-university and basic education from 10 to 13 years (Congress of the Philippines, 2011). The enhanced basic education program encompasses at least one (1) year of kindergarten, six (6) years of elementary, and six (6) years in secondary education; the secondary education has four (4) years of junior high school and two (2) years of senior high school education (ibid). The Senior High School levels which offer a wide range of subjects from which students

can choose a program leading to college or university entrance or a career in business or industry (DepEd, ND). The Philippines together with Myanmar, Malaysia and Singapore have two years of Senior High while the rest of Southeast Asia has three years (SEAMEO & INNOTECH, 2012).

Senior High School curriculum in various parts of the world is offered to prepare students for work or a university life. The World Education News and Reviews (2016) presented various basic education curriculums in the world. Taiwan, for example, has three years of either senior vocational schools or senior high schools made mandatory in 2014. Indonesia also has three years of Upper Secondary Education (Senior High) with the first curriculum being more generalist and the last two is either for general academic or vocational stream (WENR, 2014). High schools in South Korea are divided into general/academic, vocational, and special purpose curriculum which students are graduating from Middle School can opt to enroll (WENR-2, 2013). Despite not being compulsory or free, the progression rate is as high as 99% (ibid).

The Philippines is relatively new in the implementation of the Senior High program with Grade 11 enrolled during School Year 2016-2017. Its curriculum is patterned to the US secondary schools. Based on the comparative data for top performing countries, Japan outperformed US in Mathematics, Science and Reading in the Programme for International Student Assessment or PISA (NCEE, 2012). What is their curriculum? How different is it to its model nation or an adjacent leader, Japan?

2. Objectives

The paper aims to provide insights on the of the Senior High School curriculum of the Philippines, Japan, and the USA. Specifically, it tries to;

1. Present key information on each country's basic education program,
2. Present their (senior) high school curriculum
3. Compare and contrast each country senior high school curriculum.

3. Methodology

The paper is all based on secondary information using the literature review protocol. The literature review stated planning a review protocol, then searching for potentially relevant literature and snowballing (backward and forward) to exhaust all available literature, selecting the relevant articles, analyzing and synthesizing then writing this manuscript (Myllarniemi, 2015).

The paper uses official publication of each government, specifically the agencies that have authority over the delivery of the basic education, such as their respective Department of Education, its affiliates or their partner institutions. International organizations conducting researches on education were also considered as sources of data. On the other hand, the paper has also used literature published in other agencies including news articles to enrich discussions about the issues regarding the subject under assessment.

4. Results and Discussion

This paper reviewed the literature about the Senior High School curriculum of the Philippines, Japan, and the US. It also looked into issues, challenges, and successes relating to the implementation of the program. The preceding are the assessment made on the topic.

4.1 The K-12 Program

The K-12 program (sometimes called P-12) is a basic education program widely practiced all thought the world is serving children for the 13 years from kindergarten to year 12 (Department of Education and Training, 2010, Philippine Senate, 2011). DepEd of the Philippines believes that the 12-year program to be the best period for learning under basic education. It is also the recognized standard for students and professionals globally; this is the main reason why the Philippines were the last country adopting more than 10-year pre-university in Asia (ibid). Shown in Table 1 is the summary of the K-12 program of the three countries of study.

The Philippines has a total of 13 years from Kindergarten to Grade 12, all of which are mandatory and free especially in the public schools. It even subsidizes students who will take their grade 10 to 12 classes in the private schools or universities/colleges through the voucher program (DepEd, ND). The K to 12 education program in the Philippines addresses the defects of the country basic education curriculum. As claimed by the proponent of the K12 program, the curriculum is seamless, ensuring the smooth transition between grade levels and continuum of competencies. It is also relevant and responsive, enriched and learner-centered curriculum (SEAMEO INNOTECH, 2012). There was a total of more than a little more than 1M students in grade 11, (first year in SHS). Around 60.6% were enrolled in the academic track while only 39% were in tech-voc curriculum and less than 0.5% chosen the sports, arts and design curriculum (DepEd).

In Japan, the kindergarten curriculum is not mandatory however the huge proportion of its student enroll in it for better chances of entering into the best schools throughout college/university. Compulsory schooling in Japan is nine (9) years, grades 1 to 6 (elementary) and grades 7 to 9 (lower secondary school). The student can proceed to Upper High School (UHS) and take up another three years of schooling. It is usually to prepare student entry to higher education. The UHS curriculum, however, is not free. A Huge proportion of their students in the UHS goes into general academic courses (74%) and only 24% go into vocational (specialized) courses, the remaining 3% were in integrated courses (academic and vocational) (WENR, 2015). In 2013, there was a total of 19,127,474 basic education students, 17.35% are in the Upper High School (MEXT, ND).

The structure of government in the US allows their education to adopt various forms and programs for their basic education. Some states combine the senior and junior high school while others have no distinction between the two. The mandatory schooling in the US also varies from state to state (NCES, 2008). There are around 55.4 M enrolled in elementary and secondary schools in the US in SY 2013-14 (NCES, 2016).

Best educational systems are often identified based on the performance of students in the international standardized examinations. In the world, East Asian countries like Singapore, Hongkong SAR, Korea, Chinese Taipei and Japan ranks top in the 2015 International Mathematics Achievement for Grade 4 and Grade 8 (TIMSS & PIRLS 1, 2015). In the International Science Achievement, Singapore, Korea, Japan, Russian Federation and Honkong SAR were in the top five for Grade 4, while for Grade 8, Singapore, Japan, Chinese Taipei, Korea, and Slovenia

Table 1: Basic Education/Pre Baccalaureate/Pre-University Program

Philippines	Japan	USA
Kindergarten		
Kindergarten is mandatory and compulsory for five-year-old-learners with public schools offering it for free. The Kindergarten is the first stage of the basic education and is delivered using mother tongue (SEAMEO INNOTECH, 2012).	Not compulsory and not free. Majority of parents send their children to one year kindergarten to gain access to highly selective schools later. Some prefer to have pre-kindergarten for same reasons.	Primary education in the US is compulsory and free starting between five (Kindergarten) and ending somewhere between ages 16 and 18 depending on the state (NCES - 1, 2015). It starts at the age of five, in Kindergarten and ends either in 5th or 6th. Some schools in the US may defer in grades they contain. (see figure 1). The curriculum in public elementary education is determined by individual school districts or county school system.
Elementary		
Elementary level is completed within six (6) years. The first 3 grade is conducted using mother tongue and succeeding levels are bilingual using English and Filipino as medium of instruction. (SEAMEO INNOTECH, 2012)	Primary school is six years with about 98.4% prefer to enroll at public school where education is free. (WENR, 2005).	
Junior High School (JHS)		
Grades 7 to 10 (four years) are the first part of the secondary education. Grades 7 and 8 students are exposed to core learning areas and TLE exploratory courses are introduced. On the other hand, Grades 9 and 10 will be based on the preferred learning areas of the student. (DepEd)	Students who have completed primary cycle are automatically accepted into lower secondary school (LSS) which is three year (3) years and is compulsory. Result of LSS can determine whether or not a student gains access to a good upper secondary school and eventually to a good university and career. (WENR, 2005)	Middle school (or junior high school) has variable range between districts spanning grades 7, 8 and sometimes 5, 6 and 9 as shown in figure 1.
Senior High School (SHS)		
The career pathway specialization started in JHS continues in the SHS. Grades 11 and 12 is the second part of the secondary education in the Philippines. In addition to the core competencies, students takes electives under three groups, academic, tech-voc and entrepreneurship. It is envisioned that the end-of-Grade 12 examination is the exit examination for the secondary level and at the same time an entrance examination for college. (SEAMEO INNOTECH, 2012)	The student needs to earn 80 credit units to graduate upper secondary education (USE) which can be attained in 3 years. Taking USE is not free and the curriculum is divided into two basic streams: academic and vocational/technical. Most of those who like to proceed to college takes the academic stream and is generally more competitive. The competitive nature of entrance to USE is because schools are ranked according to the number of their students who are accepted to prestigious universities. (WENR, 2005)	High school comprises grades 9 or 10 to 12 and generally takes a broad variety of classes without specializing in any particular subject, with the exception of vocational schools. Some states and cities offer special high schools with entrance examinations to admit the best students. Aside from the academic and technical vocational Other high schools cater to the arts, some are set-up for students who do not succeed with normal academic standards, while others were for special groups' such as LGBT students (Celefati, 2008).

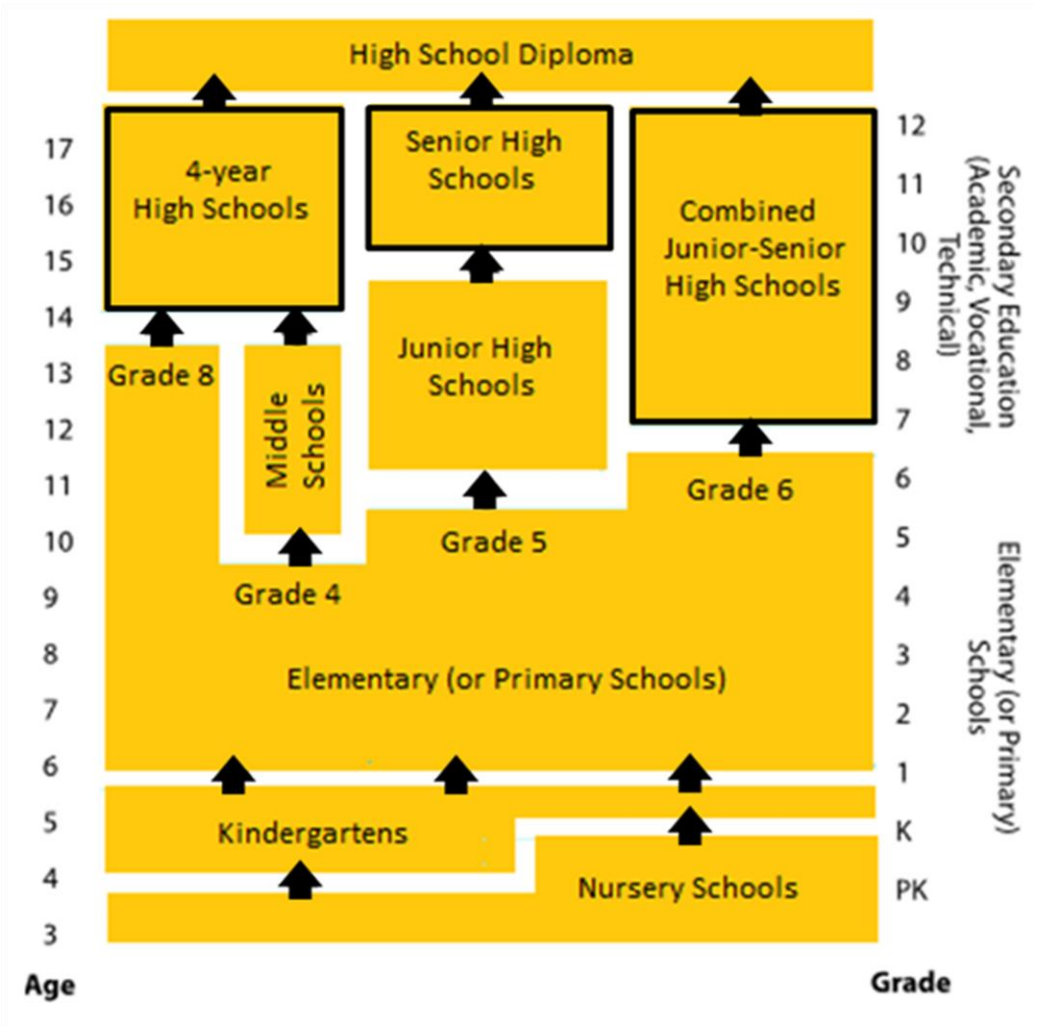

Figure 1: The K12 Program in the US (Chart Adapted from U.S. Department of Education, National Center for Education Statistics)

ranked the top achievers in the said exam (TIMSS & PIRLS 2, 2015). An article in the K12 System says that the top five K-12 education systems are from Finland, China, India, Japan and Singapore (Fioriello, ND). Finland has consistently ranked as number one in international examination having high scores in math, science, and reading. Finnish schools allow students to learn at a more relaxed pace where students only spent half an hour of homework every night and students don't attend school full time (Fioriello, ND). Japan, on the other hand, prepares their students towards university preparation because even technical schools have rigorous entrance exams to enter. Japanese kids has more than one teacher, and kids are also encouraged to work through their studies without text books, calculators and the like giving them different ways to solve problems (ibid)

In the PISA report for 2015, Singapore also tops the latest OECD PISA global education survey. The same report also has shown that Japan has outperformed the US in Science, Mathematics, and Reading. The US is below average in Math and slightly higher than average in Science and Reading while Japan leads and has

above performance in the three areas (PISA, 2015).

4.2 The Senior High School Curriculum

The senior SHS curriculum is an entry point to college/university life or business and industry, the later seen as the lesser of the two regarding prestige (Bidwell, 2014, Peano et.al., 2008). In the Philippines for example, more students would prefer going into the academic track than any other track. In a study conducted, about half chooses academic tracks while tech-voc courses are selected only by about 3% of their prospective students (Lagajino et.al, 2015). Based on enrolment data from DepEd, 60.6% of Philippine senior high school enrolees went to academic track while around 39% went to the tech-voc track. In Japan, about 73% choose academic track compared to 24% going to tech-voc. track.

In the early 1990s, the secondary education in the US is similar to what the Philippine SHS now is. It has six academic courses, three vocational courses and four other courses (NCES, ND). Looking closely, the Philippine model is also similar to Singapore, the leader in all international examinations in Math, Science and Reading. (WENT, 2009). It has devoted school for sports, arts and general academics handled by the National University of Singapore – High School (ibid)

The desire for many to go into college/university has resulted in huge unemployment and underemployment. According to Mark Edwards, an executive director of Opportunity Nation, "We've done a disservice in this country (USA) by suggesting that there's only one path to success, which is to get a bachelor's degree." He further adds that "there are many good-paying jobs available today that, quite candidly, a four-year Bachelor of Arts degree does not prepare them for." In the Philippines, the K-12 program was implemented partly because of this reality. There is a huge unemployment rate due to jobs-mismatch. The K12 program is even designed to let the student feel what tech-voc. is an exploratory track in the junior high school level through the Technology and Livelihood Education (TLE) courses.

4.2.1 Academic Track

The most preferred track in all of the three countries is the academic track. Unlike US and Japan academic courses, the Philippines are more organized. It has at least four academic strands as shown in Table 2. These strands lead to specific courses in college except for the General Academic Strand (GAS) which is for the undecided student. The GAS program is a bit similar to that of the US and Japan curricula.

Some schools in the US offer also designed tracks such as STEM curriculum. The program is considered new as many are not yet well informed about it (Haynie, 2014). Kevin Bals, the principal of High Technology High School says that "if you don't love math and science, it's probably not the place for you". He has seen cases where students enrolled because of parents' wishes who did not last long. The curriculum is for those who have the passion for it not necessarily who are gifted (ibid).

4.2.2 Technical Vocational Track

The technical-vocational track is more define in the Philippines and Japan K-12 curricula. As shown in Table 2, there are about seven identified strands with industry and fishery courses being the most preferred

Table 2: Senior High Curriculum

<table>
<tr><th>Philippines</th><th>Japan</th><th>USA</th></tr>
<tr><td colspan="2">Academic Track/Strand</td><td rowspan="8">Senior high school (or simply high school) is a two-year program in many states others are combined (see figure 1). Students take certain ‘core’ curriculum courses for a prescribed number of years or terms depending on the state. It includes several subjects under English, math, general science, health, physical education and social studies or social sciences. Best students have put on ‘fast track' schooling where students are given the opportunity to take enriched classes in one or more academic subjects (Corsi-Bunker, ND).

Aside from the mandatory subjects, students choose ‘electives’ to supplement their future education and career plans. About half of students’ courses in high school concentrate on four subjects specifically towards college/university or career in business or industry. (ibid) Students planning to go to college or university take electives with emphasis on academic sciences, higher mathematics, advanced English literature, composition, social sciences and foreign languages (ibid).

Technical/Vocational

TrackStudents opting technical vocational electives take it in voc-tech schools for about half of the year in the SHS. Students can take all academics first and the next half of the school year is focused on the tech-voc courses or it may be taken mixed with academic courses. Courses include agriculture, business, computing, construction, creative arts, healthcare, human services, mechanical/automotive and others. (www.stateuniversity.com, Pannoni, 2014)</td></tr>
<tr><td>There are four strands in the academic track, namely,
• Accountancy, Business and Management (ABM)
• Science, Technology, Engineering and Mathematics (STEM)
• Humanities and Social Sciences (HUMSS)
• General Academic Strand (GAS).</td><td>The student must earn 80 credit units from the following subjects.
•Japanese language I&II
•Japanese Classics
•World History
•Japanese History or Geography
•Civics-contemporary society or ethics, politics and economics,
•Mathematics, Sciences(two);
•Physical education and health;
•Music, fine arts crafts or calligraphy;
•Foreign language
•Home economics</td></tr>
<tr><td colspan="2">Technical/Vocational Track/Strand</td></tr>
<tr><td>There are four strands under the TVL track namely;
• Home Economics (HE)
• Information and Communications Technology (ICT)
• Agri-Fishery Arts (AFA)
• Industrial Arts (IA)

The HE strand may have specializations (but not limited to) Food and Beverage Services and Wellness Massage. ICT strand may specialize in Animation, Contract Center Services, and the likes. AFA can go into specializations like Animal Production and Crop Production, while IA can go into the likes of Consumer Electronics Servicing and Electrical Installation and Maintenance. (DepEd, ND)</td><td>Students must take minimum of 80 credit units, 30 of which must be in the field of specialization, such as;
•Agriculture;
•Industry
•Business
•Fisheries
•Home economics
•Nursing
•Welfare
•Others
The remaining 50 units will come from the following general education subjects, such as;
•Japanese;
•Foreign language
•Mathematics
•Science
•Social Science
•Art
•Physical education

The Japanese high school curriculum does not have a distinct course for other fields. Sports, arts, and design, are integrated into the academic and tech-voc. strands usually as an elective.</td></tr>
<tr><td>Others</td></tr>
<tr><td>Sports track may consider specialization in Human Movement, Sports Officiating and Activity Management (DepEd, ND)</td></tr>
<tr><td>Arts and Design track may focus specialization on Developing Filipino Identity in the Arts, Leadership, and Management in Different Arts Fields (DepEd, ND)</td></tr>
</table>

fields (WENR, 2005). The student needs to earn 30 credit points in the specialization, and the remaining 50 credit points come from the general education subjects.

Courses in the Philippine model are divided into four strands where the student can choose from. The said programs, however, may not necessarily be available in the municipality or barangay (village) they are in and therefore needs to take it in other towns or village. The absence of the much needed tech-voc facilities and availability of qualified teachers limit the accessibility of these programs to many. The number of those choosing the academic track may also be attributed to the limited offering in the senior high schools throughout the country.

Like in many countries, the share of students in the US going to tech-voc schools are declining even in a time where demand is increasing. (Pannoni, 2014). However, there are some school districts where this is the other way around. It is attributed to the quality of the tech-voc training provided. Kim Curry, the Dean of Admissions at Montachusett Regional Technical School in Fitchburg, Massachusetts says that tech-voc (some) schools are completely different, kids are fighting tooth and nail to be accommodated. He further added that students are attracted in the curriculum because they can leave school with a career. In their school he says, 700 students applied, but there were only 350 slots available.

4.3.3 Other Tracks

It is only the Philippine K-12 model having two more track in the senior high school curriculum. The additional tracks in Sports and Arts and Design is for students who intend to be experts or skilled in these areas. Sports strand are appropriate for students who intends to become a professional athlete or sports related job or proceed to study Physical Education or Human Kinetics in college/university. The arts and design track are for students who has artistic talents and planning to take up fine arts, theater or cinema, and the likes. The US and Japan senior high school has no track focusing on this two area but integrates courses in the arts and sports in their curriculum.

4.3 Senior High Teachers

Shown in Table 3 are the necessary qualifications of teachers in the basic education especially the SHS level.

The SHS program is relatively new in the Philippines, with the first year enrollees (grade 11) started June 2016. It leads to surge of demand for qualified teachers in specialized areas. DepEd law requires that teachers in the basic education which include SHS must be licensed, teachers. Since specialized courses such as ICT, S&T and engineering are rare majors in education degrees, the department was unable to fill it up as required. This forced DepEd to allow non-licensed teachers to handle specialized classes and was given five years to get the license. In the tech-voc track, only NC II holders were allowed to teach, some of them are not degree holders. However, they too are required to acquire a license to teach within five years as well. (DepEd, 2016)

Most of the teachers in the higher level of the secondary schools are specialist. Japan, for example, requires masters and baccalaureate degree for first and second class UHS. While the degree is the minimum requirement based on law, prefectural (regional) boards of education add requirements such as a license to teach. There are stages of tests. The first consists

Table 1: Secondary School Teacher Qualification

Philippines	Japan	USA
Full time/permanent SHS teachers must have completed Bachelor's degree with at least 15 specialization units in relevant strand/specialized subject and a teachers license holder. For TVL teachers, they must have Technical Education Skills Development Authority (TESDA) National Certificate (NC) of at least one level higher than the course and subject to be taught. For Arts & Design and Sports track, SHS teachers should be holder of certification of proficiency from recognized respectable relevant associations/organizations/guild (DepEd, 2015) SHS teachers without teaching licenses but posses specialization units; for TVL track has NC certification; for Arts, Design and Sports track has certification/recognition from respected, relevant association/organization/guild. (ibid)	Only those who have completed the requirements of the program of study (teaching) and have obtained certification from regional boards of education can teach. On top of this, a USE teacher must have a first-class teaching certificate. He/she must have completed a four-year degree with a concentration of 40 units in the teaching area of specialization and 19 units in the area of professional studies. An advance certificate is available to those who have completed a Master's in Upper Secondary Education. (WENR, 2005) All four-year education programs require a minimum of 124 units. All beginning teachers are required to participate in a one-year supervised training program in the classroom and at a prefectural education center (ibid).	There is a certification to teach in secondary schools on specific levels. Certification from every state varies; sometimes it overlaps as there are wide grade combinations of elementary, middle schools (junior high schools) and high schools (senior high schools). There are states which require certification in various curricular areas to teach secondary education. Based on NCES (2015) 83.67% of public high school level teachers in the US are certified. Fields, where there are fewer certified teachers, includes Physical Sciences, Chemistry, Earth Sciences and Physics. About a third of teachers in economics, geography government and history has certification to teach the subject. Nine in ten of teachers in music are certified. Teachers of art/arts and crafts, music, and dance/theater were allowed to report an ungraded or secondary level (grades 9-12) certification.

of written (general education and specialized field) and skills test which includes physical fitness. The second stage consists of interviews. Once applicant gains entry to the teaching profession, they are assured of lifetime employment.

In the US, a certification to teach in secondary schools on specific levels is also required. These requirements vary from state to state. Since not all specialized fields have certification, only about 84% of teachers are certified (NCES -2, 2015). States, however, requires that all teachers will have the license specifically for public schools.

5. Conclusion and Recommendation

The K-12 program is a more potent educational model compared to the old curriculum of basic education in the Philippines. Students can prepare themselves for a more rigorous training in the higher education or go immediately to employment or be an entrepreneur. Being new in the Philippines, it is marred with issues such as lacking qualified teachers and the much-needed facilities for use in the highly specialized courses, specifically at the SHS level. There were, however, interventions made and are expected to be in placed very soon. The K-12 program,

especially the SHS is patterned to the old US basic education set-up and to the Singapore system where there are tracks and strands. About 6 in every ten preferred the academic track, about 4 in every 10 chosen tech-voc and very few went to Sports, Arts and Design track.

The educational system in Japan only has a nine-year compulsory and free education. Kindergarten (as well as pre-kinder) and the UHS courses are not free, despite this, a huge proportion of students enter into this courses in the hope of entering into the best school/university later-on. Around 8 in every ten students proceed to university/college. About 7 in every 10 chooses an academic track, all of them wanting to enter into college/university. The Japan model of the education system is highly regarded as it has landed top five in all international examinations specifically math, science, and reading.

The K-12 program including the coverage of compulsory education varies from state to state in the US. Their SHS program has no definite tracks (like the Philippine and Japan model) and the courses offered are dependent on the state where the district belongs. There are secondary schools mainly offering STEM and Tech Voc courses but are not as popular as the usual SHS programs in the US. Students' performance in the US is far as compared to that of Japan.

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