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Trends and perspectives of information technology development in the Philippines: A review of Filipino-Chinese schools

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Abstract

Information technology has indeed greatly changed our daily lives. Moreover, such innovation has brought forth many changes not only in the industry, but also in the field of education. Likewise in the Philippines, changes have been seen all over the academe. This paper talked about the background of the Philippines, starting with a birds' eye view of the educational system and the status of educational funding. A documentary analysis of the information technology readiness is also provided with a comparative analysis of the current situation of Filipino-Chinese schools in the Philippines. This paper shall provide an introductory concept of the trends and perspectives of information technology development in the Philippines.

Keywords: information technology; Philippines; Filipino-Chinese schools; documentary analysis; educational system

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1. Introduction

The phrase *to provide quality basic education that is equitably accessible to all and lays the foundation for life-long learning and service for the common good* (DepEd, 2007a). Have long been the guiding principles of technology development in the Philippines. With this mission in mind, the Philippine's Department of Education has started numerous programs starting from the less developed area with electrification and school house building to the highly urbanized areas with technology trainings and internet education.

2. The Philippines

In order to better understand the Philippine situation some background information are first given. The Philippines is made up of 7,107 islands covering a land area of 115,739 sq. m. (around 299,764 sq. km.). Main island groups are Luzon, Visayas, and Mindanao. The capital city is called Manila. Time Zone is GMT +8 hours (DOT, 2007). It stretches from the south of China to the northern tip of Borneo. The country has over a hundred ethnic groups and a mixture of foreign influences which have molded a unique Filipino culture (Gov.Ph, 2007). There are a total of 76.5 million Filipinos as of the national census achieved in May, 2000 (DOT, 2007), with an estimate of around 88.7 million in 2007 (Gov.Ph, 2007). Population growth is estimated at 2.36 percent per year. While, Luzon; the largest island group, accounts for more than half of the entire population (DOT, 2007). Some official details are as follows:

- ➢ *Official Name*: Republic of the Philippines

- ➢ *Official Languages*: Filipino and English

- ➢ *Population*: 54% rural and 46% urban

- ➢ *Basic Monetary Unit*: Peso

- ➢ *Measurements*: Metric System

- ➢ *Religion*: Catholic 83%, Protestant 8%, Muslim 5%, Buddhist 3%

- ➢ *Main Products*: (Agriculture) Rice, banana, cassava, coconut, corn, pineapple, sugarcane, sweet potato, (Forestry) ebony, kapok, mahogany, (marine) milkfish, scads, tuna, sponges, pearls, (Mining) chromites, copper, gold, nickel, (Manufacturing) cement, garments, chemicals, foods, electronic equipments, petroleum products, wood products and textiles

3. Educational system

Philippine education is patterned after the American system, with English as the medium of instruction. Schools are classified into public (government) or private (non-government). The general pattern of formal education follows four stages: Pre-primary level (nursery and kindergarten) offered in most private schools; six years of primary education, followed by four years of secondary education (DepEd, 2007a). College education usually takes four, sometimes five and in some cases as in medical and law schools, as long as eight years (Ched, 2007a). Graduate schooling is an additional two or more years (DepEd, 2007a). Some opted to study short termed two year vocational courses, which are mostly jobs that are related to the need of industry (Tesda, 2007). Classes in Philippine schools start in June and ends in March. Colleges and universities follow the semestral calendar from June-October and November-March. There are a number of foreign schools with study programs similar to those of their mother country. Figure 1 shows a graphical representation of the Philippine educational

system.

Philippine Education System
OPTIONAL Kindergarten II (Preparatory II) – 7 years old Kindergarten I (Preparatory I) – 6 years old Nursery – 5 years old Pre-Nursery – 4 years old
Grade 1 to 6 – Ages 8 to 13 years old Grade 7 – 14 years old (Selected PRIVATE schools only)
High School 1 to 4 – Ages 14 to 17 years old
College / University 2 years technical or vocational courses 4 years courses / 5 years engineering courses / Medicine / Law
Graduate Studies (Master and Doctorate)

Figure 1. Philippine educational system

3.1 Educational expenditure

With regards to educational expenditures, measured as a proportion of Gross National Product (GNP); total government expenditures on education in the Philippines registered a 3.8 percent share in 1997. Most of its Asian counterparts allocated lesser proportions. Only three countries - Malaysia, Thailand, and Bhutan - recorded higher ratios. The Philippine government's expenditures on education accounted for nearly one-fifth of its total expenditures in 1997. This record is second only to Thailand, which devoted 20.1 percent of its total expenditures to education. All the other countries had lower proportions, ranging from 7.0 to 15.4 percent (NSCB, 2008).

In recent years, the government has indeed increased its spending for the education sector with data as such (please see figure 2):

Budgetary Appropriation for Philippine Educational System By Level of Education and by Agency (in '000 pesos; 1 US$ = 41.25 pesos – Feb. 05, 2008 rate) Fiscal year 2002 to Fiscal year 2006					
Particulars	FY 2006 Proposed Program	FY 2005 Actual Program	FY 2004 Actual Program	FY 2003 Actual Program	FY 2002 Actual Program
TOTAL	121,600,330	114,480,287	108,433,272	109,987,773	106,050,025
Basic Education (DepEd)	118,038,047	110,995,428	105,295,032	106,708,873	103,134,128
Higher Education (CHED)	1,140,670	1,073,653	1,052,856	664,364	754,573
Technical/Vocational (TESDA)	2,421,613	2,411,206	2,085,384	2,614,536	2,161,324

Notes: DepEd – Department of Education, Culture and Sports; CHED – Commission on Higher Education; TESDA – Technical Education Skills and Development Authority

Figure 2. Philippine educational system budget appropriation

Evidently funding has gradually increased in response to the increase in student enrollment and increase in technology related projects (Ched, 2007b; DepEd, 2007b; NSCB, 2007; Tesda, 2007).

3.2 Networked readiness index

According to World Economic Forum (2007) the networked readiness index (NRI) is the measures of the degree of preparation of a nation or community to participate in and benefit from ICT developments. The NRI is composed of three component indexes which assess:

➢ Environment for ICT offered by a country or community

➢ Readiness of the community's key stakeholders (individuals, business and governments)

➢ Usage of ICT among these stakeholders

The Philippines has a GDP per capita PPP of 5,137.00 (US$) (UNDP, 2007), while having a 5.32 internet user per 100 individuals (rank 75 out of 122). With only an international internet bandwidth of 0.390 Mbps per 1000 individuals (rank 72 out of 122). Also, having a 1.31 computers per 100 individual (rank 77 out of 122) and with a *network readiness index* of 68 out of the 122 countries surveyed (World Economic Forum, 2007). In comparison to Taiwan, the Philippine people is roughly earning a fifth of what the Taiwanese does. Taiwan's purchasing power parity (PPP) - converted per capita gross domestic product (GDP) amounted to US$28,552 in 2005, ranking it 23rd in the world (OCAC, 2007). A clearer picture of is shown below (World Economic Forum, 2007):

Criteria	Taiwan	Philippines
Internet users per 100 person	58	5
International Internet bandwidth (Mbps) per 10000 person	31.44	0.39
Secured Server per 1 million person	3.03	1.03
Internet Access of Schools (1 – very limited, 7 – extensive) (Iceland 6.83)	5.72	3.48
Computer per 100 person (Switzerland 7)	4.84	1.31
Networked Readiness Index (out of 122)	13	68

Figure 3. Comparison between Taiwan and Philippines

Here we could see that the Philippines is quite new in this internet and technology arena, thus is in need of a lot of infrastructure and training.

3.3 Impact of technology in education

In order to develop the view on the revolution that technology is creating in education, it is helpful to briefly

consider how technology has revolutionized and how it has left educators rushing to catch up. In barely 30 years, electronic technology has dramatically penetrated into every area of society, and every aspect of our social and cultural lives. Television was the initiator. Television rediscovered and recast the world as a direct experience, and liberated it from the confines of text and static illustrations. It became possible for events a world away to appear in our homes, with all their intensity and vividness intact. Computers made it possible for vast amounts of information, from airline reservations to the contents of the encyclopedias, to be made instantly available and modified with a keystroke.

Writing became a matter of screens and printers, and text became permanently flexible, always ready to be instantly changed. The very nature of work changed, with an increasing demand for workers who could master the new technologies and use them to a conduct a business that formerly did not require computers at all. Most significant, however, are the changes brought into our children by the technological revolution. Children have grown up with remote controls, and spend more time watching television and video tape than reading. Our children have been raised in a world of instant access to knowledge, a world of vivid images embody and supplement information formerly presented solely through text. Although schools are embedded in our culture and reflect its values, the technological changes that have swept through society at large have left the educational system largely unchanged.

Teachers' colleges and education departments around the country have not seen any wholesale revisions in their curriculum, and graduates of these institutions are much more like their predecessors who graduated decades earlier than they are like today's children. The result is an estrangement of the schools from society, and from the children who live in it. This estrangement has pronounced negative effects. It has caught our children in an awkward bind as they move toward the future, but the institutions responsible for educating them are locked in the past. In the classroom, knowledge is presented to them in a linear, didactic manner that differs dramatically from the children's previous experience outside the school. In contrast with the vivid images and self-directed flow of the interactive home and society, school strikes them as rigid, uninteresting, and ultimately alienating.
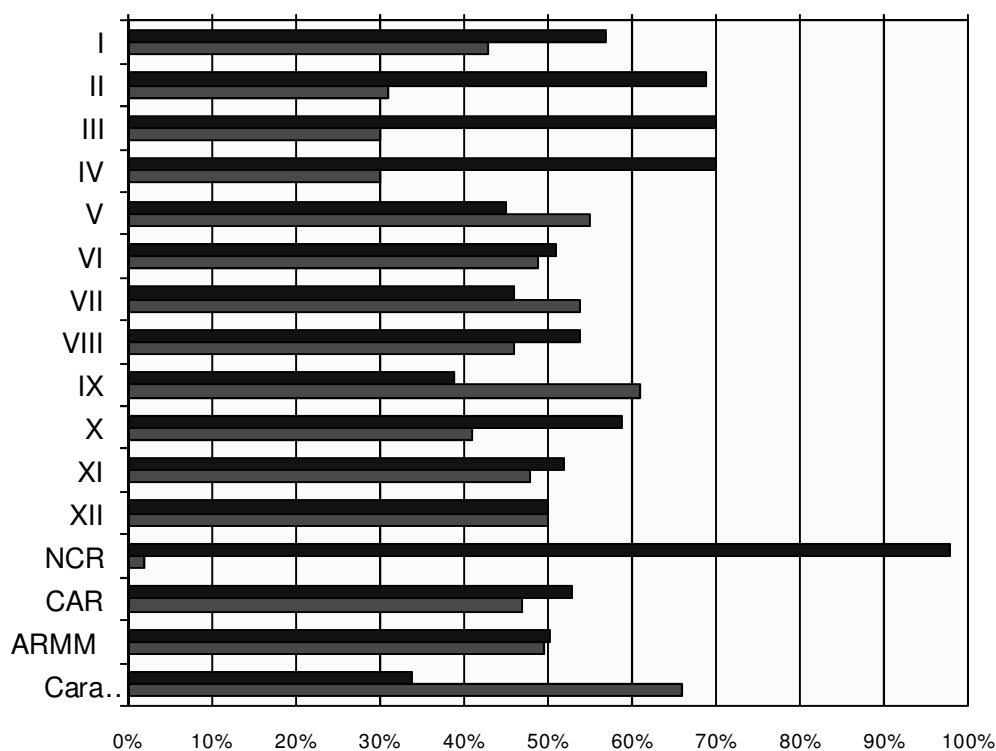

Figure 4. Information technology expenditure by region (Philippines)

In our present view, the resolution of this divergence between our students and our educational practice lies in drastic educational reform, reform that will bring the classroom into line with society. The immediate task of education is to embrace the future and empower our children to learn with the cultural tools they have already been given. The government has indeed increased the accessibility in information technology, according to the department of education (2003, 2007b) below is the percentage of information technology access by region (dark = with access; light = without access):

Among secondary schools with computers (15% of the total number of secondary schools), only 56% of the teachers uses computers in teaching, the rest use computers for office work. Within them only 19% has access to internet. Generally, among the secondary students, 92.1% were reported to be using computers for learning (DepEd, 2007b). Policies on the use of information technology in Philippine education (DepEd, 2003):

1. Technology shall be studied first as a separate subject and then applied in other learning areas as a tool for learning how to learn.

2. An education modernization program shall be undertaken to equip schools with facilities, equipment, materials and skills and to introduce new learning/delivery systems necessary to capitalize on recent technological developments.

3. The participation of other stakeholders in education shall be generated in the upgrading and modernization of the public schools especially those in the underserved provinces.

Some programs and projects adopted to help promote and develop information technology education and make information technology present in school:

➢ Department of Education Computerization Program

➢ 2002 Basic Education Curriculum

➢ Adopt-a-School Program

➢ Intel Teach to the Future Program

➢ Customized Med/MS in Teaching IT

➢ Continuing Studies Via Television

➢ PCs for Public Schools Project

➢ Project Link

➢ IT Centers

➢ Development of Multi-media Materials

➢ Computer Education for Elementary Schools

➢ Educational Television

➢ Computer Literacy Program for Selected Schools

➢ Mobile IT Classrooms

➢ ICT Mediated S & T Learning Program

➢ Mini Computer Laboratory

➢ Development of Computer-Based Teaching Modules

4. Chinese schools in the Philippines

The Philippines has a total of 221 Chinese Schools (PCERC, 2007). The oldest Chinese school in the Philippines is the *Tiong-Se Academy*, while the oldest Chinese Secondary school is the *Philippine Cultural High School*, currently *Philippine Cultural College*. Chinese schools in the Philippines are generally established by Chinese migrants, philanthropist, religious institutions (Catholic, Christian, and Buddhist churches) and other associations and organizations. Ownership of these schools is mostly based on private entities, business clubs (such as the Chinese Chamber of Commerce), and/or family associations, religious organizations, and alumni associations. There are also numerous organizations that most Chinese schools have to be in league with. First are the national and or local government organizations. This are then followed by the private Philippine non-governmental organizations, cultural offices from the mainland China and Taiwan, Philippine-Chinese chamber of commerce, Grand family associations, and Chinese educational organizations (League of Chinese schools, Philippine Chinese Education Research Center, Federation of Chinese schools' principals).

These Chinese organizations mostly would cooperate together to provide funding, teacher trainings, student summer camps, donate books and computers, provide Chinese speaking student trainees and supervisors, conduct seminars and workshops, provide study grants, and many other activities to help promote and develop the Chinese education in the Philippines. Meanwhile, Chinese curriculum that is being use started from the oldest ones that comes from mainland China and Taiwan, which was mostly traditional and contextually different from the Philippines. Eventually the curriculum was change by the teacher themselves into to a more contextual and practical ones. With this in mind, the *Philippine Cultural High School* and the *Philippine Chinese Education Research Center* seeks the help of Beijing Language Institution to then on develop a more localized Chinese curriculum utilizing the Chinese as a second language paradigm. Some strategies include, using simplified Chinese characters together with phonetics sound system, in addition with the provision of workbooks, cassette tapes, speech sessions and CD-Rom, thus providing a more holistic approach in educating the students.

Furthermore, in order to help train the teachers in using information technology to teach this new curriculum, series of trainings and workshops in information technology was conducted. Some problems and concerns that arise are as such:

1. Teachers don't have computers at home, after training they don't have the means to practice

2. Low internet speed, and/or no internet service on some areas

3. Hard to find multi-media materials, which are needed as their instructional tools

4. Some teachers can't attend trainings, due to geographical and financial reasons

5. Low/no information dissemination, teachers want to have a way to share their experiences in teaching with the use of information technology. Likewise, many teachers need tips and techniques to enhance their teaching skills.

5. Current and future solutions

In response to the need of teachers with regards to the multi-media materials, a multi-media database is currently being created to help reinforce the teaching tools of the teachers. This database would contain graphics file, audio files, animation, exercise, and quiz templates. In addition, together with a plan to develop a test bank (database) that would also aid the teachers in quiz formulation, the center shall provide further assistance to teachers. Eventually, a portal would be design to provide seamless access to teachers all over the Philippines. Since the Philippines is an archipelago with lots of scattered islands, online training would also be an option to reach the teachers from the provinces without having them to leave their schools. A CD version of the database would also be provided to the teachers who don't have internet access, in this way maximum coverage is being consider.

With the problem in computer and laptop prices, technology as Moore's law (2007) stated that the cost of producing micro-chips are getting cheaper and cheaper. The drop down of computer prices together with the possible funding provision from academic institutions, teachers and schools alike would soon be possible to own their own laptops and desktops computer. Together with envisioning a better future of wireless internet access, technology would soon provide seamless internet access in a affordable price from the telephone providers in the Philippines. Wireless internet access is the way for the Philippines with island scattered all throughout and landline infrastructure cost are high, with the telephone giants fighting over the market, wireless internet would soon be a possibility in the Philippines.

6. Conclusion

Students and faculty alike must engage in a collaborative process to discover the potential of existing technological tools in light of learning, teaching, and communication. A method of enhancing the curriculum, technology is integrated into all content areas as a learning tool. The goal is to incorporate technology as an invisible agent in an enriched and redefined learning environment. Successful integration of technology into the curriculum depends on student access to technology, on-going faculty-staff training, and a strong infrastructure. Consistent and constant access by the individual learner to the learning tool of their era strengthens their evolution as a critical thinker, thereby ensuring her success in the future.

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