Reflections on ICTs in Basic Education Policy and Practice in the Philippines

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Introduction: Two Perspectives on ICTs in Education

Education systems around the world today are confronted with at least two challenges. One of these is how to produce a globally competitive workforce, workers with "a whole spectrum of knowledge and skills to deal with technology and the globalization of knowledge" as well as the "flexibility to acquire the new skills required for new jobs." (Haddad and Draxler, 2002, p. 6) The other challenge is how to respond to the growing international concern for the enhancement of human freedoms and general quality of life—that is, how to promote among citizens the values of democracy, civic participation, human rights, gender equality, social justice and peace. (Haddad and Draxler, 2002; Little, 1994) Although not necessarily contradictory, or even incompatible, these two challenges receive different levels of emphasis, reflecting two different perspectives on the purpose of education.

There are two perspectives on the purposes that education should serve. (Avalos, 2003; Watkins, 2000; Little, 1994) The first considers education as a tool for economic development, an investment that would give a country competitive advantage in the global economy. This perspective gained prominence in the 1960s and 70s with the work of economists who calculated the rates of return from "human capital formation," as they called investments in education. (Rose, 2003; Little, 1994)

The second perspective considers education to be a means for personal development, social inclusion and participation—in short, *human* development. (Avalos, 2003; Little, 1994) According to Watkins (2000), it emerged from Amartya Sen's conception of human development as consisting of "fundamental freedoms" which include not only the freedom to participate in trade and production (what Sen calls "economic facilities") but also the freedom to pursue good health, acquire education, and participate in political life (what Sen calls political freedoms and social opportunities) (Sen, 1999). The human development perspective entered the mainstream of thinking about education and development in the 1990s and it now underpins the international consensus on Education for All and the Millennium Development Goals[1]. However, the human capital perspective continues to influence many educational reform efforts. (Avalos, 2003)

Among advocates of ICTs in education, those who subscribe to the human capital perspective view ICTs as a means to develop workers with the ICT skills that are needed for

[1] Adopted at the United Nations Millennium Summit in 2000 as part of the Millennium Declaration signed by 189 countries, the Millennium Development Goals or MDGs aim to address the most critical development challenges, namely, the eradication of hunger and extreme poverty; achievement of universal primary education; promotion of gender equality and empowerment of women; reduction of child mortality and improvement of maternal health; elimination of HIV/AIDs, malaria, and other diseases; environmental sustainability; and creation of global partnerships for development. (The World Bank Group, 2003; UNDP-APDIP, 2004)

the rapidly expanding ICT industries. They "stress the economic importance of ICTs, stating, for example, that access to information technology is crucial for governance and economic development." (Czerniewicz and Brown, 2005, p. 43)

Those who subscribe to the human development perspective advocate "harnessing ICTs in the service of equitable development." (UNDP, 2001, p. 2) For them, ICTs are important because they enable individuals and communities to exercise their rights and participate more fully in democratic life. (Czerniewicz and Brown, 2005) Few would argue with this ICT4D (ICT for Development) perspective, as it is called. However, many national ICT campaigns, including ICT programs for schools, are driven by human capital assumptions that tend to ignore and/or undervalue human development aims.

In the Philippines, policy statements on ICT integration in Philippine basic education seem to reflect a human development perspective. However, key ICTs for schools programs tend to be informed by a human capital approach. This paper discusses the limitations of these programs, and proposes alternative policy directions based on a human development framework for ICT integration in Philippine schools.

Human Capital Discourse in ICT Integration Practice in Philippine Basic Education

Policy on the use of ICTs in the Philippine basic education system is articulated in two official documents: the Medium Term Development Plan of the Philippines (MTPDP) 2004-2010 and the 2002 Basic Education Curriculum (BEC). The MTPDP states:

> ICT will be harnessed as a powerful enabler of capacity development. It will therefore be targeted directly towards specific development goals like ensuring basic education for all and lifelong learning, among others. (National Economic Development Authority, 2004a, p. 2)

BEC (2002) stipulates the following as the goal of Philippine basic education:

> We have to educate our Filipino learners to filter information critically, seek credible sources of knowledge, and use data and facts creatively so that they can survive, overcome poverty, raise their personal and national esteem, and realize a gracious life in our risky new world." (p. i)

The use of ICTs in all learning areas is encouraged as a means of promoting greater interactivity, widening access to knowledge that will enrich learning, and developing "skills in accessing, processing and applying information, and…in solving mathematical problems and conducting experiments." (Ibid., p. 15) BEC also recognises the need to harness ICTs in "the acquisition of life skills, a reflective understanding and internalization of principles and values, and the development of the person's multiple intelligences." (Ibid., p. 8)

Both the MTPDP and BEC appear to subscribe to a broad view of education and human development, one encompassing not only education for economic productivity but

also education for personal and social development. ICTs are understood to be simply the means to this broad goal. However, a close look at key ICT integration programs for Philippine schools will show that they are underpinned by a narrow human capital framework.

The most visible of these programs is the multi-billion peso computerization and Internet connectivity program for public secondary schools participated in by various government and nongovernment organizations.[2] The school computerization campaign has been lauded as a flagship project, in line with Philippine President Gloria Macapagal Arroyo's promise to provide all schools with computers by the end of her term (Inaugural Speech of PGMA as the 14th President of the Republic of the Philippines, 30 June 2004).

The project is remarkable, not least because it is being pursued in the face of persistent massive shortfalls in classrooms, textbooks, and teachers due to the perennial lack of funds for basic education.[3] Proponents of the Internet connectivity project claim that the Internet is a solution to these shortfalls:

> …The Philippines' huge budget deficit and the country's myriad of needs make it difficult for the government to increase its education spending… [which] manifests itself in the lack of classrooms and teachers, poorly trained teachers, underdeveloped curricula and practically non-existent libraries.
> …
> With the Internet, we have found a powerful and efficient tool to address the education gap among the country's youth. Access to the Internet democratizes information [sic], giving students free access to electronic encyclopedias that aid in research, math, science, and languages.
>
> …Computers and Internet access facilitate networking among schools and promote the sharing of teaching modules, the standardization of material, and teacher training… (GILAS, 2005)

[2] As of 2005, the DepED school computerization campaign, with an annual budget of Philippine Peso (PhP) 110 million, has equipped an estimated 69% of the Philippines' 5,443 public secondary schools with at least one computer each. (DepED, 2005) DTI's PCs for Public Schools Programme, with an annual budget of Php 600 million from a Japanese government grant, has deployed up to 20 PCs per school to 2,096 public high schools. (GILAS, 2005) The CICT has launched a Broadband Deployment Programme which targets both schools and local community centers. The GILAS (Gearing Up Internet Literacy and Access for Students) project, with a budget of USD 28 million, is a partnership between the private and public sector aiming to provide Internet access to all public secondary schools by 2010. (Ibid.) Other smaller initiatives are the Department of Science and Technology's project to distribute 10-15 PCs per school to about 200 Science & Technology oriented schools, and donations by private corporations and nongovernment organizations of PCs, local area networks, and free Internet access to some 200-250 schools. (Tinio, 2002, p. 5)

[3] Although the education sector gets the lion's share of the national budget (net of debt service), 89% of Department of Education's (DepED's) budget is for the salaries of its more than 500,000 employees. (DepED, 2005) Thus, the Philippines spends only a fraction of what developed countries spend per student per year: PPP (purchasing power parity) USD417 per student per year, compared to PPP USD995 in Thailand, PPP USD2,289 in Korea, PPP USD4,369 in The Netherlands, and PPP USD7,186 in the United States. (UNESCO, 2005) In 2002, there was a shortage of 51,947 classrooms, 4.56 million desks and chairs, 34.7 million textbooks, 38,535 teachers. This is a chronic shortage, since the number of public school students, about 18 million in 2005, increases by 2.8% annually. (Abad, 2005)

However, the counter argument to this is simply that, as Sir Arthur Clarke puts it, "A computer in every classroom is a noble goal—provided there *is* a physical classroom in the first place. A multimedia computer with internet connectivity is of little use in a school with leaking roofs—*or no roof at all*." (Foreword to UNDP-APDIP, 2004) In other words, while strategic use of digital technologies might enable developing countries to fill certain gaps in education provision (as discussed in the next section), some education problems require simpler and less costly solutions—and they need to be solved first. Not only will it cost far less to construct school buildings, purchase textbooks, and train new teachers than to provide the hardware, software, and netware necessary to connect the country's more than 5,000 public high schools. It is also these "traditional" learning resources that have been found to have the biggest impact on quality of learning in severely under-resourced schools. (*EFA Global Monitoring Report 2005*)

Insisting on a "high-tech" solution to a problem that clearly calls for a "low-tech" solution is not unlike saying that people who do not have bread to eat should be given cake instead. So why solve the problem in this way? The Internet connectivity proponents say:

> For many Filipino youths, high school is the highest level of education that they will be able to afford and attain before they join the work force. That low level of education is a severe handicap because work force productivity and competitiveness depend much on the modern worker's ability to harness the tools and resources available on the Internet. It is imperative that our public high school students gain basic literacy in the Internet environment as early as possible. (GILAS, 2005)

Here the human capital perspective is unmistakable. This perspective is also evident in the fact that although BEC advocates using ICTs as learning tools, there are still no curricular guidelines for integrating ICTs in the learning areas[4] and what exists is a curriculum for computer education classes for junior and senior high school students. This curriculum will soon be "complemented" by technology literacy standards for teachers which are being developed as part of a strategy to develop computer literacy among the country's public school teachers (Villafania, 2005).

Using the same human capital assumptions that underpin the school computerization campaign, the development of ICT literacy standards for teachers, as well as for students and school administrators, seems commonsensical. But again, a close look raises several questions. First, how effective are the standards going to be in the absence of models, incentives and support for teaching and learning with ICT? Without the latter, standards are nothing more than a managerialist tool that reduces teaching to performance (or compliance) and curricular reform to a technical process (Hargreaves et al., 2001).

[4] This lack was cited by Tinio in a 2002 survey of 100 public high schools as one of the reasons why only half or fewer of the teachers and students in those schools reported having been able to use the computer as an educational tool.

Second, how valid is the assumption, embedded in the emphasis on ICT literacy standards and school computerization and connectivity, that technology literacy, "the ability to use technology hardware and software" (Haddad and Draxler, 2002, p. 11), will make individuals and nations globally competitive?

In fact, technology literacy is only one of eight types of literacy[5] that individuals need to be able to use and produce knowledge in the 21st century. (NCREL, 2003) Individuals also need higher order thinking skills and collaborative and communication skills. (Ibid.) In short, the global knowledge-based economy requires "*highly skilled* knowledge workers" (Olssen and Peters, 2005, p. 333, my emphasis): individuals who can develop new products competently and efficiently and who can quickly learn new skills for new jobs, as well as "highly trained scientific, technological, and processing personnel…with sophisticated research skills, who can understand fully material, scientific, technological, managerial, and social developments, and who can take the lead in their assessment, adaptation, and local application." (Haddad and Draxler, 2002) Knowing how to operate a computer or how to use office software, which is what learners would get out of a high school computer education class and which is what is being given importance in the draft ICT literacy standards, hardly qualifies as a high-level skill.

More significantly, there is a mismatch between the kinds of (ICT) skills that are being developed in our schools and the skills needed for information-based industries. Leaders of local ICT industries have lamented that "industry cannot find a match for their needs in the many graduates of IT courses" in the Philippines. (Barrer, no date) The mismatch is symptomatic of the "diploma disease" that education systems contract from trying to comply with "training and allocation pressures." (Little, 1994, p. 66) One such pressure is the Philippine government's call for schools to produce graduates with the IT and English language skills needed to fill the 40,000 call center jobs that become available each year.[6] (*Sun.Star Bacolod*, 2004) Although this seems like a boon for a country with a high unemployment rate, the long-term impact is questionable, as it bolsters the global division of labor in which "much of the labor intensive manufacturing [and services] is being relocated to wherever in the world production costs are lowest" (Tikly, 2001, p. 159) In this scenario, developing countries like the Philippines become "globally competitive" by developing low-level skills that are needed for the new global production processes, while neglecting to build capacity in high value-added sectors.[7] (Ibid.)

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[5] The other seven are basic literacy (including English language proficiency and numeracy), scientific literacy, economic literacy, information literacy, visual literacy, multicultural literacy, and global awareness. (NCREL, 2003)

[6] The estimated value of the call center industry in the Philippine in 2004 was USD846 million, with an estimated annual growth rate of 100%. To meet the annual demand for 40,000 call center jobs, the Philippine government has called upon schools to improve their IT and English language curriculum. (*Sun.Star Bacolod*, 11 November 2004) The Philippine president recently called for the reinstatement of English as the medium of instruction in schools.

[7] Another example of how training and allocation pressures can screw up development priorities in the Philippines is the (mad) scramble among various providers, both legitimate and not, to offer nursing programs, in response to the increased demand for nurses in Europe and North America. There is the equally disturbing trend of medical doctors enrolling in these programs in order to be qualified for nursing jobs abroad. Many Philippine hospitals are already suffering from lack of nurses, and it looks like they will be losing doctors as well.

Finally, ICT investments do not necessarily improve economic productivity in countries where the more urgent need is for investments in agriculture, health care, and universal primary education, for example. Instead, there may be "unacceptable tradeoffs" with development goals when ICTs are treated as a 'techno-quick-fix' for problems of development. (UNDP-APDIP, 2004, p. 18) For example, at the level of individual schools, one of the tradeoffs for acquiring computers is a classroom (or two) that has to be retrofitted into a computer laboratory. Schools also have to bear the recurrent maintenance costs, without assurance of additional funds from the local school boards. For the Philippine basic education system as a whole, the opportunity cost of the multi-billion peso school computerization and connectivity campaign is significant funding for basic infrastructure (e.g., classrooms, libraries, science laboratories, toilets), learning resources (e.g., textbooks, reference materials, teaching aids), teacher training, and programs that address major gaps in education provision, such as the multigrade program; the program to improve reading skills; programs to keep poor children in school; and basic education programs for Muslim Filipino and indigenous peoples. There are other tradeoffs, as the next section will show.

Human Development as an Alternative Framework for ICT Integration in Philippine Schools

From a human development perspective, massive investments in ICTs are acceptable only if these will result in broad-based and equitable development. Such an outcome is something that policy makers need to safeguard, first because ICT initiatives are neither neutral nor benign:

> Choices guiding ICT initiatives in Asia are often driven by economic and commercial interests… [and] governmental agendas such as political interest, social policy and military security [that are] not always consistent with promoting human development. (UNDP-APDIP, 2004, p. 28)

Furthermore, simply deploying ICTs can exacerbate existing inequalities and create new ones. (Pradhan et al., 2005; UNDP-APDIP, 2004) For example, access to computers in schools may be unequal between girls and boys, among the different year levels or age groups, between teachers and students, and even among teachers (e.g., computer teachers usually have better access to computer facilities than teachers of other learning areas). The digital divide, as the problem of unequal access to ICTs is called, reflects "existing broader socio-economic inequalities" (UNDP-APDIP, 2004, p. 23).

ICT4D advocates underscore "the importance of building adequate capacity throughout society, *including marginalised groups*, and the need to *address educational imbalances* in order to meet the demands of the information society." (Uimonen, 2004, p. 117, my emphasis) School computerization and connectivity proponents in the Philippines would probably argue that they are already doing this, since in targeting public secondary schools as recipients they are reaching out to learners who are disadvantaged by poverty and

geographic distance from urban centers.[8] But this argument ignores the fact that high school students represent a minority of the school-age population in the Philippines. High school graduates in the Philippines constitute only a third of the total number of children who enter Grade 1 and about half of those who finish Grade 6. (Abad, 2005) This calculation uses as baseline the total number of children who are in school and excludes the estimated 1.2 million 6- to 11-year-olds (as of 2002) who are not in school, as well as the 4 million Filipinos 10 years old and above who are not literate (about 5% of the total Filipino population) and the 10 million or so functionally illiterate youth and adults (about 12% of the total population).

Among those who have no access to basic education are children in conflict-afflicted areas (mostly in Southern Philippines), ethnic minorities, those living in remote communities, migrants, child laborers, unemployed or low-skilled workers, and the disabled. Their continued exclusion from educational opportunities is a violation of the right to education, as well as a serious barrier to social and economic progress. It not only keeps them from earning jobs that will enable them to have a decent standard of living, but also limits their capacity to participate in political and cultural life, which is a disadvantage to themselves as well as to their communities and the nation as whole.

For this reason, and following the global call for education for all, policy makers must put in place programs that give out-of-school children and illiterate youth and adults real opportunities for learning. ICTs, in particular radio, television and print, have an important role to play in such programs. Radio- and television-based distance learning programs have been proven to be a highly effective but relatively cheap means of delivering literacy and primary and secondary education in developing countries. (cf. The World Bank, 2003; *EFA Global Monitoring Report 2006*; UNDP-APDIP, 2004) Unfortunately, ICT planners and policy makers tend to be fixated on "high" technology. For them, computers and Internet access are the "default solutions" to lack of access to technology when "[o]ften, what people really want is a public telephone that works dependably, or literate facilitators who can assist them with bureaucratic procedures" (Pradhan et al., 2005, p. 11)

This is not to suggest that there is no place for computers and the Internet in Philippine public high schools. But it is important for education authorities to have a clear vision of the specific educational purposes that such technologies can best serve. Current efforts are far too technology-centred, which is not surprising because they are led by groups outside of the education sector, individuals with expertise in information technology and business management but with only a superficial knowledge of education. Thus, for them the problem to be solved is simply lack of technology, and they pay little or no attention to the "educational, pedagogical, institutional and financial sustainability dimensions" of ICT integration in schools (Isaacs, qtd. in Uimonen, 2004, p. 119). In his study of the implementation of technology grants in the Los Angeles public school system, Monahan (2004) reported that "a commonly voiced frustration [in the recipient schools] was the incredible influx of financial support for equipment but only a meager trickle for network support or staff training." (Monahan, p. 373) This is also the case in the Philippines where

[8] The GILAS project, for example, makes a point of how important it is to put public high schools on par with private high schools in terms of access to the Internet. (GILAS, 2005)

the bulk of funding for ICT projects goes to hardware and hardly any goes to teacher training.[9]

In fact, making teacher professional development the priority aim of the Philippines' school computerization and connectivity program would be a more effective, appropriate, sustainable and long-lasting approach to improving learning outcomes than simply making computers and the Internet available to students. Teachers are the key to the success of any education reform effort, including those that aim to improve learning outcomes using ICTs. As Carlson and Gadio (2002) remind us, "Educational technology is not, and never will be, transformative on its own….teachers are the key to whether technology is used appropriately and effectively." (p. 119) However, we have an acute shortage of teachers, as well as significant numbers of teachers in service with less than satisfactory qualifications.[10]

Traditional (print-based) and online (asynchronous) distance education programs are a means of helping teachers upgrade their knowledge and skills while they continue to teach —an in-service teacher training approach that is both practical and pedagogically effective. (*2005 EFA Global Monitoring Report*) Television, video, and the Internet can also be used to provide teachers with access to educational resources and models of good teaching practice. (Haddad and Jurich; 2002; Carlson and Gadio, 2002) Using ICTs to train teachers is likewise an effective way of developing their capacity to teach with ICTs. Teaching effectively in ICT-enhanced learning environments requires not only ICT skills but also appropriate pedagogical knowledge and skills, including the ability to develop higher-order thinking, information-reasoning skills, and collaborative learning skills. (cf. Loveless et al., 2001; Wheeler, 2001) Teachers also need to become more learner-centered, "interdisciplinary, … and adaptive to individual learning styles." (Carlson and Gadio, 2002, p. 120) Thus, teachers need training in how to teach effectively with ICTs, as well as continuous technical and administrative support.

Besides teacher training, content development is vital to the success of ICT in education programs in developing countries like the Philippines. Lack of relevant and appropriate content, especially in the local language/s, is a serious impediment to the use of ICTs in schools. For example, in Tinio's 2002 survey of 100 Philippine public high schools, the limited number and variety of subject-specific educational software was found to be one of the reasons for the underutilization of the schools' computer facilities. While there were a few educational software for Science, English and Mathematics, there was none at all for music, art, and subject areas requiring local content in the local language such as Araling Panlipunan (Social Studies) and Filipino (National Language and Literature). (Tinio, 2002) Even the World Wide Web is severely lacking in content in languages other than English.

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[9] DepED estimates that only one out of seven schools has teachers who are computer literate. (Abad, 2004) Moreover, training opportunities in ICT-enhanced teaching are generally limited. In 58% of the 100 public high schools surveyed by Tinio in 2002, only half of the teaching staff have undergone computer-related training; 12% of the schools reported that their teachers have had no computer-related training at all.

[10] Significant numbers of teachers teaching Science and Mathematics in Philippine high schools are not majors in those subject areas. And in a recent Self-Assessment Test for English administered by DepED, 80% of public school teachers admitted inadequate proficiency in the English language. (Abad, 2005)

Also, most of the content available on the Web and in commercially available multimedia resources needs to be "customized" or adapted for local uses and contexts.[11]

Conclusion: Placing People at the Center of ICT in Education Policy and Practice

In recent years, pressure has been mounting for the Philippine Department of Education to introduce computer technologies (including the Internet) in schools. This pressure is coming from highly influential groups, including top government officials and business and financial leaders, aside from the IT industry itself, who consider the adoption of computer technologies to be indispensable to economic development. This pressure, coupled with many other challenges, is making it difficult for the basic education sector to form a clear understanding of the proper role of ICTs in schools. This is evident in the fixation on making the technology widely available but without adequate provision for the appropriate and effective use of the technology to achieve education for all, defined internationally as basic education of good quality for *all* children, and literacy, numeracy and essential life skills for all young people and adults.

The human development framework for ICT integration in Philippine basic education that is proposed in this paper begins with a reaffirmation of the goal of education for all, and then considers how ICTs can be harnessed to achieve it. It pays particular attention to ensuring that ICTs in schools do not deepen inequalities in education provision, which in turn exacerbate political, social and economic inequalities in society; and that ICTs will be utilized to develop skills that will empower individuals to fully participate in and have a good quality of life in the knowledge society. To this end, the framework accepts the continuing relevance of older technologies in making educational opportunities accessible to marginalized groups. It also places emphasis on developing the capacities of teachers and learners to use ICTs to learn and to transform the information that ICTs make accessible, into knowledge that is useful to themselves and their communities. Thus, the framework places "people, rather than ICT, at the heart of the information society." (Pradhan et al., 2005, p. 4)

[11] This is another reason why ICT in education programs should develop not only technology literacy but also, and especially, information literacy, critical thinking, and other skills needed to enable teachers and learners to transform information into useful knowledge.

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