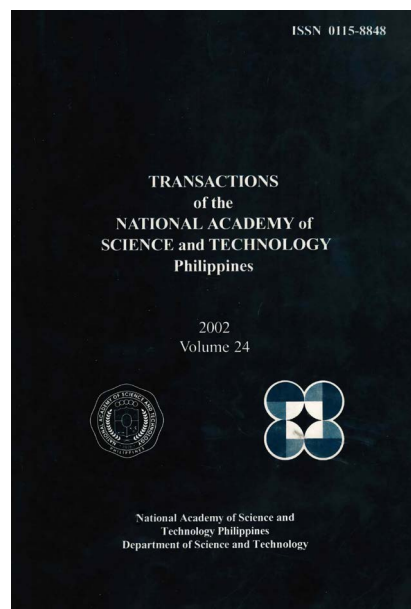


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ICT Road Map In Engineering: The Academe

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ICT ROAD MAP IN ENGINEERING: THE ACADEME

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ABSTRACT

In the field of ICT itself, the Philippine schools hold great promise. The immediate challenge before ICT schools is to bring standards up to international levels – to have the graduates certificated to appropriate standards. Another challenge is to make the global connections with industry in order to produce the ICT professionals they need and demand. ICT opens up avenues to places where Philippine technological schools have never been to. The Web has enabled schools to share their libraries and other educational materials and even their faculty with other schools around the world. In the area of research, the internet, with its many-to-many nature, has dramatically facilitated collaborative research work. ICT also makes it possible for Philippine technological schools to undertake research and development in ICT software research which is less expensive and where Filipino engineers can have a competitive advantage. Computers and networks have proven effective in the teaching and learning process.

Keywords: ICT, internet, web,

INTRODUCTION

A road map shows the links among various points in geographic space. To use it, one first locates his present position and pinpoints his destination on the map, looks at the possible routes and then chooses a good one using some criterion or criteria such as minimum time, shortest distance or perhaps most scenic encounters, etc. But even if one were not going anywhere just looking at a road map can be very instructive.

At the risk of sounding too mechanical, I would presume that an ICT Road Map for Philippine technology schools would serve an analogous purpose. How do we draw this ICT landscape, indicate the links, locate our position, choose our destination and plot our course?

You Are Here!

Philippine technological schools, just like all the other Philippine schools have suffered and continue to suffer from a severe paucity of resources. State schools pale in comparison with other schools in the region due to lack of government support or inability to raise tuition or other funds. So do private schools, which can provide quality education only up to the level that can be afforded or ill-afforded by its students.

Just barely able to provide professional training to its students, Philippine technological schools cannot and have not made any significant dent in research, which by any measure, in the field of engineering, is an expensive undertaking. Thus, in the landscape of local technological education there is yet no traveler labeled "*research school*." There are schools, however, that are good teaching schools - good enough to be the source of engineers to the world despite the great odds.

In the field of ICT itself, the Philippine schools hold great promise. English being the basis of most programming languages, it would appear that heaven has thrown on our laps a competitive advantage. It would appear too, however, that we sometimes inexplicably want to squander this lead or at the very least not want to hone it. The immediate challenge before ICT schools is to bring standards up to international levels – to have the graduates certificated to appropriate standards. Another challenge is to make the global connections with industry in order to produce the ICT professionals they need and demand.

By and large, Philippine technology schools are not able to generate new knowledge and strain mightily to make sure that the knowledge they transmit are always current. More especially in an era when global outsourcing of technological services is common practice, there is great pressure on technology schools to be at the leading edge and to be training ICT-savvy graduates, ICT being the means that makes global operations feasible.

What ICT Roads Pass Through Here and Where Might They Lead Us?

Indeed ICT opens up avenues, where heretofore there have been none, to places where Philippine technological schools have never been to.

In the area of instructions, the Web has enabled schools to share their libraries and other educational materials and even their faculty with other schools around the world. This has put in the hands of scholars an amazing wealth of knowledge

and resources that enables them to become better students and teachers. For example, the Massachusetts Institute of Technology has, to the consternation of some, initiated what it calls *Open CourseWare* (OCW). If we travel down this road it will lead us to a land of plenty – plenty of knowledge that ultimately is the currency of technological education. But we should be prepared to imbibe what comes our way. How does one drink from a fireman's hose?

In the area of research, the internet, with its many-to-many nature, has dramatically facilitated collaborative research work. According to Herb Brody in an article in *Technology Review*, the internet has enabled scientific projects that never sleep. Researchers can now share electronic fora that allow a great number of inquiring minds to focus simultaneously on any given topic. Experiments could be set up, theories proposed and data reported very quickly. The lag time between conferences and publishing has simply disappeared. With electronic publications, the tradition of circulating preprints only to a small exclusive group of researchers in big, prestigious laboratories has been broken. Laboratories everywhere, including those in the Philippines, can join the fray. A democratic road to research has been opened. Are we ready to travel? The problem is we still have to be able to bring something to the table in order to be a worthy participant.

Another road yet opened by ICT for Philippine technological schools is a possible shortcut to engineering.R&D heaven. Everyone knows how prohibitively expensive engineering R&D can be. ICT software research would relatively be less expensive. Brainpower, while in all cases the critical ingredient, would be very dominant in software such that physical resources might not be a dream-ending constraint. If only we apply ourselves then we can generate resources through ICT research and use this to advance our hopes for research capability in the other technological fields. This road would take us to faraway places – if we want to go there. But then again we may just want to go on a shorter trip to a place called “excellent teaching school.” In any case I think that this shortcut should be part of the map.

Then, there is the e-learning road. There may be plenty of hype but there indeed are ways by which computers and networks have proven effective in the teaching and learning process. Simulation software has been a bright spot. The Web has become a tool for the efficient and quick interaction of teachers and students. Most quarters have accepted that the demand for lifelong learning will increase in the years to come. This belief, together with our schools' desire to use new educational technology, fuels the development of ICT applications in e-learning. Hacking the vines and bushes with ICT as one's bolo, one blazes a trail, to a place no one is really familiar with. Is it a place where there are no residential universities as we know them, as Peter Drucker says? Or is it a place with green malls and small face-to-face classes for the elite and e-learning for everyone else? Or is it a place where e-learning is just an enhancement to education in its present form? But one thing sure is that it will be a place where knowledge could really be available anywhere, anytime.

No Road Not Taken

From a bird's eye view, Philippine technological schools are in a place where the transfer and generation of knowledge is relatively dry. All roads in the ICT map lead to a more vibrant place where there are abundant springs and streams of knowledge, the stuff of education and, lately, the economy.

If it is possible to take all roads all at once then we should do it. Whether we do or not will make all the difference to our country's future (with apologies to Robert Frost).