

**ICTs to Support Learning in Classrooms in
SEAMEO Countries : At What Costs ?**

by

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Introduction

It is a pleasure to address remarks to the first SEAMEO Education Congress. The title, Education and the New Millennium, is timely and appropriate as the countries of Southeast Asia come together to look at the educational challenges they face as nations and as a region. Many of the challenges will be those where the best responses will be those involving the cooperation of several countries in the region. The value of the SEAMEO network will become even clearer as the potential for sharing of experience and resources becomes more widely recognized as imperative.

My remarks here must be brief. There are many leaders and educators to hear from. Therefore, I will come quickly to the point.

My concern is about finding effective strategies for the low-income countries in SEAMEO, and indeed in other parts of the world, to be able to make use of the newer ICTs as educational tools in their classrooms. My concern here is with the use of ICTs in the classroom – at primary, secondary, and tertiary levels. My focus is on the prospects for using of ICTs for children and young people as part of their school experience. Time does not permit me to address distance education or other programs of continuing or professional education where ICTs are being used. These areas are receiving significant attention from others at this gathering.

Since time is limited, my remarks will be limited to answering to questions : What about costs? What about effectiveness? I think that we need to look at the issues of costs, affordability, and educational effectiveness within the framework of the great goal for Asia at the beginning of the new millennium : The reduction of poverty.

What About Costs ?

We have heard at this conference various claims about ICTs related to their costs. Some assert that “costs are falling all the time” or in some cases that the new technology is “almost free.” Such claims represent wishful thinking and at best are premature. We need to treat the issue of costs far more seriously if we are going to devise effective strategies to make use of ICTs in the SEAMEO countries.

Treating costs is difficult because of the shortage of published literature, especially when it concerns low income countries.

The French economist François Orivel (2000) reports on an analysis of the costs associated with educational use of the newer ICTs in the United States and France. He found these two countries incurring similar expenditures. In the United States (based on a 1994 survey), the annual cost was \$70. He notes that in the United States, many school districts are, in fact, spending much more. Some districts making significant use of multimedia capabilities were spending as much as \$ 300. Such expenditure would not

seem to be anomalous in industrialized countries. The *Financial Times* newspaper reported that secondary schools in the United Kingdom spend about 51,000 pounds (about \$75,000) per year to support computer use for education.

For developing countries (where published cost data is more scarce), Orivel (2000, p. 149) found an average per student cost expenditure of \$1.70 per hour. This expenditure, when covering about 40 hours of student usage per year, works out to be \$68 for students in developing countries to learn through ICTs. Orivel's calculations are consistent with other published cost data for developing countries. A study by the World Bank (1998) reported the costs of a large school application of Internet use as \$72. For smaller schools, the figure was \$98 (see Table 1 below). Other studies published by the Bank reported \$78 - \$104 (Potashnik and Adkins, 1996) and \$84 (Osin, 2000). Another study by the World Bank found costs of using computers in schools in Barbados to exceed \$600 per year (Bakia 2000). An analysis by Perraton and Creed (2000) arrived at figures in the range of \$18 to \$63.

Despite the paucity of data for developing countries, the difficulties in comparing different technological configurations, and the variety in educational purposes and strategies utilized, we propose a figure of \$70 per student per year or \$1.75 per student as an estimate at the present time. Many will find it puzzling that these costs are so similar to those of the industrialized countries mentioned above. Orivel points out that unlike conventional instruction where costs consist largely of teacher salaries that are in large measure a function of a country's GNP, the costs the components of the new ICTs applications (hardware, software, and Internet connections) are "first world" costs and will reflect price tags similar to those found in industrialized societies.

How does a \$70 per student per year price tag look when evaluated against the overall educational costs in the countries of Eastern Asia/Oceania? There is a widely differing picture across the countries of East Asia. For the group of "most developed countries" (Japan, Israel, Australia, and New Zealand), the average annual per student public expenditure for primary and secondary education is \$5833 (17% of GNP) and for tertiary education, \$5407 (15.8% of GNP). For these countries, the estimated costs for using ICTs in education would constitute a very small portion of the educational budget.

For the group of 24 "least developed" countries in Eastern Asia/Oceania, the situation is dramatically different. For this group, yearly per student expenditure is as follows: primary, \$108; secondary, \$199; and tertiary, \$817. One should bear in mind that these are averages, which mask considerable variation in this group of countries. In 1993, China, for example, spent \$27 per student on primary education (about 6% of GNP per capita), while Malaysia spent \$336 (about 11% of GNP per capita).

But we may be short-sighted in looking at ICT costs in relation to the entire unit cost of education at a particular level. Educational budgets are made up largely of fixed costs such as teacher salaries – little is available for discretionary expenditures to improve educational quality through such things as purchase and use of ICTs. Adkins (1999) offers a framework of "potential discretionary spending" in which to view expenditures

on educational technology. This analysis assumes 20% of annual total per student cost available for discretionary spending. Adkins' analysis was done for primary education. We will extend it here to secondary and tertiary education for illustrative purposes and admit that this is done without a thorough empirical analysis of public expenditures at these levels. Average potential discretionary spending, as described above, for the group of least developed countries in Eastern Asia/Oceania in 1997 breaks down as follows: primary education, \$22; secondary education, \$40; and tertiary education, \$163.

Our conclusion is that for the lower income countries of both East Asia/Oceania, the affordability of ICTs within the scope of current public expenditures for education looks very difficult indeed. If the use of ICTs in education are not going to be limited to the most affluent schools and communities, cost containment must become a driving force in national and regional strategies and programs.

What about Effectiveness?

The literature on the use of ICTs for education in developing countries reveals little about the educational effectiveness of using ICTs in the classroom. Usually we are presented with conclusions about the evidence for the effectiveness of ICTs as "inconsistent" or "undemonstrated" or "too early to ascertain." We also find it common to discuss effectiveness based upon the anticipation of presumed and valued benefits (e.g. individualization of instruction). In other cases, the educational aspect of ICT applications does not seem to be discussed at all. Mention is made of software or Internet connections but little is reported on what is being done (or expected to be accomplished) in concrete educational terms. This makes it very difficult to begin understanding the effectiveness of ICTs to support education when the educational experiences they are meant to guide remain vague or cast in purely speculative terms about presumed effectiveness.

What may be the most troubling issue of all to educators is the inattention given to the "language of instruction" of ICTs. It is estimated that about 80% of all Internet sites are in English. Although considerable concern has been expressed about this fact, the educational implications are so far being inadequately assessed. Even in Asian countries where English is being taught as a second language, the ability to communicate and learn effectively in English is a serious problem for the great majority of students.

In closing, I would like to underline the fact that our information on costs of using ICTs in the countries of Asia and in developing countries in other parts of the world is incomplete and prone to becoming out of date quickly. More needs to be done to obtain cost and financial data. It is hoped that this is something that SEAMEO might be invited to assist.

Countries must be prepared to make difficult choices about when and where it is cost feasible to use ICTs in education. Donors, lenders, and other professional organizations with an interest in education in Asia need to join forces in illuminating cost-feasible options. This is an area where the SEAMEO countries should consider acting together.

There are, we believe, substantial obstacles that stand in the way of making wide use of ICTs in classrooms in SEAMEO countries. It is important that we be candid about costs and effectiveness. But this is not an invitation to looking fatalistically at the use of the ICTs to shape education in the future. There is hard work that needs to be done. My hope is that the leaders and educators in the SEAMEO countries will join hands in confronting this great challenge.

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