

**Developing a Suite of Web-Based or CD-Based Practical
Home-Kit Aids for Teaching Analytical and Food
Chemistry**

MAHESWARAN SITHAMBARESAN

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Abstract

Sri Lanka along with another one hundred and eighty countries is signatory to the Jomtien Declaration on Education for all, and the Dakar Framework of Action on Education. These and the Asia Pacific regional instruments specify the inclusion of Information Technology in curricula at all learning levels. Thus Sri Lanka is obligated to increase educational opportunities and provide IT learning to all in an environmentally friendly manner. One attempt to solve this problem is through distance education.

In fact there is a further national imperative. According to World Bank predictions, unless at least 8% of the University age population (aged 18-22) are engaged in university education leading to a degree, there is little chance of reaching Newly Industrialised Country status. While the figure is 40% for the US and 11% for Malaysia, it is a mere 2.3 % for Sri Lanka. The economic advancement of the country therefore hinges on getting significantly more students into the University-going category. Conventional education has limitations through resources for buildings and the availability of highly qualified staff. Distance education through the Internet provides a means of increasing enrolment without a corresponding increase in resource allocation and it is vital particularly in geographically remote areas and the areas where armed conflict occurs.

But distance education has two limitations. First, the student is isolated from fellow students and the teacher. So the failure rate is high. And second, for testing and assessment

and for laboratory work in science education, the student is required to come to a centralised location.

In this thesis it is suggested that IT-based distance education as a means of overcoming these problems. With the view of demonstrating the principles developed and the methodology used for enhancing the distance experience, adapted and tested for performance at home some practicals with safety features necessary for the students in General Chemistry, Analytical Chemistry, Food Chemistry, Chemical Engineering and Environmental Engineering/Science for undergraduates with a toolkit and CD/Web-based instructions with animated pictures, photographs and video and audio clips. A toolkit with any chemical not available in the students' neighbourhood is sent to students. The Internet-based chatting facility is provided for discussion and this helps ameliorate the separation between teachers and students in distance education.

The examination/assessment problem in distance education is solved by introducing the online examination through which students can sit for examinations reliably with student identification from any part of the world.

The cost of hardware is going down gradually and it is possible for many people to have a computer of their own. However, access to computer facilities should be facilitated by providers since the price of a computer is still expensive for some families especially in developing countries like Sri Lanka.