Some Lessons from an Experiment in eLearning: TCS' Computer Based Functional Literacy Programme

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Abstract

Our generation has arrived at the shores of the Information Era and Knowledge Economy, and is set to sail on the vast ocean of eLearning to enter the Knowledge Based Society of the future. The presumptions of this ocean are that all are literate, both in traditional terms and in terms meaningful usage of computers, and that information and communication technologies are pervasive in society. The ASEAN countries have seen dramatic National improvements in literacy in the past fifty years, which correlates well with improvements in GNP and Per Capita Income. Also, their focus on development has seen large strides in the assimilation of ICT by society at large. Unfortunately, India lags the ASEAN countries on both these counts. The 2001 census shows that approximately only 65% of the population is literate, with about 150 million adult illiterates. This speaks of a large chunk of the population that is far from the shores of eLearning, ignorant of the digital divide, and unable to participate in the emerging Knowledge Based Society. The largest constraints to improving literacy are the paucity of dedicated and capable teachers, their individual productivity, and the non-availability of pervasive ICT infrastructure, particularly in the rural areas. To this end, in the second quarter of 2001, TCS started an experiment in delivering eLearning through technology, one of the themes of this conference, by developing, testing and deploying technology called Computer Based Functional Literacy. This paper briefly describes the experiment, outlines the technology, identifies the lessons to take away from this experience and points to concerns to be addressed by technology for eLearning in the future.

The target audience of Computer Based Functional Literacy (CBFL) technology are working adults who speak their language, but who do not know to read or write. The goal for the technology is to teach them to read and write, and to be conversant with numbers and arithmetic. The approach is to teach them to learn to read, and to motivate them to learn thereafter on their own by learning to use CBFL technology. The result so far is that it takes 40 hours of instruction, or less, to teach working adults to read in an Indian language, spread over 8 to 12 weeks. This is borne out for the 5 Indian languages the experiment has covered as yet, and for a tribal language in South Africa. The simple test applied at the end of the learning experience is the ability to read a newspaper. Over 40,000 have benefited from this experiment, validating the premises underlying the design of this technology, but

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pointing to infrastructure and logistics and resource management problems that lie ahead. The experiments underline the importance of a sound philosophy in identifying the core concepts to be conveyed by instructional material, the need for mapping them transparently into audio-visual elements suitable for exploiting multi-media technology, a clear storyboard for engineering the efficacy of instruction and the support for learner paced progress through it, the importance of using (audio-visual) feedback in assisting and correcting the learner. The experiment also points to the need for integrating a variety of reasoning technologies, particularly case-based, rule-based and model-based reasoning, to support instruction as well as assessment and feedback, into the instructional material. This correlates well with other TCS experiments in modelling and simulation in the context of engineering education.
