Chapter 5
Digital Doorways

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ABSTRACT

The Digital Doorway is a joint initiative between the Meraka Institute of the Council for Scientific and Industrial Research (CSIR) and South Africa's Department of Science and Technology (DST), with a vision of making a fundamental difference to computer literacy and associated skills in the South African population. Underpinning the project is the idea of people's inherent cognitive ability to teach themselves computer skills with minimal external intervention. For this to happen, computers must be easily accessible to potential learners in an environment conducive to experimentation. Given the low percentage of communities in disadvantaged areas in South Africa with access to computer infrastructure, Digital Doorways are installed in communities where the need is greatest. The systems are extremely robust and employ open source content. The project team has moved from an action research to a design-based research paradigm, simultaneously deploying and improving the systems over the past six years. The novel method of instruction (unassisted learning) and the challenging operating environment call for both innovation and careful engineering of all aspects of the system. User interaction at the sites has been carefully observed. Numerous challenges, complexities and controversies, both social and technological, have surfaced and continue to surface as the project progresses. Valuable learning has been acquired around community engagement, ownership and site acquisition and numerous 'soft' issues that ultimately determine a project's success or failure. Both qualitative and quantitative research have been conducted. Feedback from users has been mostly positive and there is a demand both from government and private sector companies for many more Digital Doorways to be deployed throughout South Africa

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and worldwide. Sustainability, community ownership and maintenance remain the greatest challenges to the long-term success of the project. Despite the challenges, unassisted learning can be effectively used to provide basic computer literacy training in rural and impoverished communities in South Africa.

INTRODUCTION

On the outskirts of Kei Mouth in the Eastern Cape province of South Africa, lies the impoverished township of Cwili. The residents of this area were the first recipients of a public computer terminal (see Figure 2) designed by the Council for Scientific and Industrial Research (CSIR) to provide an alternative means of ICT literacy delivery, where the focus was specifically on learning without formal teacher intervention. The novel ICT education project was named the 'Digital Doorway' (DD) and from its humble beginnings in 2002, grew to a large multi-provincial drive to increase computer literacy in South Africa.

This chapter will provide an overview of the DD project, highlighting some of the technical aspects of the design, the research philosophy, various social issues encountered, and some of the lessons learned during its six years of implementation. The mix of theory, technical challenges and social aspects reflects the complexities that are encountered in projects of this nature.

BACKGROUND AND OBJECTIVES

There is a great need for increased access to computer infrastructure in South Africa and Africa. Table 1 tabulates the extent of schools with computers for five African countries.

In 2000, Dr Sugata Mitra of NIIT, India began his innovative 'Hole In The Wall' experiment by placing a computer into a recess cut in a wall. Via a video camera in a tree, he observed how members of the community interacted with this high tech device, even though they had never before used a computer (Mitra, 2000). After some months of observation Dr Mitra concluded that unassisted learning through trial and error is indeed an effective mechanism for supporting the acquisition of basic ICT literacy skills. NIIT proceeded to deploy similar devices around India (see Figure 2).

The CSIR in South Africa exists to promote basic research and to find mechanisms for that research to be turned into beneficial implementations. One of the CSIR's goals is to find ways of making a tangible improvement to the lives

Figure 1. Users, both young and old, of the first Digital Doorway (a single-terminal), in Cwili, Eastern Cape, South Africa. This DD was the first public computer in the area that was both available and accessible to the entire community and not under lock and key within a school laboratory.