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Chapter IV

Smart ProFlexLearn: An Intuitive Approach to Virtual Learning Environment

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ABSTRACT

This chapter is based on the authors' vision that "A virtual university should be, to the learner, a distance or online learning environment that can be transmitted via the World Wide Web by an intelligent tool that is intuitive to use, a simulation of the real-world learning experience and, at all stages, interacts with the learner's changing profile."

INTRODUCTION

The chapter looks at the background of Distance Learning Tools (DLT), the development of "Promoting Flexible Learning" (ProFlexLearn) as a DLT, the background of Intelligent Tutoring Systems (ITS), introduces Learner Profiling (Communication Preference {CP}, Learning Styles {LS} and motivational factors), the development of ProFlexLearn into a **W**eb **I**ntelligent **S**tudent **D**istance-**e**ducation **M**odel (WISDeM), and its architecture and future improvement as a generic Intelligent Tutoring System (ITS).

DISTANCE LEARNING TOOLS

Computer Assisted Learning has been developing since the 1950s' simple Linear Programs (English & Yazdani, 1999). The current vogue is to offer so-called Virtual Universities with many institutions recycling material, creating web sites and claiming delivery through a Virtual University: in reality, learning in a university relies not only on the official modular content, but on the inter-personal communication between student-student-tutor and the way the module is presented. The general accepted standard is that a learner must be able to experience Self-Directed Learning, Asynchronous and Synchronous communication (Ryan et al., 2000). Bouras and Philopulos (2000) consider in their paper that the "Distributed Virtual Learning Environment," using a combination of HTML, Java and VRML (Virtual Reality Modelling Language), providing Virtual chat rooms, lectures using announcement boards, slide presentations and links to WWW pages, makes learning easier. Cooper's (2000) research shows that post-secondary institutions want to offer online facilities to meet the educational needs of a fast-paced, computer literate society. Hegarty et al. (1998) provide a step-by-step guide for setting up distance learning classrooms using telecommunications technology. Marshall-University (1999) reports that most DLTs combine, to a greater or lesser extent: *Authentication* for access, *Communication* — asynchronous/synchronous, *Course Control*, *Help*, *Manuals* — student and tutor, *Questions & Answers*, and *Students* presentation areas. JCUs' (2000) research indicates that the two most popular academic DTLs are Blackboard™ and WebCT™ following in-depth research they purchased Blackboard™— neither *allow full customisation nor do they include artificial intelligence (AI) or profiling.*

PROMOTING FLEXIBLE LEARNING

ProFlexLearn interactive MLE System was developed in 1995/1996 under the guidance of Dr. Claude Ghaoui of Liverpool John Moores University (Ghaoui, 1996/1997). Further developments of the system and the creation of online learning material continued from 1995 and linked into a composite site: it developed into a fully functional DLT offering all of the usual DLT components (see Cooper, 2000; Hegarty et al., 1998; IsaBelle & Nkambou, 1998; JCU, 2000, for a detailed listing of components offered in DLTs). During 1998/1999 these were amalgamated onto a Unix server linking some fifty-seven separate web sites with a common front page. Interactive tutorials and other facilities, such as forum, feedback and search were added using CGI/Perl scripting. ProFlexLearn contains circa 760MB of information and various tools/facilities that are designed to assist a student to benefit from self-directed, asynchronous and synchronous learning (see Ryan et al., 2000, for a discussion on these). The site is designed in three sections:

(i) *"Learning Materials of Modules"* which provides all the materials required for the six HCI related modules (Human Computer Interface — HND, Human Computer Interaction — M.Sc., Introduction to HCI — B.Sc., Multimedia Applications Workshop — M.Sc., Multimedia Authoring — B.Sc., and User Interface Design — B.Sc.).

(ii) *"Other Courses"* which provides additional relevant information to the Modules. This contains the main bulk of additional information being, as mentioned above, a conglomeration of student web sites that have been specifically prepared over