

Chapter VII

Design–Personae: Matching Students’ Learning Profiles in Web–Based Education

J. Martin

RMIT University, Australia

E. McKay

RMIT University, Australia

L. Hawkins

RMIT University, Australia

V. K. Murthy

RMIT University, Australia

ABSTRACT

Ever since the enthralling book Rethinking University Teaching: A Framework for the Effective Use of Educational Technology (Laurillard, 1993) the literature has burst forth with a plethora of new and exciting ways for teacher and student use of information and communications technology (ICT) to enhance learning. Our chapter mirrors the enormous spread of professional practice involved in bringing about effective human-computer interaction (HCI) for Web-based education.

SUMMARY

Designing effective and contemporary online learning environments presents major challenges for academic practitioners (Seagrave & Holt, 2003). This chapter is set within a social science context to convey a practical way to develop a flexible educational program. A theoretical case

study situates our example of how to utilize a *design-persona* with characteristics that represent an individual student or a complete program cohort. We argue there are two issues involved in persona design. Firstly, educational designers need to know how to satisfy an ever diverse range of learners’ needs for experiential learning. Secondly, the online developer needs to know how to

implement satisfying instructional strategies with the complex tools that are offered by ICTs. While important developments such as the *semantic Web* (a *machine-dimension* of HCI that represents information as a combination of hypertext and the Internet technologies [Emonds-Banfield, 2006]) and agent technologies are emerging to assist educational designers (Anderson & Elloumi, 2004), we propose a practical way to implement instructional strategies through effective HCI. We apply the term HCI to reflect use and context (de Souza & Preece, 2004; Preece, 1994), to describe a combination of the social organization of work that occurs through the *human-machine* fit and adaptation of available ICT.

The chapter commences with an explanation of the diverse nature of teaching and learning in a technological age. Next there is a small discussion on the prominence of ICT tools that are emerging through multimedia resources to implement flexible education. The *student-centered* approach follows to progress the discussion from the *machine-dimension* of HCI within the education sector, to explain some of the more *human-dimensional* differences that occur in any student cohort.

We describe *design-personae* as a theoretical modelling technique that may reflect predicted students' characteristics. Courseware design is complicated (McKay & Martin, 2006). Many novice courseware designers are challenged when considering how to match individual characteristics of a learner to an appropriate learning context. Systems theory is then brought forward to highlight the importance of knowing how to synergize the *machine/human-dimensions* of HCI to initiate a basic courseware development plan.

Our *Getting Started: Case Study* section is presented as the hypothetical example of how to implement an online learning program using *design-personae* to capture the characteristics of a student cohort. There are four separate profiles or personae described in this section; two relate to the notions of having primary *design-personae*

to reflect the student cohorts, while the secondary *design-personae* are used to denote the university faculty management (for administrative functions) and the important external stakeholders (to denote employers and professional associations).

However, in looking toward the future of online learning environments, we also point to recent developments in the *semantic Web* and *software agents* (Murthy, 2005a), that are set to play an important role in an interactive and physical (*online*) sense, with their ability to *seamlessly* match each student's learning profile to meet their individual needs, thereby, broadening the flexibility of Web-based education. Our discussion closes with an overview of how the *design-personae* can be developed into an actual *software agent* tool, which is implemented as a physical electronic object (perhaps as an *e-persona*) that resides within an online learning environment.

INTRODUCTION

Teaching and learning in the new millennium require the integration of new technologies with aspects that will add value to the student experience and those that will detract from it. These decisions are made within the context of declining fiscal resources allocated to universities for teaching and learning, and with students being able to afford less and less time on-campus due to paid work commitments. As education is no longer universally free, a large proportion of students need to juggle paid work and study commitments along with other responsibilities and interests so they can afford to study. Fee for service creates another set of expectations with students considering value-for-money as part of their student learning experience. Universities have traditionally been seen as places of learning. However since education is no longer free, market forces threaten this tradition. Students are driven by different considerations to seek tertiary education. Accordingly, universities have to compete

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