Chapter III

Situated Task Analysis in Learner-Centred CALL

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Abstract

This chapter describes the modelling of learner interaction in computer-assisted language learning (CALL) environments. Here, I call for the development and adoption of situated task analysis frameworks in CALL system design and evaluation. The integration of existing CALL, human-computer interaction (HCI) and software engineering techniques constitutes a primary concern for the future of CALL software development. As such, this chapter describes the application of learner-centred design and situated task analysis principles within a flexible and integrative meta-framework: Cognition, Activity, Social Organisation and Environment (CASE). Finally, this chapter demonstrates how application of the CASE framework in CALL contexts leads to the development of more fit-for-purpose and personalized CALL systems.
Introduction

User-centred design (UCD) refers to a myriad of development approaches that emphasize the centrality of user involvement in the development process. Although system design improves when researchers and developers possess a mutual understanding of how users actually use technology (Costabile, 2001; Nardi, 1996a, 1996b; Raeithel & Velichkovsky, 1996), designing well is deceptively complex. This complexity is magnified in CALL contexts: language learning is socially situated and settings vary widely; learners are cast as novices; and novel activities abound. Learners themselves may have difficulty describing their experiences with the CALL system (Hémard, 1999) and, indeed, may have differing perceptions of the technology’s purpose and meaning depending on the context of use (Gasson, 1999). Hence, creating systems that are fit-for-purpose represents a significant challenge to the CALL community.

In this chapter, I critically examine the role of UCD in the context of CALL system design and evaluation. Specifically, I present Learner-Centred Design (LCD) as a theoretical and practical alternative to traditional UCD practices. In opposition to the behavioural view of HCI, I promote the need for more situated, sociocultural task analysis frameworks for examining learner-computer interaction. Furthermore, I describe the relevance and benefits to CALL of such frameworks when coupled with LCD approaches. This chapter concludes with an exposition of CASE (Farmer & Hughes, 2005a, 2005b), a meta-framework for conducting situated task analysis in CALL system design and evaluation.

User-Centred Design in CALL

Good system design results in technologies that can be used effectively and efficiently both physically and cognitively (Preece, Rogers, Sharp, Benyon, Holland, & Carey, 1994). A major challenge in the early stages of design is to understand and integrate actual learner behaviour into the software development life cycle (SDLC). Researchers recognise that the need to support existing work practices demands more than simple accounts of a single individual’s perception of some task (Ackerman, 2000; Gasson, 1999; Bardram, 1998; Bellamy, 1996; Watts & Monk, 1998). Indeed, situating the users’ actions within the context of social human praxis has the potential to reshape perceptions of Human-Computer Interaction. To this end, research in CALL is witnessing a transitional shift away from cognitivist ‘communicative’ CALL (involving drill-and-practice exercises that focus on accuracy and fluency) towards more sociocultural, ‘integrative’ CALL activities (that address the importance of agency) (Gruba, 2004).

Low-level, (cognitive) task-oriented frameworks tend to treat task interaction as a series of linear, sequenced actions from which we can derive the sense of an activity and inform system design. High-level, (social) goal-oriented frameworks tend to focus on situation awareness rather than on actions. Prominent frameworks within this paradigm include Soft Systems Methodology (Checkland, 1981, 1999), Activity Theory (Leont’ev, 1978, 1981; Engeström, 1987, 1999; Nardi, 1996c), Scenario-Based Design (Carroll, 1994, 1996,
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