

# SALL: Designing a system to Support Academics' Lifelong Learning.

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## Abstract:

The rapid changes in the way we live our everyday lives have resulted in an increasing need for individuals to learn over a lifetime. In particular, an academic as a learner and adult educator participates in the process of lifelong learning in a dual role: firstly, through adapting (rapidly and responsively) to developments and shifts in resources and research, and secondly, through inspiring students to be self-directed learners and consider learning as a vital part of their lives, driven by the desire and need to understand and to accomplish new tasks. This paper presents the design of a human-centred technological tool to support academics in their roles as lifelong learners and teachers. The requirements and design specification have been developed through a process of socio-cognitive engineering. This aims to analyse the complex interactions between people and technological tools and then transform this analysis into a usable, useful and elegant socio-technical system: a technology that fits into its social context.

Initially, data was collected by conducting interviews and a survey amongst academics from several disciplines. The data included academics' learning activities and difficulties and was analysed by reference to appropriate theories of learning: experiential learning theory (Kolb) to describe an individual's learning; conversational theory (Pask) to explain learning as conversational interactions; expansive learning theory (Engeström) to elucidate how interactions between people with their social roles, rules, and tools can provide a learning outcome; and transformative learning (Mezirow) to capture a learner's evolution through time.

The outcome of the data analysis was a coherent account of how academics perform their learning activities, the people involved along with their terminology and patterns of discourse, and the tools and resources they employ. From this account, specific issues were selected that could be addressed by the system and provided a link to an iterative design cycle.

The design cycle begins with the specification of the design concept (e.g. a metaphor) which bridges the gap between users' mental models and the system architecture. The concept was based on the 'symposium'. Symposia are closely associated with learning, support formal and informal interactions and are familiar to academics. From this concept, we generated a space of possible system designs and made design choices supported by a design rationale. Although this cycle follows the conventional process of interactive systems design, it highlights equally socio-cognitive factors as well as task and software specification.

The design cycle was evaluated by gaining continuous feedback from potential users. The outcome was the design of an interface and interaction in terms of a specific user's scenario. At the end, an evaluation of the interface was also conducted to reveal the weaknesses and strengths of the proposed system. This had two main aims: to evaluate the metaphor and the learning outcome of the system, and to evaluate the system's usability and design. The evaluation results

offered evidence of the success of the system's design. If fully implemented, SALL could provide academics with a useful learning tool, which is easy to use, adaptable to learner's evolving skills, and with an appropriate system image that facilitates academics' access to colleagues supporting the establishment of learning communities. Thus, SALL is consistent with its goal to be a user-centred design tool: a useful, usable and elegant socio-cognitive system.

The main outcomes of the project are: an investigation of academics' learning processes and their difficulties; the specification of those difficulties that could be addressed by a supportive system; the creation of a design concept consistent with academics' mental models; the specification of the system and the definition of the design space (options and rationale); and the proposal of a user's scenario and an evaluation of it.