Chapter VIII

Swarm-Based Wayfinding Support in Open and Distance Learning

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Abstract

Open and distance learning (ODL) gives learners freedom of time, place, and pace of study, putting learner self-direction centre stage. However, increased responsibility should not come at the price of overburdening or abandonment of learners as they progress along their learning journey. This paper introduces an approach to wayfinding support for distance learners based on self-organisation theory. It describes an architecture
that supports the recording, processing, and presentation of collective learner behaviour designed to create a feedback loop informing learners of successful paths towards the attainment of learning goals. The approach is presented as an alternative to methods of achieving adaptation in hypermedia-based learning environments which involve learner modelling.

Introduction

Open and distance learning (ODL) gives learners freedom of time, place, and pace of study, putting learner self-direction centre stage. Brockett and Hiemstra (1991, p. 24) define learner self-direction as the learner’s assumption of “primary responsibility for and control over decisions about planning, implementing and evaluating the learning experience,” and Hiemstra (1994) notes learners’ preference to take on responsibility for their own learning. However, taking on new responsibilities is not without its challenges. Brookfield (1985, p. 7) notes that although self-directed learning “has connotations of autonomy, independence and isolation,” investigations have highlighted that “adults would like more, rather than less, assistance in their learning pursuits.” Similarly, Candy (1991) writes that self-directed learners are often challenged to assume certain responsibilities, and that when deciding how to approach learning tasks, the self-directed learner is “confronted with the problem of how to find a way into and through a body of knowledge that is unknown at the outset. Without the benefit of any explicit guidance, a self-directed learner is obliged to map out a course of inquiry that seems appropriate, but that may involve a certain amount of difficulty and disappointment that could have been averted” (p. 283). Candy’s description calls to mind the image of the distance learner as navigator, charting a course through educational waters, following Darken and Silbert’s (1993) definition of navigation as the “process of determining a path to be travelled by any object through any environment” (p. 157). In subsequent work, Darken and Peterson (2002) use the term “wayfinding” to refer more specifically to the navigator’s decision-making process. We use the term “educational wayfinding” to describe the cognitive, decision-making process carried out by self-directed learners as they assume responsibility for choosing and sequencing their learning events. The wayfinding decisions with which learners are faced arise from the freedom offered to them by learning providers on their way to the attainment of particular goals. In some highly constrained situations, both the choice of learning events and their ordering may be fixed by
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