

Development of a Context-Aware Ubiquitous Learning System with an Active Adaptive Navigation Support Mechanism

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Abstract

In context-aware ubiquitous learning, physical conditions, such as the limitation of the stream of people who can visit a learning object, the time for moving from one object to another, and the environmental parameters, will affect the learning performance of students. Suggesting learning paths for individual students according to the physical conditions becomes a challenging issue. Several mechanisms have been proposed to provide navigation supports for learners. However, no system has been developed to incorporate these mechanisms. Thus these mechanisms were merely verified by simulated experiments. No field experiment is done to show the effectiveness of navigation support mechanisms. To cope with this problem, in this paper, a context-aware ubiquitous learning system that employs the adaptive navigation support mechanism proposed in our previous work is developed. In contrast with existing context-aware ubiquitous learning systems that usually use passive location-aware technologies, active location-aware technology is employed in the developed system for more real-time supports. With the developed system, a large-scale field experiment will be able to be executed to verify the effectiveness of navigation support mechanisms in the near future.

Keyword : Context-aware ubiquitous learning; navigation support; location-awareness