Modular Learning Worlds for E-Learning Applications

The Fraunhofer IGD Darmstadt is currently developing a »Modular Learning World« (MLW) for different projects, e.g., »Virtual Car Dealer« (VAH) and »Working and Learning in the working area« (ALF). The MLW can be deployed as an E-Learning system in the field of education and further education.

Virtual learning worlds – where perception, fascination, simulation, communication and collaboration are pivotal aspects – provide more efficient learning conditions than conventional text-based E-Learning systems and therefore lead to better results. The high level of interactivity between the learner and the E-Learning system enables faster and more individualized learning.

The »Modular Learning World« (MLW) developed by the Fraunhofer IGD Darmstadt consists of configurable basic components. These components include various interactive graphical objects with specific interaction behavior. They can be assembled into customized learning content. This modular structure makes the MLW an extremely flexible solution.

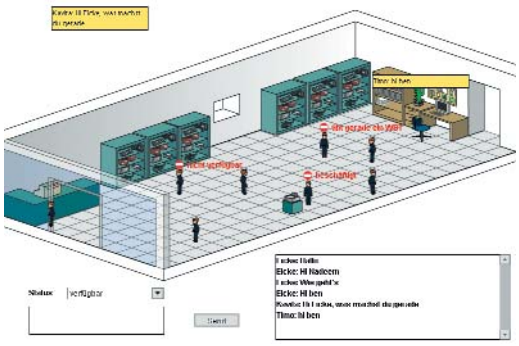

Figure 1:
MLW for the project »Virtual Car Dealer«

The features of the »Modular Learning World« (MLW) developed by the Fraunhofer IGD Darmstadt can be summarized as follows:

Virtual Reality

Real processes are simulated in the MLW in such a way that they come close to reality. The learners who use this system perceive themselves to be situated within it. Complex processes thus become more transparent and comprehetive.

Cooperative Learning

In the MLW, learners can communicate and carry out tasks together in groups and improve their knowledge and skills. During cooperative learning, the system continually synchronizes the activities of each participant so that all the activities are visible to every participant.

Communication and Interaction

The learner is represented by a virtual body, a so-called »avatar«, in the MLW, which can be used as a graphic representation while communicating with other participants. The learner can move in a realistic way, communicate and interact with other participants and work with the offered multimedia learning content.

Multi-perspective Approach

The MLW offers the learner a multi-perspective approach to the learning content which is tailored to the learner's needs. Thus the learner can choose different views of the same learning content.

Learning by Playing

The MLW offers business games in order to provide learning by playing. A fictitious example of a real system is introduced, and the learner has to enhance it in a limited period of time to reach certain objectives. Learners can try to meet the objectives through their own strategies. At the end of the given period, the result the learner has achieved is evaluated.

Sustainability

When the learner exits the learning world, the world is sustained and things continue to happen among other learners in his absence. The system presents the current state when the learner reenters the system. The MLW therefore offers time-variant and dynamic learning exercises.

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