USE OF THE CONCEPT MULTI-AGENT SYSTEM IN THE EDUCATIONAL PROCESS

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ABSTRACT

This study highlights the pedagogical and technological possibilities of using the CONCEPT multi-agent system in the educational process. Based on a multi-agent approach, it focuses on organizing the interaction between various participants and information resources in the educational process, identifying students' individual needs, and personalizing educational content. The article explores the possibilities of using the CONCEPT multi-agent system to monitor the process of mastering educational materials, adapt tasks to a student's knowledge level, generate analytical data, and support the teacher's pedagogical activities. Furthermore, it analyzes the significance of this technology in enhancing educational effectiveness, fostering independent learning, providing prompt feedback, and managing the learning process.

Introduction

All the features of the multi-agent educational system clearly demonstrate the relevance of its use in educational process systems. Agents (virtual intermediaries) perform tasks such as searching, storing, and distributing data, automatically verifying tests, creating training simulations, and providing consulting services. At the same time, agents are actively involved in identifying the problem, choosing a way to solve it, and adapting the process to real conditions.

In general, the CONCEPT system is one of the main standards for developing a multi-agent system in the educational process.

This platform allows users to connect and create interactive multimedia applications. It also provides tools for creating interactive multimedia applications. This allows for individual interaction with the education system, offers convenient tools for automatic knowledge verification, and provides unique multimedia educational programs. A new approach is applied to the organization of educational materials within the system. It is based on a set of specific instructions referred to as lectures.

They are designed to present educational topics in an interactive format. They are self-contained, autonomous, and easily adaptable, and can be integrated into various educational systems.

The project, which forms the basis of CONCEPT's activities, is aimed at combining advanced innovative solutions covering the use of the Internet, Web technologies, and electronic library systems. The CONCEPT platform has features that meet international standards in the field of open information technologies, offering a wide range of specialized operations.

There are many agents within this system, each of which is specialized in a particular discipline. Each student's individual profile is formed taking into account their personal preferences, considerations, and interests, as well as adapting to their learning style [1].

Communication between individual agents and other elements of the system is carried out through various communication channels, which facilitates effective interaction. Within the framework of online courses, there is a set of agents and training modules included in the educational process.

Educational resources and technologies used in specialized courses are available through course agents, guaranteeing students access to the necessary educational materials.

The training agent interacts with the student and acts as the intellectual instructor of the course. As part of the learning process, each learning agent has access to lesson materials and specialized educational technologies provided by the course agent. Depending on the student's knowledge and interests, the agent individualizes the approach to teaching the relevant subject. Learning agents have various cognitive functions, including language comprehension, communication skills, natural language generation, and learning processes.

Such skills help optimize the student's interaction with the educational system, allowing for the use of intuitive and natural communication methods. Visual presentations enriched with graphics and animations help to gain a deeper understanding of the complex aspects of the educational material [2].

As part of the organization of team training sessions, the CONCEPT device specifies the use of individual modules and a set of course assistants. It unites users and their corresponding agents, who are an integral part of this system. Each agent is equipped with a feature that allows access to the user profile, which allows it to assist in collecting, sharing, and analyzing data. The course facilitator has the ability to provide information about the group, acting as a link between students and the pedagogical group. In the process of interaction, these entities can use tools to collect and process user profiles, as well as generate information about the training group.

The activity of the CONCEPT system is based on the principle of active learning as an effective approach to the educational process.

At the current stage, the organization of an environment for active learning using an intelligent agent has become a topical issue. Profiles such as learning styles and background knowledge are used when selecting an organization and providing learning materials. A new approach to the organization and delivery of course content is being developed based on intelligent learning components that can be integrated into a wide range of courses.

An educational system based on multi-agent technologies is not a technically closed system for information transformation, but rather, to a certain extent, a communicative partner of the individual [3]. The use of a learning system based on multi-agent technologies allows the user to extract and reconstruct knowledge that is important to them, perform

various logical transformations of information, and search for convenient ways to encode and process it.

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