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# Role of Artificial Intelligence in e-Learning

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## Abstract

"Brandon Hall estimates that the global corporate & government eLearning market will exceed \$18 billion in the USA alone but moves on to state that "only innovative eLearning companies will spearhead that growth".

We are now moving from the first generation eLearning systems towards the second generation systems. Second-generation iLearning or ITS is the integration of eLearning and Artificial Intelligence, a branch of science which deals with helping machines find solutions to complex problems in a more human-like fashion. This generally involves borrowing characteristics from human intelligence, and applying them as algorithms in a computer-friendly way. A fundamental tenet of this design is that one size does not fit all as the learning process varies considerably from student to student. Hence, an ITS will behave like a real teacher would, identifying your strengths and weaknesses and deploying a teaching approach which will best fit your learning profile and personality. The system will assist and guide you and spontaneously add supplementary material to the initial course to better your understanding. Real-time feedback is also an essential part of this system, as it shows the instructor and the learner which areas require additional attention.

An ITS provides individualized tutoring or instruction and includes the following components:

- Knowledge of the domain (topic or curriculum)
- Knowledge of the learner
- Knowledge of learning strategies (methods of instruction)

The goal for every ITS is to communicate its embedded knowledge effectively.

An ITS must insure the following:

- Accurately diagnose students' knowledge structures, skills, and learning styles
- Diagnose using principles, rather than preprogrammed responses
- Decide what to do next
- Adapt instruction accordingly
- Provide feedback

Recent developments in artificial intelligence (AI) allow course developers to incorporate diagnostic tools, intelligent role-playing, and tutoring systems into the learning process. The benefits of AI include real-time interaction, continuous improvement of content delivery, and an integrated approach to learning that provides students with an understanding of how a topic, such as supply chain management, fits into a course on operations and how that course fits into an overall business curriculum. This can be done in a variety of ways including through the use of virtual simulations. In this talk we explore some of these ideas in some detail.