

WEB BASED INTELLIGENT TUTORIAL SYSTEM FOR ONLINE LEARNING

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ABSTRACT: For our ongoing research on the teaching/learning techniques, a software system has been developed for online learning. *Artificial Intelligence* technique has been used to develop this tool, which challenges the students with two different levels of questions. This software can be used for 'AP' level placement of a student.

SUMMARY: Our earlier study indicates that the teaching and learning techniques are iterative and the agile technique should be considered for delivering the teaching materials for facilitating the learning process. We are using agile problem driven teaching techniques considering both intuitive mode and controlled mode for learning. Yet, the learning skill of a student depends on various factors including a student's state of mind. According to the experts, learning should occur in context, be active, social and reflective. Several experiments were conducted to find the right methodology for 'improving' the learning skill. A recent study by the US Department of Education and the National Research Council recognized that the proper use of computer technology helps the learning process. The application of computers to learning and teaching has evolved from simple text to audio and visual communication. While the information is visual and auditory, it can also utilize kinesthetic, as the user interacts with the system via the keyboard and mouse. This has been successfully applied while designing the learning materials through gaming techniques using joystick or/and keyboard for interaction with the software system. Computer based courses should utilize all three learning styles, namely, visual, auditory, and kinesthetic.

Developing a tutorial system that incorporates the user's learning goals contextually and uses computer technology appropriately to meet these goals in an innovative learning environment is a challenging task. In our ongoing study in the field of teaching and learning techniques, we are developing web based software system that can improve the learning skill of a student. The system has two modules: the first module is delivering the course contents online to the students and the second module is web based testing of the acquired skills by the students. While creating the course contents, our attempt is to use all three styles, namely, visual, auditory and kinesthetic considering both intuitive mode and controlled mode for learning. The testing module utilizes *Artificial Intelligence* technique that

challenges a student with more difficult questions once they acquire standard level of aptitude for learning. This software system can be customized to serve various purposes. One way is to 'force' a student to learn a chapter before proceeding to another chapter for the same course. This system will not allow the students to proceed for the next chapter until s/he takes the exam online on the present chapter and gets >80% scores, as for example. This software system can be also used to determine the aptitude of a student before placing him/her for Advanced Program (AP). These features of the software system developed by us will be demonstrated.