AN OVERVIEW OF COMPUTER - BASED EDUCATIONAL SYSTEMS

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ABSTRACT

This objective of the paper is to deal with the area of computer-based educational system. The computer based educational system is operated by educational data-mining to enhance the performance of student as well as the faculty. This paper deals with various methods of computer-based educational system in Educational Data-mining (EDM). The component-based education system consists of E-learning, Learning Management System (LMS), Intelligent Tutoring System (ITS), Adaptive Hyper Media (AHM) and other systems. This paper provides a general view of the computer-based educational system and is an alternative approach to traditional educational system.

Keywords: Educational Data-mining (EDM), Learning Management System (LMS), Intelligent Tutoring System (ITS), Adaptive Hyper Media (AHP)

1. INTRODUCTION

The Computer-Based Education System (CBES) is a branch of EDM. Computers are used in CBES to give instruction to students. It includes e-learning, e-training, online instruction, intelligent tutoring, adaptive hyper media and social media. In CBSE method, one can apply the data-mining techniques. This paper deals with various methods of computer based educational system in EDM. The EDM is growing field to discover the characteristic and unique data find in educational settings and using techniques to find better and thoughtful understanding of the students

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2. E-LEARNING

E-learning is a part of cognitive science principles of multimedia E-learning. Cognitive study is the systematic study of mind and its development.
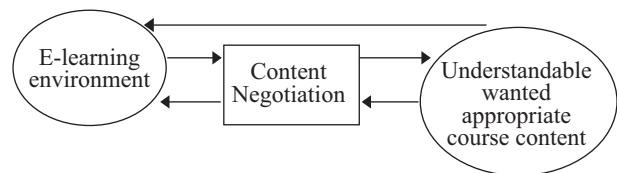

*Figure 1 Client Environment Negotiation Interactions in the E-learning*

describe the interaction between the client and e-learning environment. The device requests e-learning environment to give content negotiation. The given content negotiation should be understandable and the requests should pertain to the appropriate course content. The capacity to provide training and education through web technology is called e-learning [1]. It is a learning applying electronic media; electronic technologies and communication technologies are permitted to access educational programs outside a traditional class room. Using online course, course programs are delivered completely. It is mainly used in computer network technology, using internet to deliver information and training to learners [2]. The cognitive science principle includes e-learning methods. It is an interdisciplinary scientific study of the mind and its progress, and studies what insight is, what it does and how it works.

3. LEARNING MANAGEMENT SYSTEM

Nowadays, digital technologies are omnipresent to teach and learn. For more than three decades, computers have been used to instruct and learn in educational institutions by using the term computer-assisted learning. It can be replaced E-learning. Computer-assisted instruction can be used to

instruct and learn only the content of the study materials, but in E-learning the content can be accessed through the web, and one can get many resources to learn [3][4][12].

Learning Management System (LMS) is nothing but a virtual management system and course management system. These are the best examples of the applications of E-learning environment. Today educational institutions use the technology of computer-assisted instruction. Students use this method to learn and study their source material and prepare for their exams. Instructors get correct feedback about their teaching and give an opportunity to improve their teaching. Administrators can also use LMS to schedule the course materials to the educational institutions [5]. The data-mining tools are integration of E-learning environment. This can be accomplished through LMS. Educational institutions most commonly use LMS to increase their value in society. This paves the way to use technology-oriented teaching in the institutions.
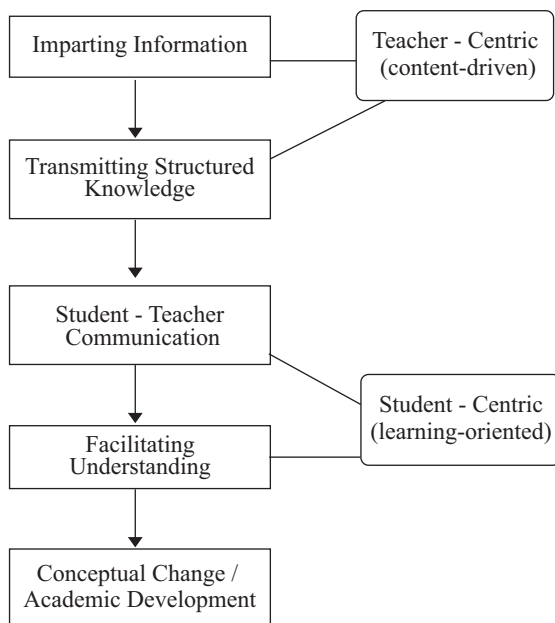
(Source: Kember 1997)
Figure 2 : Multi-level Classification
Models of Origins of Education

Figure 2 depicts the teacher-centred and student-centric learning. The teacher should give information to the students

i.e. the content is given to the students. Knowledge is given to the students. Then the student should understand the content. There's an interaction between the teacher and the students.

It is notable that systems can use client-server architecture. This method is associated with teacher centric models i.e. teachers can give instructions and students can get them [4].

4. INTELLIGENT TUTORING SYSTEM

An Intelligent Tutoring System (ITS) approach is based on the computer system. It is based on artificial intelligence intended to do transaction of content and provide feedback to its user. It is used to make accurate computations in the forms of educational, psychological and social knowledge [7]. Computer-based instructional systems that endeavour to govern information about a student's learning status uses that information to enthusiastically acclimatize the instruction to cater to the students' needs.

ITS includes individual knowledge bases for different domain knowledge. These knowledge bases identify what to communicate and the different instructional strategies organized on how to teach the students. It is also known as knowledge-based tutor. According to an important investigation in cognitive psychology and learning theory, individual instruction is said to be superior to class–room style learning [6]. It is an important mix of content and style of instruction according to the needs of a student [8]. The students learn, identify their mistakes and acquire knowledge in a unique way.
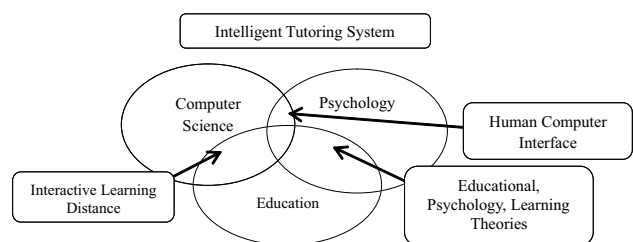

Figure 3 : Intelligent Tuning System

ITS is a representation of individual instructions. It is an effective learning tool. Shute (1991) measures many intelligent tutoring systems to envoy how they live up to the key assurance of as long as more useful and competent learning in relation to traditional instructional techniques [9]. Figure 3 depicts the structure of the intelligence tutoring system. ITS contains three components namely science, psychology and education. They are interrelated with one another. Human computer interface is needed to the component's computer science and psychology's a hub of all the components.
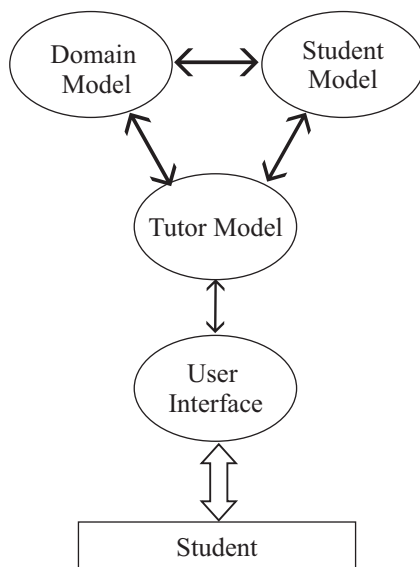

Figure 4 Components of Intelligent Tutoring System

5. ADAPTIVE AND HYPERMEDIA SYSTEM

Adaptive Hypermedia System (AHS) aims to discharge the material that the user needs. AHS is the combination of hypertext and hypermedia systems. It shows the elements of the user in the user model, and is applicable to take different aspects of the system to the user [10]. AHS is a new method of research in various aspects of hypermedia and user modelling. Hypermedia systems have information items like documents or animations linked one another by means of hyperlinks. The main part of the hypermedia is the link between the content items (nodes).

6. TEST SYSTEMS, SOCIAL MEDIA AND OTHER SYSTEMS

The objective of these systems is to identify students' knowledge with respect to the courses by using a sequence of questions. They collect a huge volume of information about students' answers, calculated scoots and statistics. This system provides a method to utilize the data-mining and social networks to understand and study the hierarchy of online educational communities [11]. The social networking sites like Face book, Twitter, LinkedIn and Micro Blogging services are always connected by broadband or mobile. Using these sites, millions of people are harvesting knowledge.

7. CONCLUSION

The paper dealt with educational data-mining provided by a computer-based education system. The objective of this paper is to improve the performance of students and teachers. Many research works have been carried out on machine learning algorithms, and their results are studied and analysed with the proposed system.

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