



# Adapting E- learning using Multiagent System

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**ABSTRACT--** This paper aims to provide main advance in the delivering techniques which are adapting to learner using multiagent system. Including models and the corresponding methods. It focuses on both datamining and e-learning. Multiagent system is a computer programming based system which is composed by multiple interacting computer programs. MAS can be used to solve the program that are complex or seems impossible for an individual program to solve. Multiagent system composed of various entities that have different information or diverging interest. In multiagent system agents are computer program that act on behalf of the users to solve a computer program.

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## 1 INTRODUCTION

E-learning provide large amount of information describing methods of teaching-learning interactions. Thus we can see things just a click away. It structures the unstructured data and tackles the problem and helps in process evaluation. we will see only few techniques are applied to e-learning using data mining like fuzzy logic methods, artificial neural network and evolutionary computations graphs and trees association rules multiagent system, clustering problems etc. Here our focus will be on multiagent system that consist of multiple interacting agents. Multiagent system interacts with many intelligent agents. Which are generally the autonomous entities. These autonomous may be software programs or robots. Though these agents share a common goal but their interaction may be selfish or cooperative. Multiagent systems are scalable. The agent technology is emerging these days at a great extent. It is growing everyday. Agent technology create an interactives e-learning environment. This technology is used in almost all domains such as student infomation processing, feedback evaluation, student agent, tutoring agents etc.

## 2 Pre-existing systems

The available agents and their combinations have different methodology and technology these multiagent systems include- F-smile, ATCL, I-Minds, Electrotutor, EMASPEL

### 2.1 F-smile (File-Store Manipulation Intelligent Learning Environment)

AT university of piraesor F-smile also known as web smile was proposed by Virvou, Maria, and Kabassi and Katrina. It is used to monitor students while they are solving complex problems. And also help them at every step of processing. Four agents are used in this system these are- LM Agent, Advising Agent, Tutoring Agent, and Speech driven Agent.

### 2.2 EMASPEL (Emotional Multi-Agents System for Peer to peer E-Learning))

Mohamed Ben Ammar and Mahmoud Neji proposed EMASPEL systems. It is multi-agents based system used in e-learning to recognize the emotional state of learner in the peer to peer network. Agents Used in implementation of EMASPEL System are Interface Agent, Emotional agents, Curriculum Agent, Tutor Agent, The emotional embodied conversational agent, and Platform used for this is MadKit.

### 2.3 I-Minds (Intelligent Multiagent Infrastructure for Distributed Systems)

It is proposed by Soh-et-al and based on computer support collaborative learning (CSCL) and provide an infrastructure for learners in synchronous learning. It is totally based on three agents i.e. Teacher Agent, Student Agents, and Group Agents and developed by using java.

### 2.4 ATCL

Atcl was proposed by Mahmud M. EL-Khouly, Behrouz H. Far and Zenya Koono for computer science teaching. Agents used for this system are personal assistant agent for teachers (PAA-T) and personal assistant agent for students (PAA-S).



### 3. PROPOSED MODEL

With the new emerging technology of MAS in e learning, there are different models that have been developed to enhance the learning with the help of different techniques. We have proposed a new system in this paper which is a three layered architecture system.

Here 3 agents have been used-

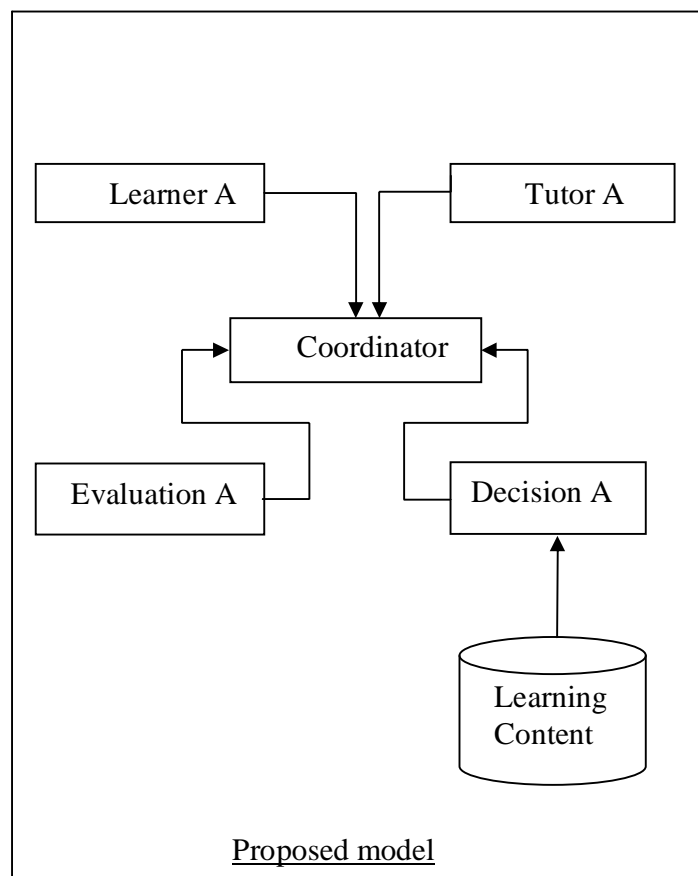
- . **Learner**
- . **Tutor**
- . **Evaluation and Decision agent**

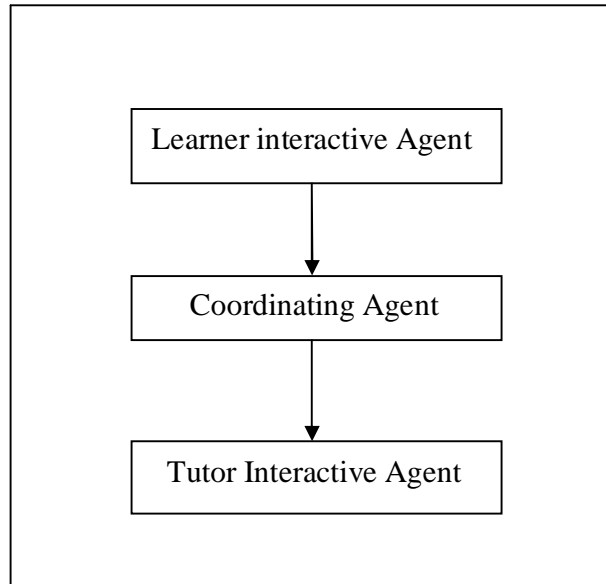
This model has 5 phases

- 1) Authentication
- 2) Preparing content to be delivered
- 3) Providing content to student
- 4) Observing activities of students
- 5) Testing and evaluation

**3.1 Authentication**-Authentication for any kind of access is performed for the authorized person.

**3.2 Preparing content to be delivered**-tutor can upgrade the course whenever required according to the students need.





System Level

**3.3 Providing content** - here the student agent find out what all is needed by the student and send the request to decision agent which makes necessary decisions with reference to his history and learning style and search the required content from the database. Then this information is send to student agent for updating the course.

**3.4 Observing activity of students**-Student agent monitors the student's learning track. If a student finds any problem then a message is send to decision agent and rectified accordingly.

**3.5 Testing and Evaluation**-After the student has successfully completed the course; they have to go through the test that decides the upgradation of student's level. A request is send to the decision agent for conducting the test after the test evaluation is done and then decided whether to promote the students to the higher levels or not and also updates the database of the particular student's profile.

## V. CONCLUSION

Multiagent system is in organization to establish interaction between different people working with different goals. Multiagent system interacts with many intelligent agents. Which are generally the autonomous entities. Stream mining has substantially changed in the last decade presenting a new setting from today's perspective, with very large and rapidly growing .Research continues into advancing the technologies used in adaptive learning systems. Natural language processing is being used to enable systems to better interpret written or even spoken student questions or other student input.

So, multiagent systems are new scheme for development of distributed system. Multiagent learning focuses on the availability of multiple agents and their interaction. In multiagent system many programs run together to achieve a common goal. This model is related to the collaboration between the learner and the tutor which help them to achieve their common goal. By the interactions among different types of programs the complexity of multiagent system rises with the same rate. We find a broad view leads to a division of the work of different areas with some specific characteristics. And then applying a single collaboration model to discover the joint solutions to multiagent system



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