



## A STUDY OF LEARNING STANDARDS IN E-LEARNING USING ARTIFICIAL INTELLIGENCE

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### ABSTRACT:

Employing the state-of-the-art artificial intelligence technology in current e-learning systems can bring personalized, adaptive, and intelligent services to learners and instructors. Although lot of successful applications of AI in e-learning, most of them have not yet been expanded to or adopted in widely used e-learning systems, especially open-source learning management systems. This observation takes us to the analysis and discussion of the current work in both LMS and applied AI. The findings include that current intelligent LMS systems are still in their early stage, while AI applications need to handle some problems or to be modified before applying them into the LMS systems, and AI technology also needs to be brought to open source communities. In this paper, we have included study of learning standards in E-learning using Artificial Intelligence according to user learning style. Each paper provides results to design recommender systems for personal learning environments.

**KEYWORDS:** Artificial Intelligence; Learning Management Tools; E-learning Category; Artificial Intelligence Standards; Learners in E-Learning;

### 1. INTRODUCTION

Artificial Intelligence is a branch of Knowledge deals with assisting machine finds solutions to complex problems. This generally involves deriving characteristics from human intelligence, and applying them as algorithms in a systematic way. This allows artificial machines to perform simple monotonous tasks efficiently and reliably. Humans have stimulating approach to problem-solving, based on abstract thought, high-level

deliberative reasoning and pattern recognition. Artificial Intelligence assist user to understand this process by recreating it enables to enhance beyond our current capabilities. AI research has mostly been focusing on solving specific problems. Numerous solutions have been devised and improved to do so efficiently and reliably. This explains the field of Artificial Intelligence is split into several branches, ranging from Pattern Recognition to Artificial Life, including Evolutionary Computation and Planning. The potential applications of Artificial Intelligence are abundant. They stretch from the military for autonomous control and target identification, to the entertainment industry for computer games and robotic pets.

### 2. WHAT IS E-LEARNING?

Electronic learning or E-learning is used to refer to computer-enhanced learning. In many respects, it is commonly associated with the field of advanced learning technology (ALT), which deals with both the technologies and associated methodologies using networked and multimedia technologies. E-learning is an education via the Internet, network, or standalone computer. E-learning is fundamentally network-enabled convey of skills and knowledge and refers to using electronic applications and processes to learn. E-learning applications and processes include Web-based learning, Computer-based learning, virtual classrooms and digital collaboration. EL is when content is delivered via the Internet, intranet/extranet, audio or video tape; satellite TV, and CD-ROM. E-learning was first called "Internet-Based training" then "Web-Based Training". EL is not only about training and



instruction but also about learning that is tailored to individual [12],[13]. E-learning concern with the following six core aims.

- Practitioner confidence and skills
- Learner access and choice
- Flexible, customizable systems and tools
- Enabling, cost-effective technical infrastructures
- Enabling, responsive e-learning policies and processes
- Institutions using e-learning to widen participation, deliver flexible opportunities, support work-based learning.

### 3. TYPES OF LEARNERS IN E-LEARNING

**Confident Learners** – They believe they are capable of anything

**Overachievers** – Seek out information to enhance their knowledge

**Emotional Learners** – Attachment to the course either through instructor or content

**Integrated Learners** – They have high standards for themselves and others.

**Unmotivated Learners** – They are willing to drop courses due to lack of enthusiasm.

**Risk Takers** – Enjoy exploring new ideas and discussing complex questions

**Surprised Learners** – Lack of self-confidence and unaware of their inability to work independently.

**Motivated Learners** – have specific goals and willing to work hard to overcome difficulty.

**Dependent Learners** – work diligently and frequently ask help and feel insecure about their answers

**Experiential Learners** – Lack of self-confidence and easily frustrated

### 4. LEARNING CONTENT TYPES

There are many Content types focused on eLearning. Those are totally based on the need of analysis and the type of learners.

- Learner-centred content:** eLearning curriculum should be relevant and specific to learner's needs, roles and responsibilities in professional life.
- Engaging content:** Instructional methods and techniques should be used creatively to develop an engaging and motivating learning experience.
- Interactive content:** Frequent learner interaction is needed to sustain attention and promote learning.
- Personalization:** Self-paced courses should be customizable to reflect learner's interests and needs. Tutors and facilitators able to follow the learners' progress and performance individually. The below diagram depicts step by step process of learning.

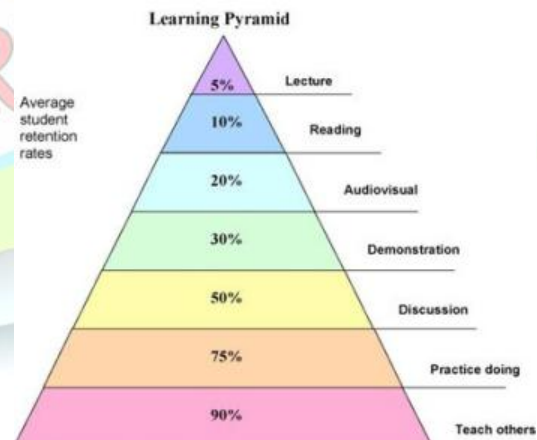


Fig.1: Process of Learning

### 5. REVIEW OF LITERATURE

Maria Jesus Gonzalez et al. have analysed the growth of digital video e-learning used in engineering courses [1]. This paper proposed that how the video embedded in multimedia learning objects. The survey delivers individual control over



random access content and offer optional self-assessment of learning.

Danimir mandic illustrated the supervised learning of programming learning powered by Artificial Intelligence [2]. Certain conditions are made for raising maximum success with minimum efforts. It's achieved with some basic factors of supervised learning. This paper proposed technique to create different potentials for learning and progression of teaching.

Dharal Doshi et al. delivered that virtual learning environment provides resources for communicate between tutors and students [3]. This paper focused on effective material distribution by clustering. The proposed technique of k-means algorithm for applying adoptive learning and provides dynamic content to user based on their intellectual level.

Pipatsarun phobun et al. illustrated adaptive intelligent tutoring system that allows not only independent knowledge to be stored [4]. It supports to transfer essential knowledge relationships. The proposed method (AITS) derived from adaptive hypermedia and intelligent tutoring system which allow sharing information on the learner's achievement and providing increased performance of learning.

Omkar pimple et al. described implementing cognitive learning using distributed Artificial Intelligence would supply the power of multiple agents to accelerate their learning process [5]. The scope of the project is that, the system is able to recognize object based on its own knowledge. The system designed to implement on multiple platforms.

Ali Herydarzadegan et al. evolved machine learning is a division of Artificial Intelligence [6]. The method of learning is estimating the function determined by decision tree. The nearest K-neighbor algorithm needs to state distance function to find the nearest neighbour. This paper motivated machine learning algorithm feature selection

methods, dimensions reduction and deleting of impractical data.

Hossein movafegh ahadirti et al. proposed the system can develop teaching efficiency greatly as well as reduces the problems and costs of an expert tutor [7]. This system incorporates adaptive web based e-learning with expert systems. This paper focused e-learning software progress which is customizable, dynamic, intelligent and adaptive education for learners to study in best way.

Hao shi described the restructure of the curriculum to create flexible learning mode can be utilized by staff of the institution like university and schools [8]. The redesign denotes evolution from passive model to constructivist model. The proposed model of this paper encourages active and collaborative learning which provides consistent and uniform learning materials.

Subitha Sivakumar et al. explained that lack of effective communication between tutor and students [9]. Learners have challenges and forced to use static materials. The objective of this paper is to categorize learners learning style and enhance innovative e-learning platform through AI techniques. This paper motivates learners to handle effective and efficient tools like LMS and Instructors need to aware of features in organizing the learning materials.

Jabar h.Yousif et al. has discussed structure of e-learning and the ability to integrate with several types of contents [10]. AI techniques are examined with academic and intellectual aspects in e-learning environment. The significant problem is to assist innovative learning modalities for younger generations.

H. Movafegh Ghadirli et al. proposed Jackson's learning model which integrates an intelligent and web based e-learning technology [11]. The system derived into three types to determine and evaluates learner's characteristics. The proposed system covers essential properties such as hypertext component, adaptive sequencing, and problem





solving support, intelligent solution analysis and adaptive presentation. It can significantly improve the learning result.

## 6. AVAILABLE LEARNING CATEGORIES

Types of Learning	Learning Modalities/Derived Pattern
Active Learning	Concentration, Understands before act, knowledge, Concepts, ideas
Cognitive Learning	Visual, Auditory, Touching, Experiential
Adaptive Learning	Interactive teaching devices, Online Learning or distance Learning
Machine Learning	Supervised Learning,

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	Unsupervised Learning
Digital Video Learning	DVD or CD
Programmed Learning	Practice Based Learning
Game Based Learning	Graphics, Images

## 9. CONCLUSION

E-learning delivers content through electronic information and communications technologies. This allows users to improve knowledge and education through various aspects of synchronous and asynchronous methodology. The research is based on the usages and performance of e-learning tools in the educational fields and materials can be categorized according to learners learning style. This paper surveys the methodologies adapted for designing personalized e-learning recommender systems.

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