



New Paradigm E-Learning Model Based on Artificial Intelligence

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Abstract

This research concerns the application of a new paradigm learning that provides flexibility for educators to formulate learning designs and assessments according to the characteristics and needs of students. To improve the quality of education in Indonesia, the government has made various breakthroughs and most recently is a new paradigm learning system to create a Pancasila student profile that accommodates all differences in students, is open to all and provides the needs needed by each individual. Therefore an application system is needed to support learning a new paradigm based on artificial intelligence, artificial intelligence plays a role in knowing the level of abilities and needs of students and follow-up learning according to the needs and abilities of students available in online learning media. With the e-learning application, a new paradigm based on intelligence is produced by smart adaptive e-learning that can accommodate each individual or student with a background of different levels of abilities, weaknesses, talents and interests with artificial intelligence and machine learning technology approaches that will identify students with a diagnostic assessment that is used as a recommendation for planning learning according to the needs and abilities of students.

Keywords: *New paradigm e-learning model*

1. Introduction

The New Paradigm-Based Artificial Intelligence E-Learning Model relates to online learning models that can accommodate all differences in students based on the level of strengths, weaknesses, talents and interests by using artificial intelligence technology in providing recommendations for planning learning according to the needs and abilities of students. This model is used to overcome problems in achieving quality resources including disparities in the quality of education between regions, inadequate teacher competence, teacher teaching models that are still not on target, as well as a lack of basic literacy skills and the optimal quality of school graduates has not been achieved. with the still high unemployment rate, online learning applications are needed to support a new paradigm learning system that accommodates all differences in students, is open to all and provides the needs needed by each individual [1] [2].

Several previous studies included storage units and display controllers that could identify the types of questions and the relationships between texts in questions in the form of text or stories, but this research still had deficiencies that were only intended for materials or manuscripts in the form of text, while exact texts were not mentioned, and cannot be used as a learning medium to identify and provide recommendations to students in achieving learning objectives and increasing knowledge according to their age phase. The next research is where learning support tools are disclosed that represent one text and a number of questions related to the text, then configure the text as input into sound as the input unit for the next process. However, it still has weaknesses and limitations which include that there are no modules and learning materials as learning materials to achieve learning goals and targets that can be used as learning media, then there is no user management to monitor and direct students to achieve goals and targets. learning, there is no process for input and updating learning modules in accordance with learning targets and objectives that refer to the age phase of students, there is no artificial intelligence technology approach to identify weaknesses, abilities, talents and interests as a support in determining the form, type and level of material learning that students must carry out individually. This is to accommodate the learning strategies of equivalence education programs which place more emphasis on 50% independent learning, at least 20% face-to-face, and tutorials at least 30%[3]. students from different cultures can be actively involved in online learning [4]. There is a relationship between learning styles and motivation on knowledge skills in the e-learning process [5].

2. Methodology

So this research is proposed to overcome the problems stated above in a way to overcome the weaknesses and limitations of the research, the development and optimization of the availability of knowledge storage units in memory and the ability to identify relationships between texts in a document are implemented in making e-learning with smart adaptive that is carried out. can accommodate each individual or student with a background of different levels of abilities, weaknesses, talents and interests, then with an artificial intelligence and machine learning technology approach that will identify students with a diagnostic assessment that is used as a

recommendation for planning learning according to needs and students' abilities. Learning methods in E-learning there are several kinds of methods. Some of these methods are discussion, problem solving, assignments, lectures, finding independently, communicative, and repetitive exercises. The discussion method is used in E-learning[6]. Problem-based learning aims to solve problems. Assignments are based on learning objectives and improve communication. Lectures can be used in the learning process. Media can enhance learning and learning instruction. Media is also used in distance education, such as radio, television broadcasts, and teleconferences [7].

3. Results And Discussion

The main objective of this research is to overcome the pre-existing problems, especially the New Paradigm-Based Artificial Intelligence E-Learning Application, where the New Paradigm-Based Artificial Intelligence E-Learning model according to this research consists of

- a. The learning application system uses artificial intelligence technology that is able to detect the level of student ability before starting learning as well as student abilities after participating in learning and student learning material needs for the next level.
- b. The system is able to accommodate the differences of all students according to their strengths and weaknesses, and provide the needs needed by each individual because the diversity of each individual must always be considered, because each student grows in a different environment and culture according to the geographical conditions where they live, respectively, recommendations are presented for planning learning according to the needs and abilities of students.
- c. Online learning systems and applications with a new paradigm that are able to increase interest in learning with easy access to learning regardless of distance, time guided and guided by an artificial intelligence system based on digital history with machine learning which is characterized by a new paradigm online learning system based on artificial intelligence.

With technological developments in the era of the industrial revolution 4.0 which resulted in the quality of education not being maximized, uncertain and increasingly leading to intelligent application systems based on artificial intelligence, it needs to be addressed quickly to build a new paradigm online learning application system based on artificial intelligence, this system helps the government achieve Indonesia's educational vision embodies the Pancasila student profile proclaimed by the current government.

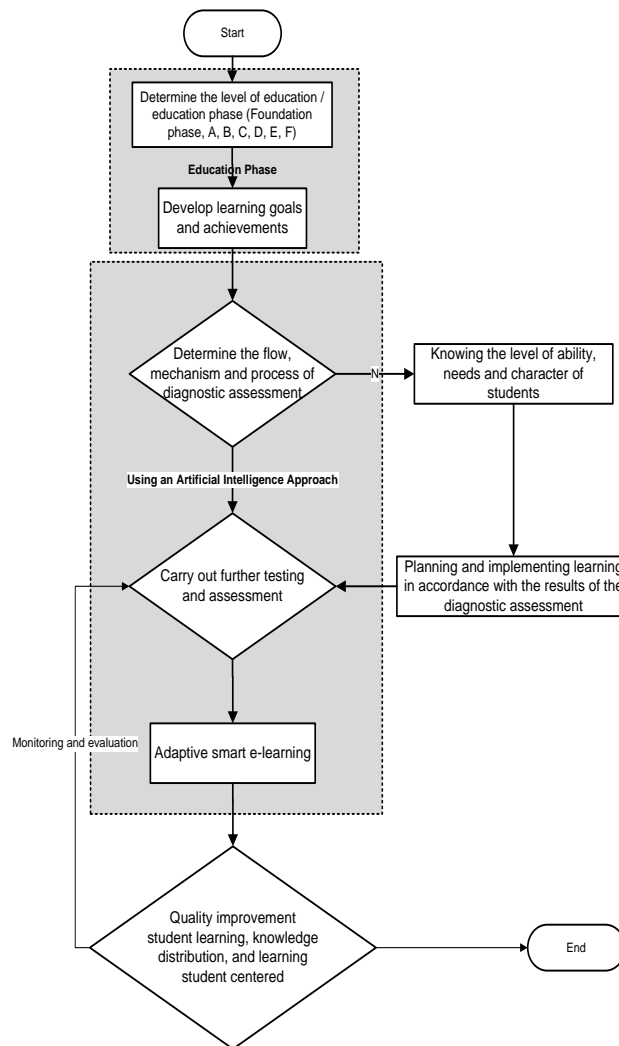


Fig 1. Perspective view of New Paradigm E-Learning Applications

Referring to Figure 1, which shows a complete detailed image of the New Paradigm-Based Artificial Intelligence E-Learning Application, which consists of Users consisting of several types and levels which are divided into several age phases namely the

foundation phase, phases A, B, C, D, E, F. Each phase has standards, strengths and weaknesses according to the characteristics contained in the objectives and learning outcomes. Prior to participating in the lesson, a diagnostic assessment is carried out to identify and map the abilities, weaknesses, potential, talents and interests of students which are classified as fully understanding, partially understanding and not knowing. The results of the diagnostic assessment are used as recommendations for planning learning according to the needs and abilities of students. In this case, some information is related to family background, including learning readiness, motivation in learning, students' interest in learning as a basis and consideration for planning learning. The input used is to analyze student learning outcomes performance reports each previous year. Over time and the learning process, periodically and continuously the learning outcomes are processed with an artificial intelligence approach and machine learning to determine progress and improve learning outcomes on an ongoing basis until set learning goals and standards are achieved.

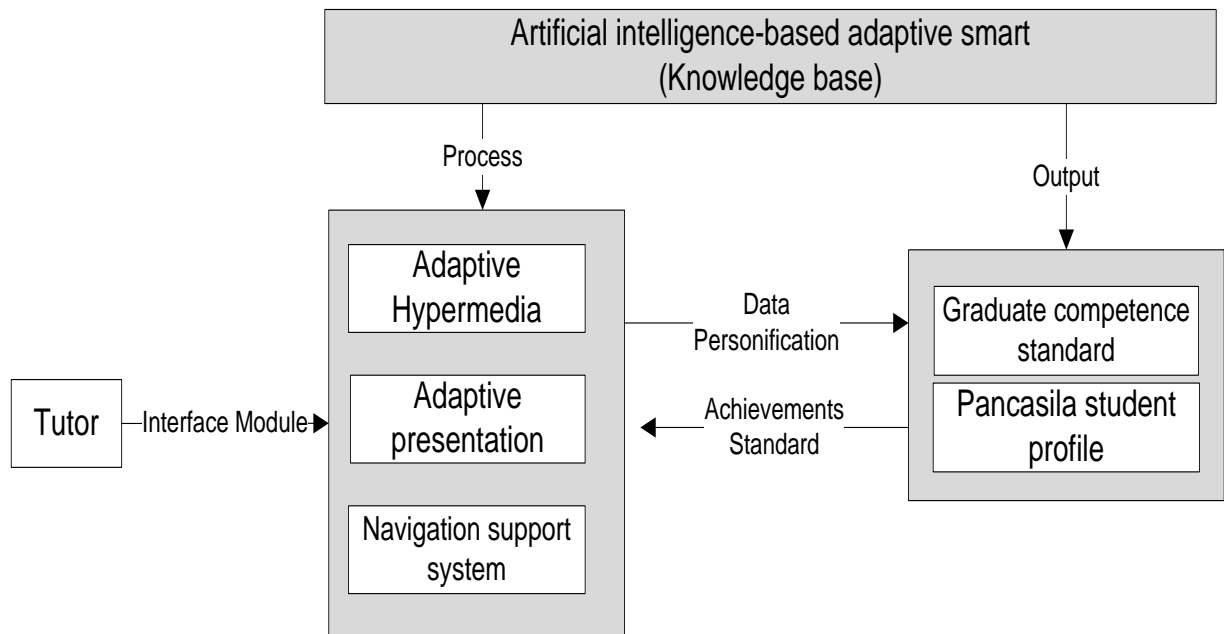


Fig 2. Artificial intelligence-based adaptive Smart block diagram

Referring to Figure 2, the smart adaptive learning system is designed taking into account each stage of development and the level of achievement of students in accordance with learning needs that reflect student characteristics in realizing learning standards and goals and supporting competency development in the learning process carried out with student character holistically. Learning material is presented in 3 interface modules namely adaptive hypermedia, adaptive presentation and navigation support system referring to graduate competency standards. The achievements of each process are stored digitally as a knowledge base and are processed using an artificial intelligence approach to view achievements. The dataset will be clustered to get a label after the diagnostic assessment.

Referring to Figure 1 to Figure 2, the new paradigm online learning system based on artificial intelligence is packaged in one application that can be accessed online, learning modules according to the targets and learning objectives that refer to the age phase of students are inputted and updated, then a diagnostic assessment is carried out with an artificial intelligence technology approach to identify weaknesses, abilities, talents and interests as a support in providing recommendations for determining the form, type and level of learning material to be carried out by individual students.

From the description above it is clear that the results of this study can benefit students, students, teachers, lecturers, government and society in general because practically and efficiently improve the quality of learning with online learning applications that can accommodate all differences in students, open to all in providing the needs needed by each individual. This artificial intelligence-based online learning application system to support learning a new paradigm based on artificial intelligence, artificial intelligence plays a role in knowing the level of abilities and needs of students and follow-up learning according to the needs and abilities of students available in online learning media and this invention is true - really presents a very practical improvement, especially in the New Paradigm-Based Artificial Intelligence E-Learning Application.

4. Conclusion

With the e-learning application, a new paradigm based on intelligence is produced by smart adaptive e-learning that can accommodate each individual or learner with different backgrounds, abilities, weaknesses, talents and interests with artificial intelligence and machine learning technology approaches that will identify students with a diagnostic assessment that is used as a recommendation for planning learning according to the needs and abilities of students.

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