



Moodle The E-Learning Portal

Bharath Kumar Gowru¹ | Venkata Sumathi² | Deena Margret G³

To Cite this Article

Bharath Kumar Gowru, Venkata Sumathi and Deena Margret G, "Moodle The E-Learning Portal", *International Journal for Modern Trends in Science and Technology*, Vol. 03, Special Issue 01, 2017, pp. 120-124.

ABSTRACT

Moodle is a free and open-source software learning management system. Moodle is used for blended learning, distance education, flipped classroom and other e-learning projects in schools, universities, workplaces. With customizable management features, it is used to create private websites with online courses for educators and trainers to achieve learning goals. Moodle (acronym for Modular Object-Oriented Dynamic Learning Environment) allows for extending and tailoring learning environments using community sourced plugins.

KEYWORDS: E-learning, Object-Oriented, WebPortal, Adaptive

Copyright © 2017 International Journal for Modern Trends in Science and Technology
All rights reserved.

I. INTRODUCTION

Moodle (acronym for Modular Object-Oriented Dynamic Learning Environment) allows for extending and tailoring learning environments using community sourced plug-ins. With customizable management features, it is used to create private websites with online courses for educators and trainers to achieve learning goals.

The World Wide Web has turned into an undeniably intense, worldwide and intelligent medium for sharing data. The advances of web innovations have supported improvement of new learning encounters for understudies. One of the primary sorts of web application for conveying guideline through the Internet is online direction that is presently known as e-learning. E-learning is a hypermedia-based instructional program that uses the characteristics and assets of the Web to make an important learning environment [1]. E-learning is just the integration of the traditional Computer Assisted Instruction or Computer Based Training into web technology. Since then e-learning has been a hot research and development area. Benefits of e-learning are both classroom and platform independence.

There are numerous e-learning frameworks accessible on the Internet, yet they give just a similar plain hypertext pages to all understudies paying little heed to individual capacity. In numerous present electronic courses, the course material is still verifiably situated for a conventional on-grounds gathering of people comprising of homogeneous, very much arranged and all around spurred understudies. Nonetheless, online courses are utilized by a much more extensive assortment of clients than any grounds based courses [2]. These learners may have altogether different objectives, foundations, information levels and learning abilities. An online course intended for a particular gathering of clients, similar to a customary course, may not fit different clients. Therefore the course material needs to be flexible so that different students may get different materials and an order of presentation that depends upon their own characteristics.

E-Learning Portal try to solve these problems by altering the presentation of material to suit each individual student [2]. AES combine ideas from hypermedia systems and intelligent tutoring systems to adapt the systems to the particular user. They use a model of the user to collect information about his or her goals, preferences and knowledge,

and use this model throughout the interaction with the user in order to adapt to the needs of that user [3].

This paper discusses the evaluation of an E-Learning Portal based on student's learning styles that is developed using this Moodle [19]. Two popular learning styles will be explored and used as basis for implementing the adaptation mechanism. The evaluation itself is focussing on the alpha and beta testing when the development has finished.

II. E-LEARNING PORTAL

The main factor to provide adaptivity in the E-Learning Portal is the student model that represents relevant aspects of the students such as preferences, knowledge and interests [7]. The student model dynamically maintains information for each user such as his/her knowledge, preferences, etc. The system collects this student information by observing the use of the application, by presenting series of questionnaires or feedback forms [4]. The more accurate the student model is, the more advanced the adaptation that can be provided.

The fundamental segments of E-learning portal are the area shown, the understudy display and the adjustment demonstrate [5]. The space model is the region or subject for which AES is proposed as an asset. The understudy model is an accumulation of attributes for which particular qualities are recorded for every client. The adjustment model is basically a meaning of what parts of the e-learning can be adjusted and under what conditions this adjustment is to happen [6].

The primary calculate to give adaptivity the E-learning portal is the understudy demonstrate that speaks to significant parts of the understudy, for example, inclinations, learning and premiums [7]. The understudy show powerfully keeps up data for every client, for example, his/her insight, inclinations, and so forth. The framework gathers this understudy data by watching the utilization of the application, by exhibiting arrangement of surveys or input shapes. The more precise the understudy model is, the more propelled the adjustment that can be given. As per Huitt [8], the learning procedure is intricate and might be impacted by many components including understudy qualities. There are numerous understudy attributes that are identified with the learning procedure; among others, these are earlier information, knowledge, ponder propensities, age, sex, inspiration, learning style, psychological

advancement, socioemotional improvement, good and character improvement.

There are two sorts of adjustment in the AES relying upon who takes the activities: the framework or the understudy [9]. On the off chance that the framework which starts, it is called adaptivity and if the understudy who starts, it is called versatility. Adaptivity implies the capacity of a framework to change its introduction as indicated by the understudy qualities consequently, though flexibility implies the ability of the framework to bolster client alteration.

III. LEARNING STYLES

The decision of learning style as one of the understudy qualities prepared by the understudy model depends on the accompanying exploration considers. As per Rasmussen [14], when an understudy's individual learning style is considered in the learning procedure, the understudy's accomplishment is progressed. Different examines on learning style have shown that distinctive understudies learn in an unexpected way: a few understudies take in more viably when instructed with their favored strategy, and understudies' accomplishments are identified with how understudies learn [15]. Learning style impacts the viability of preparing, regardless of whether that preparation is given on-line or in more conventional ways [16]. These reviews show the significance of learning styles in the learning procedure. There are different models of taking in styles from the writing.

Two popular models used in this E-learning portal are E-learning portal and Felder. The E-learning portal learning styles include visual, auditory, and kinesthetic, whereas the Felder learning styles include global and sequential. According to Sarasin [17], the VAK learning styles refer to human observation channels: vision, hearing and feeling. It suggests that learners can be divided into one of three preferred learning styles, i.e. Visual, Auditory or Kinesthetic. Visual learners can learn effectively when they see the materials; Auditory learners like to hear the material, whereas Kinesthetic learners are those who learn best by doing. These three classifications are known as VAK learning styles. Learning styles are often measured using a questionnaire or psychometric test. The questionnaire comprises several questions about learner personality, attitude, and behavior.

In this E-learning portal, the questionnaire includes indicators to measure the learner preferred learning styles of Visual, Auditory or Kinesthetic and Global or Sequential. Based on the scores the learners obtain, they can be classified into one of these categories (known as learning modes):

- Global-Visual
- Global-Auditory
- Global-Kinesthetic
- Sequential-Visual
- Sequential-Auditory
- Sequential-Kinesthetic

In this E-learning portal, it is used a learning mode term which refers to a combination of presentation mode Global-Sequential with variations of VAK. Because there are six types of learning modes that must be accommodated, then the system must provide six kinds of presentations. Learning mode of "Global-Visual" means the material is presented globally by focusing on the visual aspect. Learning mode of "Global-Auditory" means the material is presented globally with major elements of the audio aspect. Learning mode of "Global-Kinesthetic" means the material is presented globally with emphasis on the Kinesthetic aspect. For the other three learning modes that are "Sequential-Visual", "Sequential-Auditory", "Sequential-Kinesthetic", the learning materials are the same as the three previous modes, but they are presented sequentially.

IV. E-LEARNING PORTAL DEVELOPMENT

The advancement of the E-learning portal is diverse in a few regards frame other programming improvement by and large. As indicated by Koch [18], this distinction is fundamentally worried with navigational offices, the part of the client, and element adjustment of learning materials and introductions and route. The model improvement is done through a building approach as takes after. The examination is the initial phase in the advancement of E-learning portal model.

In this progression, it is produced a portrayal of framework prerequisites, a depiction of framework capacities and the primary elements of the framework which is normal. This AES is relied upon to give an introduction of learning materials which differ as indicated by the inclination of the client's learning style. In this way the framework must have the capacity to recognize the differing qualities of learning styles of clients and exploit

client information as contemplations to convey introductions.

The Table 1 shows the difference between our E-learning portal and Existing.

Table 1: Proposed System vs. Existing System

MOODLE: E-LEARNING PORTAL	BLACKBOARD
DISCUSSION BOARDS (PEER REVIEW)	DISCUSSION BOARDS (NO PEER REVIEW)
CHAT	CHAT
FILE UPLOAD/DOWNLOAD	FILE UPLOAD/DOWNLOAD
ONLINE ASSESSMENTS	ONLINE ASSESSMENTS
CROSS PLATFORM	WINDOWS ONLY
CALENDAR (STUDENTS CAN ADD EVENTS)	CALENDAR (NO STUDENT EVENTS)
MODIFIABLE	NOT MODIFIABLE
GROUPS	GROUPS

An adaptivity system that is utilized to choose whether an understudy will get a specific learning mode is exceptionally basic. As it was portrayed in the framework plan [19], understudies need to round out the surveys when the first run through getting to the versatile course. The survey contains questions that solicit the propensity from learning styles in which the appropriate responses are gathered into two, the principal bunch: visual, sound-related, kinesthetic and second gathering: worldwide, consecutive. For instance if an understudy gets the most noteworthy score on the visual part of the primary gathering and most noteworthy score on the worldwide part of the second gathering, then understudies will proceed with the learning method of "Worldwide Visual". Another illustration, an understudy will proceed with a learning method of "Sequential Auditory", on the off chance that she or he gets the most elevated score on the sound-related part of the main gathering and most astounding score on the successive part of the second gathering.

The overall evaluation for the developed E-learning portal can be divided into two, namely formative evaluation and summative evaluation. The formative evaluation is carried out when the development process is still ongoing with the aim that a better system can be achieved before the system is widely used by the user. The summative evaluation is conducted when the system is done and is widely used by users in order to determine the effectiveness of AES in the learning activities. This paper only presents the formative evaluation that includes ongoing, alpha and beta testing.

The results of this evaluation can be described as follows. The ongoing evaluation was conducted by

researchers at every stage of the system development, i.e. ranging from analysis, design to implementation. The ongoing evaluation at the design and implementation stage was done by way of comparing whether the work was done in line with the functional system. In the event of non-compliance, then the job was immediately corrected. With this ongoing evaluation, the final result would meet the expected criteria. The final performance of the adaptive e-learning was obtained through alpha and beta testing by observing if the system is working in accordance with the expected adaptivity functionality. The summary of the evaluation results can be seen at Table 2.

Table 2: Adaptive E-Learning Portal

No	Adaptivity Functionality	Yes	No
1.	Teacher can set a course format to adaptive	✓	
2.	Teacher can compose questionnaire and its setting	✓	
3.	Student obtains questionnaire scores and is assigned to particular learning mode	✓	
4.	Student can see his/her learning mode history	✓	
5.	Teacher can author six different learning materials in accordance with their respective learning modes	✓	
6.	Student can only see the learning materials in accordance with his/her learning styles	✓	
7.	Teacher can make six different assignments and quizzes in accordance with their respective learning modes	✓	
8.	Student can only see the assignments and quizzes in accordance with his/her learning mode	✓	
9.	Teacher can change the setting of student's learning mode	✓	
10.	Teacher can change the setting of learning materials, assignments, quizzes to any other learning mode	✓	
11.	Student can see recent activities and upcoming calendar in accordance with his/her learning styles	✓	

Teachers are responsible for devising and editing all the learning materials. In addition, teachers are allowed to edit the questionnaires. A flowchart for teachers is illustrated at fig 1.

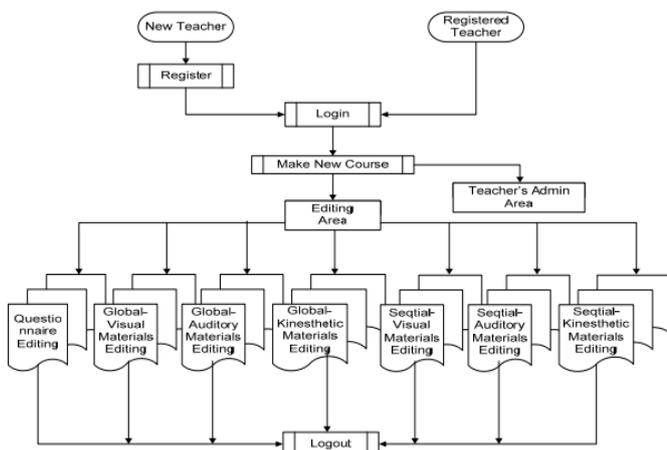


Fig 1: Teachers' Flow chart

On the other hand, students have to fill out the questionnaires when the first time accessing the adaptive course. After learning the adaptive materials and taking the quiz, if the score is lower than the passing grade, students have an option to refill the questionnaires. If the score is the same to or greater than the passing grade meaning that their learning style is matched with the mode of presentation, students cannot access the questionnaires. They can continue to learn the materials. A flowchart for students is illustrated at fig 2.

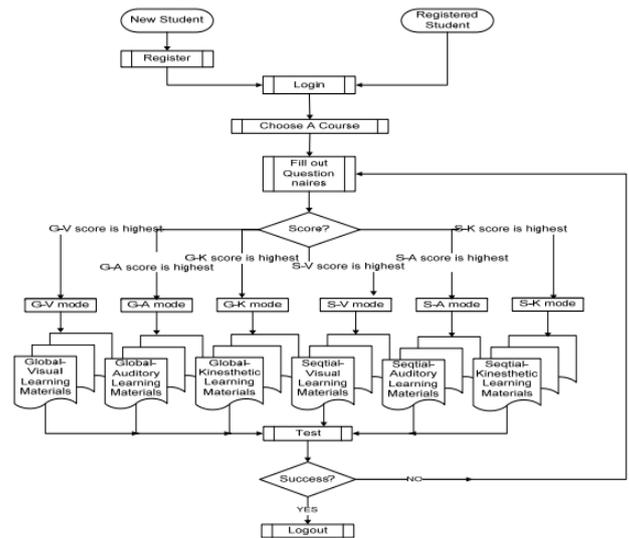


Fig 2: students' Flow chart

V. CONCLUSION

The E-Learning Portal that is evaluated in this paper presents MOODLE is the best way to enhance the traditional learning experience. The Portal identifies the student's learning styles tendency through a set of questionnaire. The questionnaire cores are used by the portal as basis to provide the student presentation of learning materials differently. The progressing assessment at the outline and usage stage is done to ensure that each highlight of the framework functions admirably. The assessment comes about demonstrate that all adjustment functionalities of the versatile e-learning has performed effectively

REFERENCES

- [1] Herman DwiSurjono "The Evaluation of a Moodle Based Adaptive e-Learning System" International Journal of Information and Education Technology, Vol. 4, No. 1, February 2014.
- [2] P. Brusilovsky, "Methods and techniques of adaptive hypermedia," User Modeling and User Adapted Interaction, vol. 6, no. 2-3, pp. 87-129, 1996.
- [3] Moodle User Guide.

- [4] P. Brusilovsky, "Adaptive hypermedia," *User Modeling and UserAdapted Interaction*, vol. 11, pp. 87-110, 2001.
- [5] B. H. Khan, "Web-based instruction (WBI): What is it and why is it?" In *Web-based instruction*, B. H. Khan, Ed. Englewood Cliffs, NJ: Educational Technology Publications, 1997, pp. 5-18.
- [6] R. Riding and S. Rayner, *Cognitive styles and learning strategies*, London: David Fulton Publisher, 1998..
- [7] H. C. Benham, "Training effectiveness, online delivery and the influence of learning style," presented at the 2002 ACM SIGCPR Conference on Computing Personal Research, Kristiansand, Norway, 2002.
- [8] L. C. Sarasin, *Learning Style Perspectives, Impact in the Classroom*, Madison, WI: Atwood Publishing, 1999.
- [9] N. Koch, "Software engineering for adaptive hypermedia systems: Reference model, modeling techniques and development process," Ph.D. dissertation, Ludwig-Maximilians-Universität München, München, 2000.
- [10] H. D. Surjono, "The design of adaptive e-Learning system based on student's learning styles," *International Journal of Computer Science and Information Technology (IJCSIT)*, vol. 2, no. 5, pp. 2350-2353, 2011.
- [11] A. Jameson, "User-adaptive and other smart adaptive systems: Possible synergies," presented at the Proceedings of the first EUNITE Symposium, Tenerife, Spain. 2001.
- [12] A. Cristea, and P. De Bra, "ODL education environments based on adaptivity and adaptability," presented at the World Conference on ELearning in Corp., Govt., Health, & Higher Ed., ELEARN, 2002.
- [13] Papanikolaou, M. Grigoriadou, H. Kornilakis, and G. D. Magoulas, "Personalizing the interaction in a web-based educational hypermedia system: The case of INSPIRE," *User Modeling and User Adapted Interaction*, vol. 13, no. 3, pp. 213-267, 2003
- [14] K. L. Rasmussen, "Hypermedia and learning styles: Can performance be influenced?" *Journal of Multimedia and Hypermedia*, vol. 7, no. 4, 1998.
- [15] R. Riding and S. Rayner, *Cognitive styles and learning strategies*, London: David Fulton Publisher, 1998.
- [16] H. C. Benham, "Training effectiveness, online delivery and the influence of learning style," presented at the 2002 ACM SIGCPR Conference on Computing Personal Research, Kristiansand, Norway, 2002.
- [17] L. C. Sarasin, *Learning Style Perspectives, Impact in the Classroom*, Madison, WI: Atwood Publishing, 1999.
- [18] N. Koch, "Software engineering for adaptive hypermedia systems: Reference model, modeling techniques and development process," Ph.D. dissertation, Ludwig-Maximilians-Universität München, München, 2000.
- [19] H. D. Surjono, "The design of adaptive e-Learning system based on student's learning styles," *International Journal of Computer Science and Information Technology (IJCSIT)*, vol. 2, no. 5, pp. 2350-2353, 2011.