

Features Based Comparison and Evaluation of E-learning Platform in Academic Environment

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Abstract: The robust implementation of new information and communication technology (ICT), widespread of internet technology and its application in education has improved the students and teachers in their teaching and learning process. E-learning platform is a technological based learning platform where massive ICT and internet is used. A number of educational institutions throughout the globe are using E-learning platform to deliver and manage their teaching and learning process. There are variety of open source and commercial E-learning platform with different level of features that provides the learners to access information in their teaching and learning process. The basic aim of this paper is to compare the deferent E-learning open source platform which are very suitable in academic - environment. To compare, we have selected seven open source E-learning platform namely Moodle, Dokeos, eFront, Ilias Sakai, Olat and A-View. Here A-View is free and open only for Indian Higher educational institutions.

Keywords: E-learning, ICT, Open Source, Evaluation.

I. INTRODUCTION

E-learning or internet-based learning has emerges the most fastest trends in today's educational system that provides an exceptional opportunity to access education through online. With respect to time and space constraints, learning is one of the most flexible way to learn for both students and teachers. An E-learning platform is an application software that inte- grates deferent communication tools, Evaluation tools, productivity tools,

management tools etc. These tools provides the technological support to both students and teachers in their teaching and learning process. With the fastest growth of information and Communication technology(ICT), the new E-learning platform has also been developed with new features to facilitates students and teachers in their teaching and learning process. More and more universities use E-learning platform to improve access to ICT, to provide learning opportunities in school or in lifelong learning environment[11]. An effective E-learning platform must be able to integrate the three components namely – Learning Management System (LMS), Learning Content Management System (LCMS) and the Virtual Environment. The LMS module provides an instructor with a way to create and deliver course content, monitoring student participation and keep track students performance and progress. It also provides students with the ability to use interactive features such as video-conferencing, Discussion forum etc. But a LCMS manage the content of the courses. course content is stored as learning object in a learning object repository database [10].Virtual Learning Environment technology based environment which is moderately opening systems, allowing communication and information sharing with other participants and instructors and provide access to a wide range of assets and resources [14].

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II. Literature Review

In paper[4], the author made a comparison and evaluation of two open source learning management systems Moodle and Ilias and they found that both of the open source platform have a good features and they have a good usability and pointed some weakness of both the platforms. In paper[13] the authors made a comparison between Moodle and Blackboard based on Case studies for Better learning Management System and he found that the virtual learning environment that gets better results has been Moodle. Z. Fariha and A. Zuriyati made a comparison of Moodle and eFront software for Learning management System based on requirements supported regarding the capabilities of the software and he came to the conclusion that Moodle is favorable for developing Learning Management System, Meanwhile eFront is supporters besides Moodle[8]. In [1], the author compares a asynchronous platform Moodle and a Synchronous Platform Elluminate base on tools and features of available technological resources to implement these learning platforms and they found that each platform performs remarkable well within their area of application. Fakhreldeen Abbas Saeed has made a comparison and evaluation of eight open Source platforms namely +CMS 2.0.0, Atutor 1.5.4, Claroline 1.8.1, Dokeos 1.6.4, Drupal 5.3, Ilias 3.8.8, Mambo 4.6.1, Moodle1.9, to find the great capabilities, more flexible and efficient platform. They used metrics like security, performance, Support, Interoperability, Flexibility, Ease of using, Management tools, Communication tools, administration tools, Course delivery tools and Content development tools to evaluate these platforms and he had found that the best four platforms accordingly- Moodle 1.9, Claroline 1.8.1, Mambo 4.6.1 and Atutor 1.5.4 [3].

III. EVALUATION AND COMPARISON OF THE E-LEARNING PLATFORM:

E-learning platform is a computer-based educational tool that enables a learner to learn at any time and from anywhere. It offers the ability to share the material related to teaching and learning process in all kinds of formats such as PDF, Virtual

learning environment (VLE) i.e. conducting live online classroom and communicating with instructors through both Synchronous and Asynchronous tools[7]. Real time communication and collaboration in a “same time different places” mode is usually achieved with synchronous tools. These tools are capable of engaging people in different locations at the same time. In synchronous communication the students are able to interact with other students and their teachers during the class in online. Asynchronous communication tools can be termed as “different time different places” [1], i.e the learning can be carried out even when both students and teachers are in offline. Synchronous tools includes- video and audio conferencing, live chat and instant messaging, interactive whiteboard, live webcasting, polling, application sharing etc. Again asynchronous tools includes- Discussion forum, Blogs, Wiki, E-mail, streaming audio, Streaming video, Webcasting, e-books, Shared calendar, Survey and polls etc. Effective E-learning platform should be integrate both synchronous and asynchronous communication tools. This allows both students and teachers to benefit from different class delivery format. This provides students with access to immediate help if needed, while still giving them the ability to learn at their own pace[12].

IV. FEATURES FOR COMPARISON AND THEIR FUNCTIONALITIES:

An E-learning platform have many features to facilitate the learners, but we have divided these features into two parts-Learner tools and Support tools and some important features we will considered here for Comparison which are very important in teaching and learning process. In learner parts, Communication features, Productivity tools and in Support part, Course development features and Administration features will be considered here. The Table1 shows some important features for students and teachers teaching-learning process.

Features	Functionalities
Interact-	A touch-sensitive screen which support

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ive whiteboard	many different learning style and are used by the instructor and learners in synchronous modes		blog allows user easily post content onto a website on a regular basis in a standardized format
Wiki	It is a web technology that allows a user to edit and contribute their own material . It also promotes collaboration and Knowledge sharing. A wiki can either be public or protected with passwords so only the members can access it	Applica-tion Sharing	It provides the instructor to share program, window or screen with learners. Learner can watch the instructor's action and can take control of the display with permission of the instructor
Discuss-ion Forum	It is a asynchronous mode of communication. It allows the participants to hold conversation in the form of posted messages, i.e participants can communicate at different times by writing comments that remain in the forum for other participants to read and responds	E-mail	It allows group of participants and instructor to be information exchange to each other. It is the simplest mechanism to one-to-one communication between instructor and learners
Docum-ent Sharing	The document like PDF, HTML, JPG, Doc etc. can be shared among users and instructor	Webcas-ting	It refers audios and videos sent from instructor's side to multiple centres. For example, video lesson where an expert talks to many learners simultaneously without interaction. it uses streaming media to transit audio and video over the internet
Live Chat	Allows participants to have a real time synchronous discussion through the web. It helps the participants to post the question to the instructor	Polling	Through this features the instructor can ask a questions to all participants. It is used to get the feedback of the participants regarding any aspect during a live class
Video Services	Enable video conferencing and enable instructors to run stream video from within the system	Quizzes	It enables the instructor to conduct a live quiz with all the participants. The result of all the participants can be viewed by the instructor at user wise and the participants can see his own result. Through this mode the instructor is able to track the progress of students and access the effectiveness of the
Collabo-ration System	It is a program that provides a number of user to collaborate on a project through an interface consisting of several communication system like Chat, Voice, Video chat etc.		
Blogs	It is a tool that allows user to share, access and easily update information. A		

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	curriculum.
Virtual classro-om	It is a well-prepared high quality lectures from the high quality teachers with multimedia presentation In VC the instructor in one location and the student in another location. One can attend the classes from anywhere through internet at the schedule time. A student in any location should be able to see and hear the instructor and the physical components used by the instructor
Book mark	It manage, create, Save, Share, Display and update links of internet. It allows students to return to important sites

	easily within their classes or outside their classes on the web.[4]
Calendar	Faculty member can use this function to post due dates for assignments and tests.
Glossar-ies	It provides dentitions for terms used in a course.
Digital Library	It is one kind of library that contains digital objects like journals, magazine, news, visual materials, audio/video materials etc. even live lectures are recorded and archived here and the user can access according to their needs at any convenient time.

The following table shows the features based comparison of the seven open source E-learning platform. Although all these seven platform are rich in terms of their diverse features but here we have considered twelve communication features, eight productivity features, eleven course development

features and five administrative features which are very important for both teachers and students in their teaching and learning process. If the feature exists then it is denoted by 'Y' and if does not exists then it is denoted by 'N'

Table1: Comparison Of Communication Features

Features	Platform						
	Moodle	Dokeos	eFront	Ilias	Sakai	Olat	A-View
Blogs	Y	Y	Y	Y	Y	Y	Y
Discussion Forum	Y	Y	Y	Y	Y	Y	Y
File Exchange	Y	Y	Y	Y	Y	Y	Y
Chat	Y	Y	Y	Y	Y	Y	Y
Wiki	Y	Y	Y	Y	Y	Y	Y
Collaboration System	Y	Y	N	Y	Y	N	Y
Whiteboard	Y	N	Y	Y	N	Y	Y
Document Sharing	Y	Y	Y	Y	Y	Y	Y
Assignment Upload	Y	Y	Y	Y	Y	Y	Y
Email	Y	Y	Y	Y	Y	Y	Y
Polling	N	N	N	Y	N	N	Y
Weightage	90.9	81.8	81.8	100	81.8	81.8	100

Table 2: Comparison Of Productivity Features

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Features	Platform						
	Moodle	Dokeos	eFront	Ilias	Sakai	Olat	A-View
Generate Reports	Y	Y	Y	Y	Y	Y	Y
Resource Management	Y	Y	Y	Y	Y	Y	Y
Digital Library	Y	N	Y	N	N	N	Y
Instructor Scheduling	N	Y	Y	Y	N	N	Y
Academic Calendar	Y	Y	N	Y	N	Y	Y
Mobile Compatibility	Y	Y	Y	Y	Y	Y	Y
Glossary	Y	Y	Y	Y	Y	N	Y
Weightage	85.7	85.7	85.7	85.7	57.1	57.1	100

Table 3: Comparison Of Course Development Features

Features	Platform						
	Moodle	Dokeos	eFront	Ilias	Sakai	Olat	A-View
Blended Learning	Y	N	Y	N	Y	Y	Y
Virtual classroom	Y	N	Y	Y	N	N	Y
Multi-language support	Y	Y	Y	Y	Y	Y	Y
Course Management	Y	Y	Y	Y	Y	Y	Y
Content Management	Y	Y	Y	Y	Y	Y	Y
Course Evaluation	Y	Y	N	Y	N	Y	Y
Test / Quizzes	Y	Y	Y	Y	Y	Y	Y
Self Paced	Y	Y	Y	Y	Y	Y	Y
Multimedia Available	Y	Y	Y	Y	Y	Y	Y
Graph and Chart	Y	Y	Y	Y	Y	Y	Y
Weightage	100	80	90	90	80	90	100

Table 4: Comparison of Administrative Features

Features	Platform						
	Moodle	Dokeos	eFront	Ilias	Sakai	Olat	A-View
Authentication	Y	Y	Y	Y	Y	Y	Y
User access control	Y	Y	Y	Y	Y	Y	Y
Unlimited Users	Y	Y	Y	Y	Y	Y	Y
Registration management	Y	N	Y	Y	Y	Y	Y
Administrative Reporting	Y	Y	Y	Y	Y	Y	Y
Weightage	100	80	100	100	100	100	100

Table 5: Comparison Of the E-learning platform according to their Weightages:

Features	Platform						
	Moodle	Dokeos	eFront	Ilias	Sakai	Olat	A-View
Communication	90.9	81.8	81.8	100	81.8	81.8	100
Production	85.7	85.7	85.7	85.7	57.1	57.1	100
Development	100	80	90	90	80	90	100
Registration management	100	80	100	100	100	100	100

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Average Weightage	94.15	81.88	89.34	93.92	79.74	82.24	100
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V. DISCUSSION AND RESULT:

A lot of work has been done in comparison and evaluation of different E-learning platform, But here we have compare the features of seven open source E-learning platform. Here We have choose those features of the platform which are the basic requirements for the students and the teachers in academic purposes. In table 2 Compares the communication features; In table 3 Compares the Productivity features; In table 4 Compares the Course development features; In table 5 Compares the Administrative features and in each table we find the weightage of each platform. Finally in table 6 we calculate the average weightage of each platform for each of the categories . From table 2,3,4 and 5 we see that A-View platform the best of “Communication features”, “Production features”, “development features”, and “Administrative features”. Moodle is the best of “Course development” and “Administrative features”. eFront, Sakai, Olat platform is the best of “Administrative features”, Ilias is the best in “Communication” and “Administrative features”. In Table 6 We see that the total weight of A-View platform is 100 which is the highest among all four platforms. Hence A-View is the best E-learning platform for academic environment among these seven platforms.

VI. CONCLUSION:

This paper has been made with the limited use of data which has been collected from different published research articles, books and different websites given in the references. Every E-learning platform has its own strength in-terms of their rich features and their functionalities. We have considered those features of the platform which are most effective for the students and teachers in their teaching and learning process. In this paper we made a feature based comparative study of seven open source E-learning platform. From this paper we aimed to find out the best E-learning platform in

academic environments and finally we come to conclusion that A-View is the better E-learning platform in academic environments.

References:

- [1] Adekunle I.Obama, Adkunle A. Eludire, Tajundeen A. Ajao, 2013. “A Comparative Study of Synchronous and Asynchronous E-learning Resources”, International Journal Of Innovative Research in Science, Vol 2, Issue 11.
- [2] Kamal Bijlani, Amit Dhar, P.Venkat Rangan, Jayahari K.R, Karthik S Narayan.2011 “real-time Collaborative Virtual Interactive E-learning Environment” 2nd international Conference on e-Education, e-Business, e-management and E-learning (IC4E 2011).
- [3] Fakhereldeen Abbas Saeed. “Comparing and Evaluating open Source E-learning Platforms”, international Journal Of Soft Computing and Engineering(IJSCE), Volume-3, Issue-3, July 2013.
- [4] Jamil Ahmed Itmazi, 2005. “A Comparison And Evaluation Of Open Source Learning management System”, IADIS International Conference Applied Computing 2005. Algarvel, Portugal. 22-25 Feb.
- [5] Ajlan S. Al-Ajlan, 2012. “A Comparative Study between E-learning Features” Methodologies, tools and New Development for E-learning, Dr. Elvis pontes (Ed.) ISSN: 978-953-51-0029-4, In Tech.
- [6] Anubhav Kumar, Dr. P.C. Gupta. 2012. “Detail Study and Evaluation Of Educational ERP Tools”, Spectrum: A Journal of Multidisciplinary Research, Vol. 1 Issue 8, ISSN-2278-0637.
- [7] Tor Faxen, 2011.”Improving the outcome of elearning using new technologies in LMS ststem and establishing the requirements for an LMS system in an academic environments“, Master of

International Journal of Digital Application & Contemporary Research
Website: www.ijdacr.com (Volume 4, Issue 06, January 2016)

software Engineer- ing and management.
 N2SEM TIA141 Master Thesis VII, Report No.
 2011:001, ISSN: 1651-4769, University of
 Gothenburg, Sweeden, June 2011

[18] [ttp://www.sakaiproject.org](http://www.sakaiproject.org), last access on 28
 Nov. 2015

[8] Z. Fariha and Zuriyati, 2014. "Comparing
 Moodle and eFront Software for Learning
 Management System", Australian Journal Of
 Basic and Applied Sciences, 8(4) Special 2014, pp:
 158-162.

[9] Sadanand Y. Bansode and Rajendra Kumar,
 2012. "E-learning Expe- rience Using Open Source
 Software: Moodle", DESIDOC Journal of
 Library and Information Technology, Vol. 32,
 No.5, September 2012, pp.409-416

[10] Don McIntosh, 2012. "Vendors of learning
 management and E-learning product", for
 Trimeritus elearning solutions inc.
<http://www.trimeritus.com>

[11] Vatuiu Teodora, Udrica Mioara, Negrutiu
 Magdalena, 2013. "Quality through E-learning and
 Quality for E-learning", Journal of Knowledge
 Management, Economics and Information
 Technology, Issue 1, february, 2013.

[12] Epignosis LLC 2014. "E-learning Concepts,
 Trends, Application" , San Francisco, California,
 CA-94104, V 1.1- January 2014.

[13] priyavahani Subramanian, Nursyafeeka
 Zainuddin, Salem Alatawi, 2014. "A Study of
 Comparison between Moodle and Blackboard
 based on Case Studies for Better LMS", Journal Of
 Information Systems research and Innovation.

[14] Wilson B.G 1996. "Constructivist learning
 environments: Case studies in instructional design",
 Educational Technology Publications, Engle- wood
 cliffs, NJ.

[15] [ttp://moodle.org](http://moodle.org), last access on 12 Nov. 2015

[16] [ttp://www.dokeos.com](http://www.dokeos.com), last access on 12 Nov.
 2015

[17] [ttp://www.ilias.de](http://www.ilias.de), last access on 25 Nov. 2015