Information Sciences Letters
An International Journal

http://dx.doi.org/10.18576/isl/080304

Comparative Study of Online Learning Management Systems: A Survey in Pakistan

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Received: 10 Jan. 2019, Revised: 28 Feb. 2019 Accepted: 15 Mar. 2019
Published online: 1 Sep. 2019

Abstract: Teacher and students are main stockholder in educational institutes. However E- management of class activities are one of important and very simple method to communicate with students. Online course management tools are widely adapted in educational institutes for teacher and student effective communication. Online learning Management Systems (LMS) is one of efficient tool for class activities management. This study surveys effective tool and measure their performance parameters according to memory, integrity, user experience and other features. It is found from comprehensive survey that Moodle is popular and adopted by many institutes. Google classroom is second effective tool and also popular due to freely available features with G - suite. Blackboard is good enough in security perspective because of its good and effective security management system and well content provider system. On the basis of this survey, the more than 80% participants were not aware from online LMS tools. However rest of 20% who were familiar only from one or two popular LMS tools and they were concerned people of IT field including students and as well as teachers.

Keywords: LMS, E-learning, E-management, ICT, Distance learning

1 Introduction

Learning management tools are important source of E-Communication for teaching and learning stockholders. LMS platform provides ease way to communicate over cloud and also gives up to date information sharing resources especially for students. LMS came with number of features like Data migration, brand integration, collaborative learning, personalized learning facility, intuitive user interface etc. these tools helps to record and share Administration activities information, official documentation, reporting daily activities, educational courses activities and teaching and learning programs content sharing. The concept of the LMS came from E-learning which enhances the capability and availability of the course contents. The first concept of the LMS was introduced in 1990. It has capabilities to store, share and save the contents over the internet. The specialty in educational institutes enhanced with implementation of the LMS which is capable to rubrics dealing as well as facility learning. Online teaching and learning process needs to follow the both asynchronous and synchronous mode. The idea behind E – learning process for the quick and rapid management of the resources. The synchronous environment involves direct involvement of both students and teacher. Course facilities fixes a time to manage and control the activities of the student and academic issues. Communication and discussion online discussion is performed without being present physically in classroom. In this regard this is also positive to make student more punctual and make their effective time table for the communication. The blackboard collaborate is an example of the synchronous mode of the communication which led the process in class room. One can manage and hold office time and meeting time over online session. Extended mode of the communication is performed whereas student can have time to think, prepare and respond the discussion a while. More effective communication can be organized over online process of discussion within limited amount of time. Management process of class timetable, assignments and other prerequisites can be achieved easily, and student access also can be more effective. Quick respond of teachers and as well as student's involvement online discussion make more effective and quick progress. Process of online learning is on web which have certain features of the communication and sharing course material. Participant can communicate without fact to face communication. Course material can be uploaded online with several

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students can get most of it. Online communication tools provide facility of interaction with student without any difficulty. All students can interact, communicate and collaborate with each other. Classes is on the basis of the student and as well teacher appearance whereas the amount of time is reduced. In this method of learning the participants can learn and apply the practical work in lab whereas adding some online aspect can reduced the efforts.

1.1 Problem Statement

Modern education has changed the way of content sharing and communication in institutes. The online course management tools are widely adapted in the institutes. Whereas in Pakistan there are less number of students and teachers who use the online LMS. For that, the study, implementation and evaluation of the well-known LMSs is necessary that fit to our education system.

1.2 Objectives

- To find out the awareness ratio of the teachers as well as students about LMS.
- To compare the Features and weakness of these LMS tools by evaluating design a questionnaire and to find which tools is more attractive.

1.3 Literature Review

ICT brought eases of content usage and management with fast and rapid output-based learning. The incorporation of ICT tools and techniques can bring more changes and saves time energy to control and coordinate the activities of the course teaching in higher institutes. Learning management tools are important to focus due to ease of usability and management of course online. Many authors since last decade have focused on this area with several new trends and techniques. Researchers are making most of it to focus on these tools for the improvement and enhancement of the integrity and rapid communication of the participants. Few studies of focus are discussed in detail below:

Limongelli, C et.al (2016) presented a study in which focus of the concern on online learning management system called Moodle learning management system. In their study author presented a module that actually focused on the few operations of standard learning objects repositories and works as recommendation system. It is designed on the bases of the teacher keyword –based search process which can be applied on the selected repositories. Another study focused on E-learning learning management tools and information management is done by Hung, M. L., & Chou, C. (2015). In their study author discussed importance of ICT and Learning management tools with some critical analysis of learning management tools. Author discussed many online learning management systems with functionalities and features. In Pakistan this study is not focused still and this study is aim to focus on these online learning management tools which are freely available in some extent. According to Siddiquah & Saleem (2017), students have expertise in skills like using Microsoft Office, Internet browsing, using Social networks, Email, and Computer games" but are not properly skilled on the usage of other equally important skills like usage of different digital libraries, discussion forums, and Blogs". It is so because time spent by the students on usage of technology for amusement purposes is much more than spent for academic purposes. At the same time they also believe that using ICT prop up their learning. Problems of the students usually include virus threat, slow speed of the internet, electricity problems and poor access to internet, poor working conditions of the computers. The universities can increase investment on infrastructure to address the problems relating to ICT at least at the university level. The study presented by Horvat, A., et.al, (2015) in which author focus of study is also on learning management system. The further study is on student satisfaction with some extent of experience which is equally recorded by the male and female students. This study is also distinguished on the basis of the experience and quality measure questionnaire from students and teachers. This study is also different from above mentioned work due to concern of the study related to LMS tools parameters. Hung, M. L., & Chou, C. (2015) studied related to the LMS in which author developed a platform for the Learning management system. In their work author have recorded the behavior of the teacher online with certain behavior scale measurement. Student involvement and their behavior recorded as per specific online behavior of the teacher as well as student learning process. Gonzalez (2015) says that digital natives are very much informed about modern gadgets of ICT. Conclusion of these two

researches is that ICT has become a very necessary part of our day to day lives and training along with exposure may be provided to the digital natives so that they become expert in the proper and ethical use of these technologies. It nuts shell if we must keep ourselves abreast of time we will have to excel in the use of these technologies.

1.4 Methodology

The learning management system is effectively survey by applying a survey. Methodology which followed in this study is given following diagram in which each and every step is defined well and clearly. The each step in this research followed very effectively. In this survey the following step are given

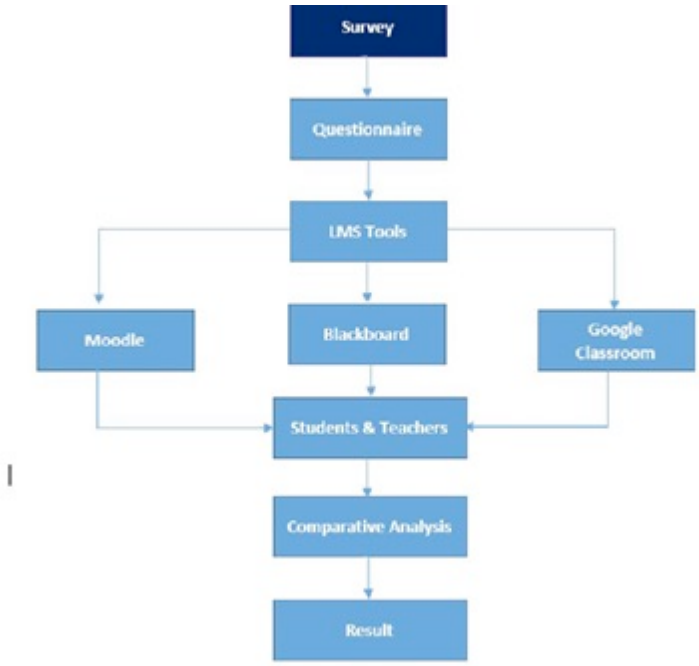

Fig 4.1. Workflow Diagram of Methodology.

1.5 General Questions on LMS

Please mark a tick to the statements below in any of the five choices given:

SD-Strongly Disagree; D-Disagree; N-Neutral; A-Agree; SA –Strongly Agree;

Table 4.1 General Questionnaire about LMS.

S.No	Statements	SD	D	N	A	SA
	Ease of Use					
1	My interaction with a LMS is clear and understandable.					
2	I believe that it is easy to get a LMS to do what I want it to do.					
3	Overall, I believe that a LMS is easy to use.					
	Attitude to e-learning					
4	Studying through e-learning is a wise idea.					
5	A web-based learning system provides an attractive learning environment.					
6	I am positive towards e-learning.					
	Intention to use e-learning					
7	I intend to use the LMS to study.					
8	I intend to increase my use of the LMS in the future.					

	Compatibility					
9	Using a LMS compatible with all aspects of my learning.					
10	LMS is appropriate for my profession in all aspects					
	Visibility					
11	People in my institute who use a LMS have more prestige than those who do not.					

1.6 Questions on E-Learning Tools

Q.1 Which tool you found most suitable according to the integrity of the usage?

1. Google Classroom 2. Moodle 3. Blackboard

Q.2 Which tool you found most attractive by the Characteristics of Graphical user interface?

1. Google Classroom 2. Moodle 3. Blackboard

Q.3 Which tool provides most efficient memory for freely usage of the user?

1. Google Classroom 2. Moodle 3. Blackboard

Q.4 Which tool you found most easy to use?

1. Google Classroom 2. Moodle 3. Blackboard

Q.5 According to security point of which one is more secure?

1. Google Classroom 2. Moodle 3. Blackboard

Q.6 Which tools provides best content provider and supporter?

1. Google Classroom 2. Moodle 3. Blackboard

Q.7 Which tool provides VoIP?

1. Google Classroom 2. Moodle 3. Blackboard

1.7 Questionnaire Work Flow Diagram

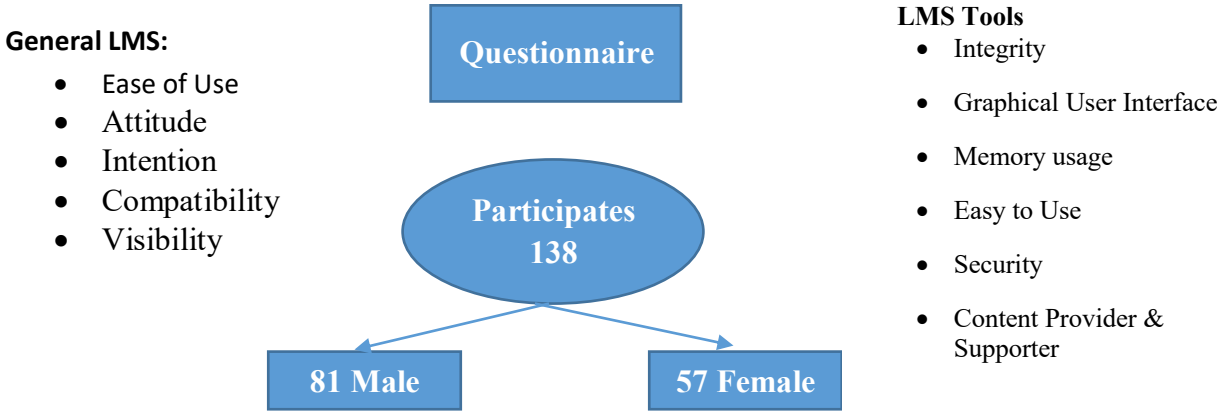

Fig. 4.2 Workflow Diagram of Questionnaire.

1.8 Result and Discussion

1.8.1 Ease of Usage

The following graph shows complete statistics of the questioner which is actually about the main three questioner which are depicted in the graph below

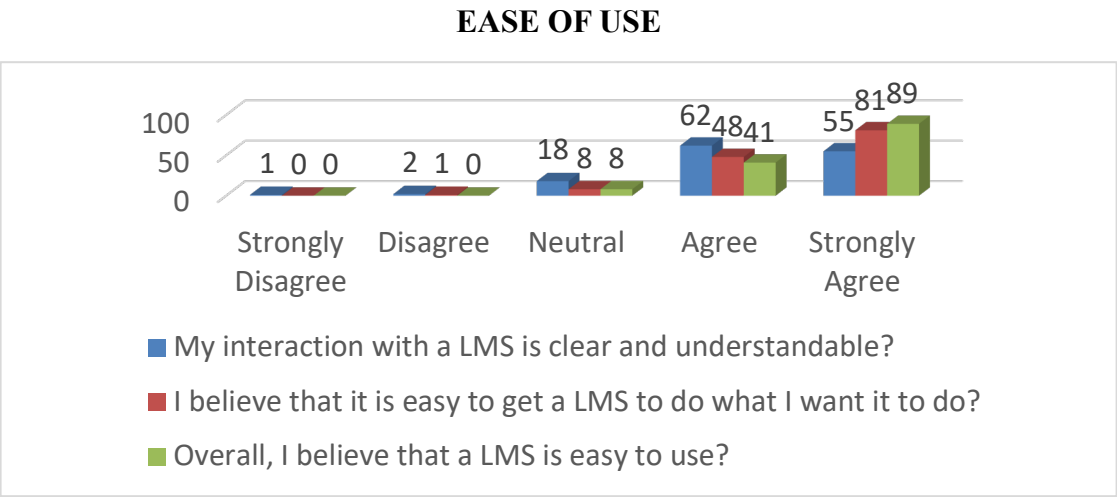

Fig. 5.1 Ease of usage of the LMS.

The above graph figure 5.1 shows a complete statistic of the three main questions related to learning management systems. The questions statistics shows that the highest ration of the question that is my interaction with LMS is based on the user's experience, the preferable LMS should be easy to use. Out of 138 responses for 3 questions, on average 36.62% and 54.34% are agree and strongly agree for the ease of use.

1.8.2 Attitude to Learning

The questionnaire about this parameter was aimed to design for the investigation of the participants' ratio for the attitude to learn the Learning management tools from which obtained statistics is given below:

The below graph figure 5.2 shows a complete statistic of the three main questions related to the Learning management systems. The questions statistics shows that the highest ration of the question that is my interaction with LMS is based on the user's experience, the preferable LMS should be easy to use. Out of 138 responses for 3 questions, on average agree ratio 30.43% and 52.65% are strongly agree about the attitude towards the E- learning management system.

1.8.3 Intention TO Use E- Learning

Intention to use E- Learning management system is the feature of the LMS which actually provide the user. The following graph shows complete statistics of the questioner which is actually about the main three questioner which are depicted in the graph below

The below graph figure 5.3 shows a complete statistics shows that the highest ration of the question that is my interaction with LMS is based on the user's experience, the preferable LMS should be intention towards the learning LMS. Out of 138 responses for 2 questions, on average agree ratio 30.88% and 13.63% strongly agree and 24.63% participant given neutral remarks about the intension towards the E- learning management system.

1.8.4 Compatibility

The important parameter of the LMS tools is Compatibility of E- Learning management system is the feature of the LMS which actually provide the user ease. The following graph shows complete statistics of the questioner which is actually about the main two questioner which are depicted in the graph below

The below graph figure 5.4 shows a complete statistic that the highest ration of the question that is my interaction with LMS is based on the user's experience, the preferable LMS should be intention towards the learning LMS. Out of 138 responses for 2 questions, on average agree ratio 51.44% and neutral 28.98% participant given neutral remarks However 13.7% gave strongly agree remarks about Compatibility the E- learning management system.

1.8.5 Visibility

The following graph shows complete statistics of the questioner which is actually about the main one questioner which are depicted in the graph below

The below graph figure 5.5 shows a complete statistic of the main question related to the Learning management systems. The questions statistics shows that the highest ration of the question that is my interaction with LMS is based on the user's experience, the preferable LMS should be visibility towards the learning LMS. Out of 138 responses for 1 question, on average agree ratio 42.02% and 2nd highest ratio is strongly agree and neutral 25.36% participants about Visibility the E- learning management system.

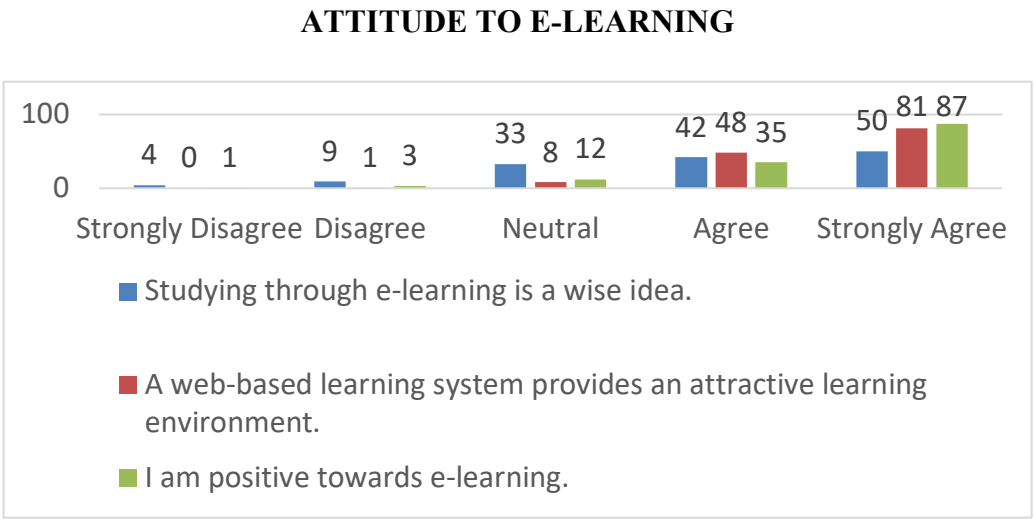

Fig. 5.2 Attitude to E - Learning Management systems.

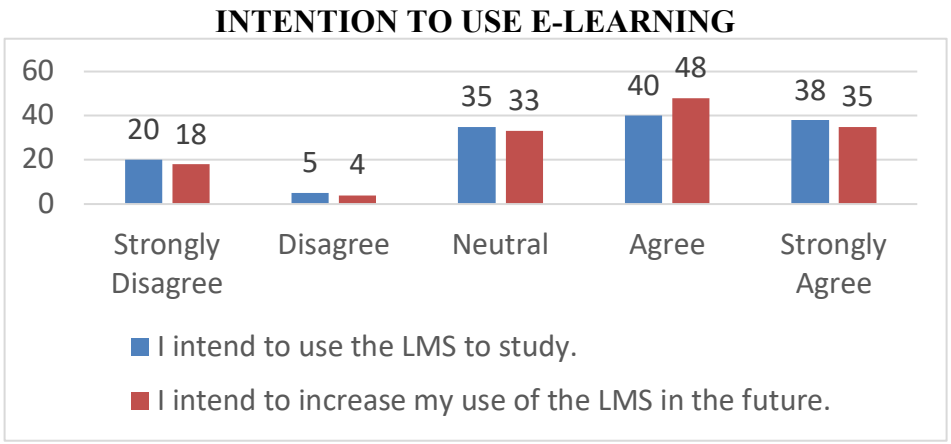

Fig. 5.3 Intension to Learn E- Learning Management tool.

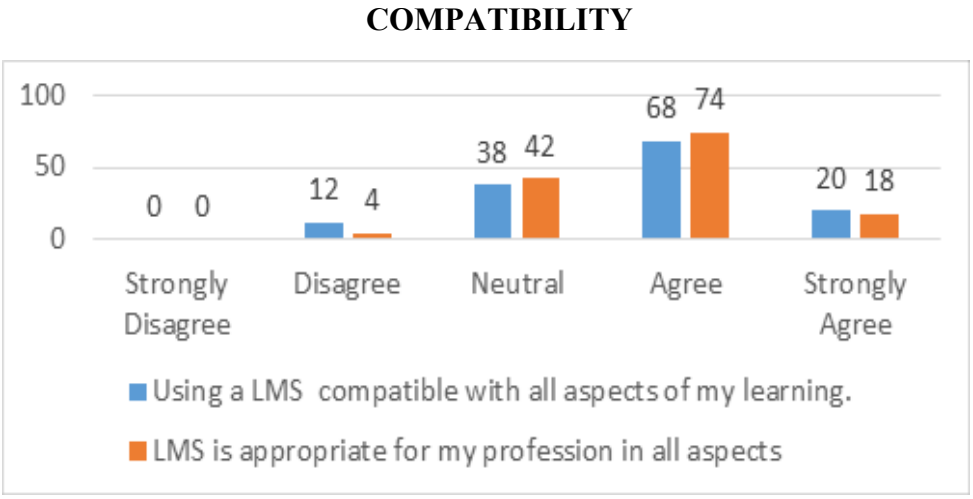

Fig. 5.4 Compatibility ratio of the Participants.

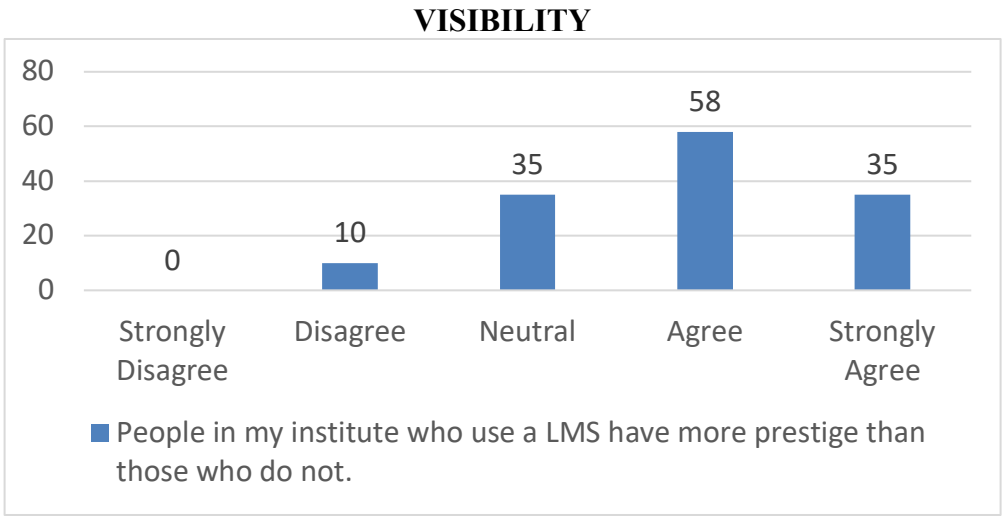

Fig. 5.5 Visibility ratio of the LMS tools.

1.8.6 E- Learning Tools - Survey Results

The specific study which focuses on the parameters of the LMS tools is integrity of E- Learning management system is the feature of the LMS which actually provide the user ease and effectiveness the following graph shows the obtained survey form the questionnaire which is conducted form the different users of the undergraduate, post graduate and also from the professional. The following graph shows complete statistics of the integrity which are depicted in the graph below

1.8.7 Integrity

Figure 5.6 shows the integrity statistics of the participants which actually shows that 31% participants were agree that blackboard is good by applying the integrity features whereas 13% participants were agree to give Google class room and Moodle has 56% highest integrity ratio from the participants. However, Google class room is also has lowest ratio given form the participants.

1.8.8 Graphical User Interface

The Graphic user interface of E- Learning management system is the feature of the LMS which actually provide the good interface or view according to human computer interaction. The following graph shows complete statistics of the GUI which are depicted in the graph below

Figure 5.7 shows the GUI statistics of the participants which actually shows that 52% participants were satisfied that Moodle is good in GUI feature, whereas 33% participants were agree to give Google class room and Blackboard has 15% lowest GUI ratio from the participants. However, Google class room is also has lowest ratio given form the participants.

1.8.9 Memory Usage

The Memory of E- Learning management system is also the main feature of the LMS which actually provide the memory to store the contents like assignments, docs, audio/video and images etc.

The following graph shows complete statistics of the memory usage which are depicted in the graph below Figure 5.8 shows the memory usage statistics of the participants which actually shows that 79% participants highest ratio were satisfied that Google classroom is good in memory usage feature, whereas 30% participants were agree with Moodle and Blackboard has 1% lowest ratio from the participants.

1.8.10 Easy to Use

The easy to use is also the key feature of the LMS through which we can judge how much this system is user friendly and how much it is easy to utilize system's features. The following graph shows complete statistics of easy to use feature which are depicted in the graph below

Figure 5.9 shows the easy to use statistics of the participants which actually shows that 62% participants highest ratio were satisfied that Moodle is easy to use and more user friendly as compare to others, whereas 29% and 9% participants were agree with Google classroom and Blackboard.

1.8.11 Security

The security is most important feature of the LMS through which we can judge that how much this system is secure or trust worthy according to user's perspective. The following graph shows complete statistics of security feature which are depicted in the graph below

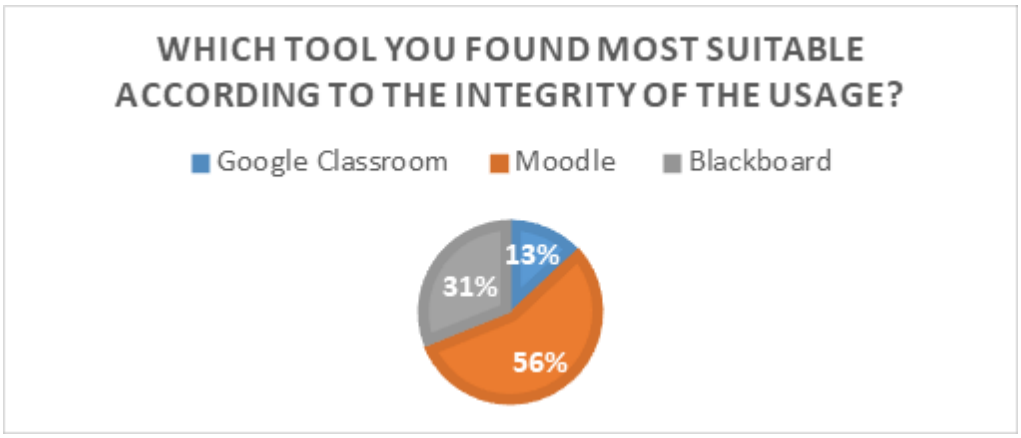

Fig. 5.6 Integrity of the three tools.

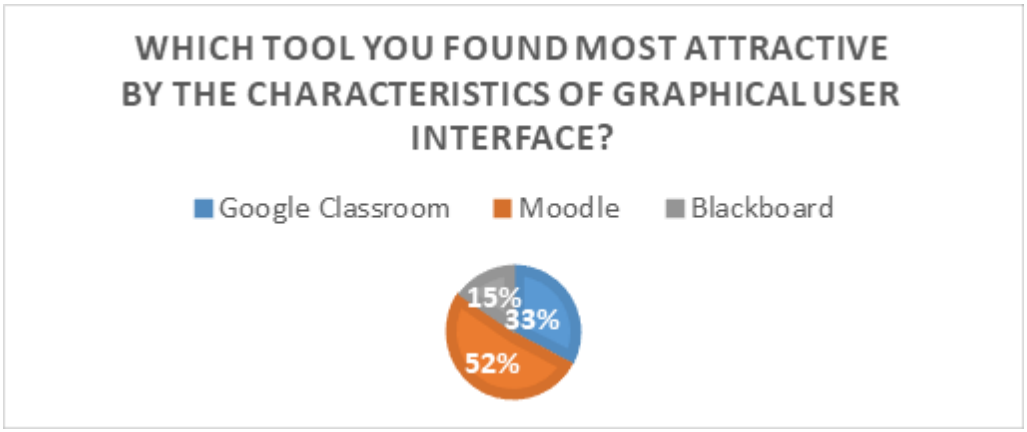

Fig. 5.7 GUI of three tools.

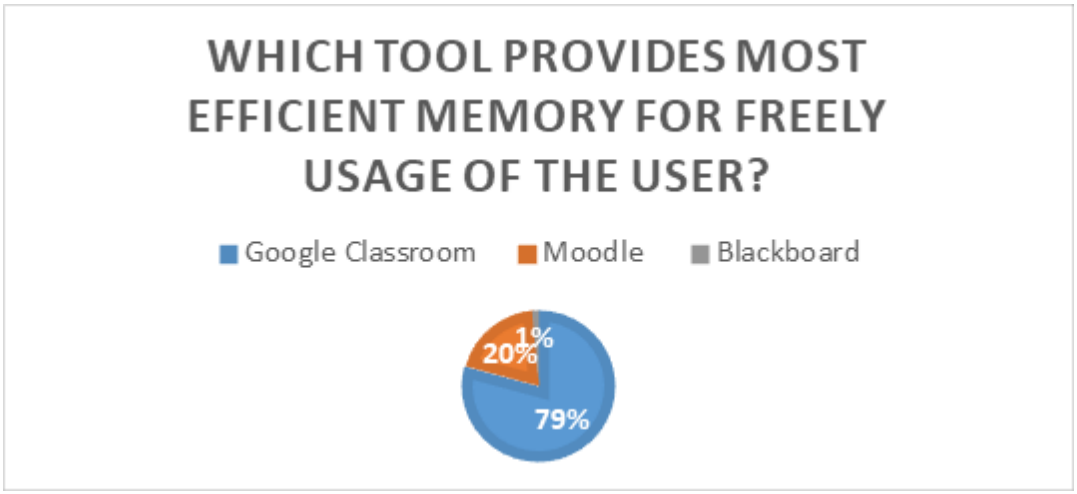

Fig. 5.8 Memory usage of three tools

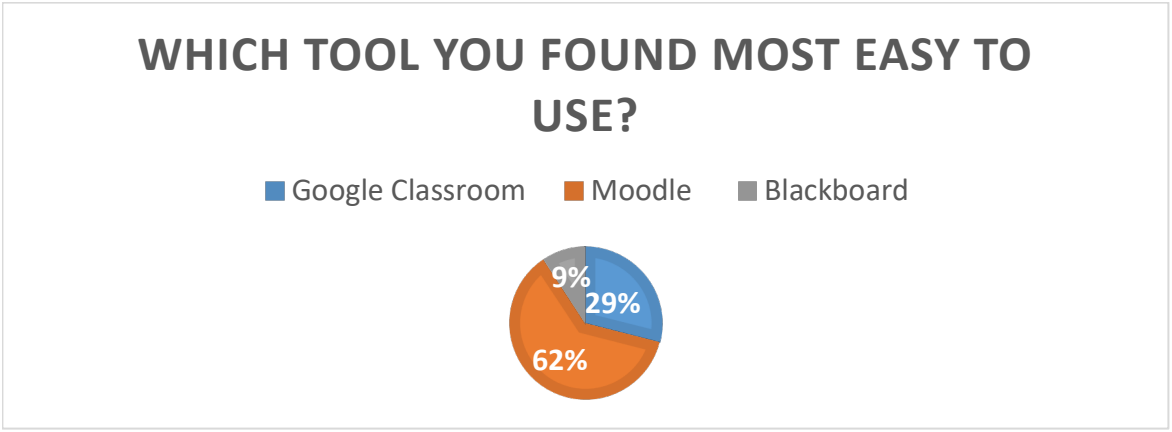

Fig.5.9 Easy to use of three tools.

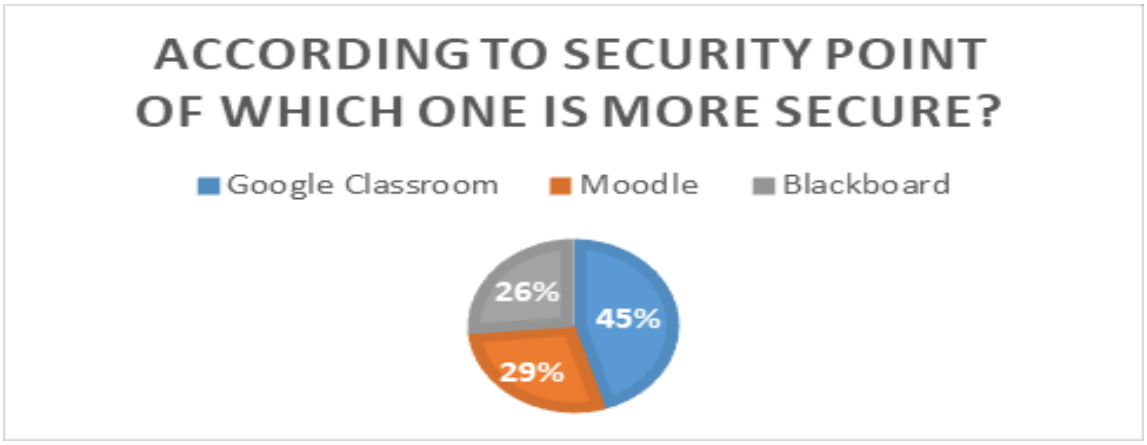

Fig. 5.10 Security of three tools.

Figure 5.10 shows the security statistics of the participants which actually shows that 45% participants highest ratio were satisfied that Google Classroom is more secure against others, whereas 29% and 26% participants were agree with Moodle and Blackboard.

Conclusions and Future WORK

This study suggests the effective tool according to memory, integrity, user experience and other features. It is found that Moodle is popular and adopted by many institutes. Whereas Google class room is second effective tool and also popular due to freely available features with G suite and black board is good enough in security perspective because of its good and effective security management system and well content provider system. On the basis of this Survey, Moodle is easy to use as well as it provides better GUI than Google classroom and Black board. However, the space provided by Moodle and Black board requires improvement.

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