



This Report has been written as an assignment to Digital Skills And Research Methods, Module code: BMSW4003, Lecturer Betty Burke, University of Wales Trinity Saint David.

The impact of Virtual Learning Environment (VLE) – Moodle on students' learning experience at the University of Wales Trinity Saint David London Campus.

Marta Zapparoli

Table of Contents:

Executive Summary.....	3
Research Objectives.....	3
Moodle.....	3
Acceptancy on e-learning.....	4
Study on Moodle acceptance.....	5
Load Balancing Clustering.....	5
Research Methodology.....	6
Qualitative survey.....	6
Research Findings.....	8
Conclusion.....	12
References.....	13

Executive summary

This assignment is addressing how Moodle assists students with their learning. It is also explained what Moodle is, how and why it is used and the acceptancy of it through studies and explained what can help students for a better acceptancy and satisfaction of Moodle usage.

It is also presented a result from a study made at the University of Huelva's student on Moodle acceptancy.

Furthermore, on the issues that virtual learning can encounter and the strategy to address them using load balancing clustering, as well as an explanation of what this means.

Finally, the result findings related a survey made through qualitative questions about Moodle at the University of Wales Trinity Saint David. Through students experiences it is better understood if the virtual learning platform and its tools could be a help to get through assignments and teaching classes.

Research Objective

Moodle

Today, Moodle is an E-learning technological development that provides universities with a valuable tool to create competitiveness. Universities are pushed to create and offer better quality teaching through simple access on the internet to training (Longworth, 1996).

E-learning is also known as online training, online courses, virtual learning, telelearning, distance learning, virtual campus, etc. It is described as a learning technique based on electronic sources (Trombley & Lee, 2002).

Researching for this assignment, (Sanchez & Hueros 2010) found virtual learning to be a critical development in online education. Distance learning supported through Moodle and other virtual teaching programs strengthens universities' capability and motivation to educate students.

Students using an E-learning method can get program resources in different formats (text, image, sound, etc.) and can work together with their classmates and teachers independently and at the same time via message boards, chat rooms, videoconferencing, etc. Virtual learning is accessible anywhere there is an Internet connection and at any time.

Students can take their own time to study and own time for understanding better and create their education process based on the individual requirements (Trombley & Lee, 2002).

(Sanchez & Hueros, 2010), chose to examine Moodle, which has free courses for lectures to create online learning communities. A WebCT administrator named Martín Dougiamas is the creator of this sharing learning strategy, allowing teachers to develop a student-focused environment based on knowledge and student skills rather than sending and simply posting information that the student is supposed to learn.

Acceptancy on e-learning

The acceptance and success of e-learning systems are determined by student usage and the acceptance of new technologies. Technology Acceptance Model (TAM) has been widely studied in the past decades by (Davis et al, 1989), creators of the first TAM model based on the "Theory of Reasoned Action" (TRA) to predict human conduct, following TAM2 (Venkatesh & Davis, 2000) that produced specific interest.

TAM2 is based on "theoretical constructs involving social influence processes and cognitive instrumental processes," which incorporates three related social forms, helping to verify if a person would adopt or not a new system, such as a subjective norm, voluntariness, and image. According to (Venkatesh & Davis 2020), perceived ease of use, output, quality, and job relevance could be used for describing the cognitive determinations of perceived usefulness.

Thanks to these models, they can predict users' acknowledgment of many new technologies with a balanced and reliable method. (Selim, 2003), based on the perceived ease of use and usage variables, researched student use and acceptance of online courses showed a significant relationship between usage and ease of use in determining online study usage.

According to (Hammoud et al, 2008), WebCT is a web course tool licensed to educational institutions and used in numerous campuses for e-learning.

(Ngai et al, 2007) investigated higher education institutions in Hong Kong, the factors that affect WebCT usage. Using the TAM model, expanded it, incorporating a new aspect, "technical support". The results revealed that technical support is an essential direct factor in the feeling that the system is easy to use and is helpful. According to (Hofmann, 2002) and (Sumner & Hostetler, 1999), technical support is an essential component in accepting technology for teaching, specifically in user satisfaction (Mirani & King, 1994).

Study on Moodle acceptance

In (Sanchez & Hueros, 2010) article, to measure Moodle acceptance, students from the University of Huelva were asked to rate frequency of usage on a scale of 1 "never" to 7 "a lot."

Students completed the questionnaire on courses in April and May of the academic year 2008/2009. Of the 266 questionnaires distributed, 226 were used for analysis. Specifically, 66.8% of those sampled were female, and 33.2% were men, of which over 50% were in the third year, and 28% were 21 years old.

Through the empirical study, (Sanchez & Hueros, 2010) found the development of new technologies has significantly increased in recent years. Yet, e-learning systems became a strategy for helping students overcome problems and knowledge that society imposes on them.

Load Balancing Clustering

According to the article by (Mujiono et al, 2019), in consideration that digitalization is growing very fast, in higher education, the e-learning system is becoming a mandatory element to complete the educational process. With an increase in users, higher education must comply with the need for accessibility and resources for the service while searching for strategies that meet user demands. This article shows a report of the implementation of "Load Balancing Clustering," which is the method to avoid poor online performance issues on Moodle platforms. It will be explained the issue and suggested a solution for Moodle Learning Management System/LMS usage in the University of Mercu Buana (UMB), a private university situated in Jakarta, Indonesia.

Since 2007 the e-learning application tool to support its e-learning system has been implemented in Moodle LMS at UMB. At the university, in the beginning, Moodle was used as a complementary learning system. Today, this e-learning tool became mandatory to

assist the user needs, create an increasing value, and minimize many problems like the increase in student numbers, while classroom for their accommodation is limited, highlighted in the article (Mujiono & Purwanto, 2017).

At UBM, Moodle e-learning is currently used by more than 30,000 students and around 1,000 lecturers. With such a large number of users, the fit output of a qualified e-learning system is not 100% achieved.

Reports indicate that on weekends during peak time, the system is down and can no longer provide access to the learning process. The LBC Implementation, during peak time, is the possible solution to distribute the massive load. This implementation has successfully handled 32.000 users in Indonesia, reported by (Mujiono et al, 2019).

However, there are still too many barriers in the developing country that need to be managed to succeed in e-learning implementation, such as internet, electrical power, and computer hardware.

Research Methodology

Qualitative survey

During the academic year of February 2021, a qualitative interview was conducted with 8 students based on 15 questions on the impact of VLE to understand student ease of use better, if improvement can be taken, and what is the best tool in Moodle platform.

Referring to (Opdenakker,2006), face-to-face interviews have long been the most common interview technique in qualitative research, and telephone interviews have become increasingly common in the last two decades. Due to the current pandemic (Covid-19), the interview has been carried face to face using Microsoft Teams. According to (Opdenakker, 2006) this can cause disadvantages like not having this software available, but this was not the case because all students must follow university courses with Microsoft Teams. Face-to-face interviews are distinguished by synchronous interaction in terms of both time and place where there are advantages. The interviews can be tape-recorded with the interviewee's permission with the benefit of providing a more detailed interview report. The interviewee's

response is more spontaneous, and the interviewer has many options for creating a pleasant interview situation. All these advantages bring to be the easiest method for interviewing.

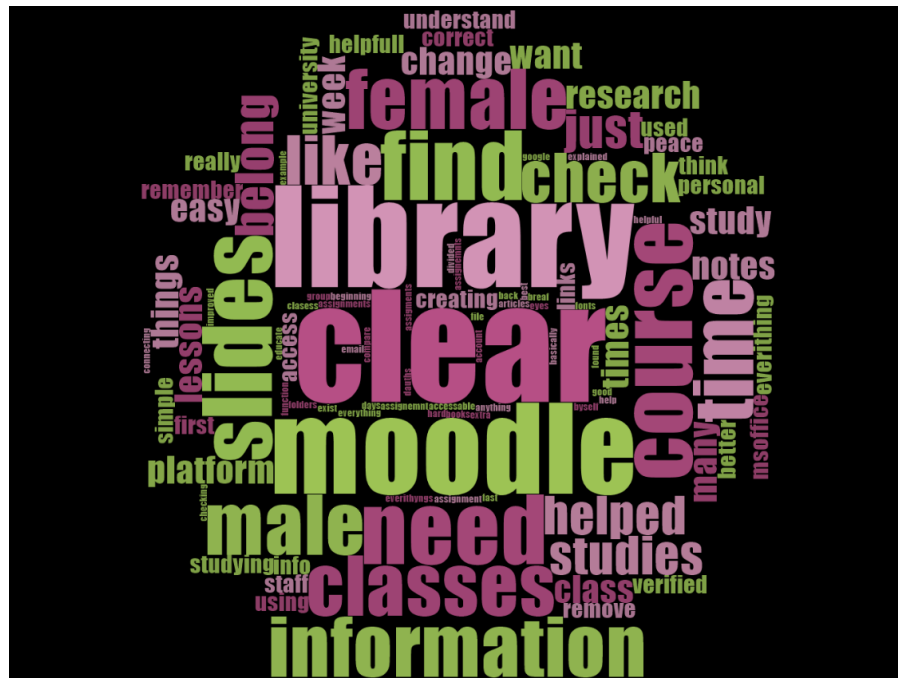
Personally, the qualitative interview by asking questions face to face made the research more time efficient. It helped the interviewee better understand the question: to participate more effectively, answer openly, and explain themselves better.

Questions for qualitative interview:

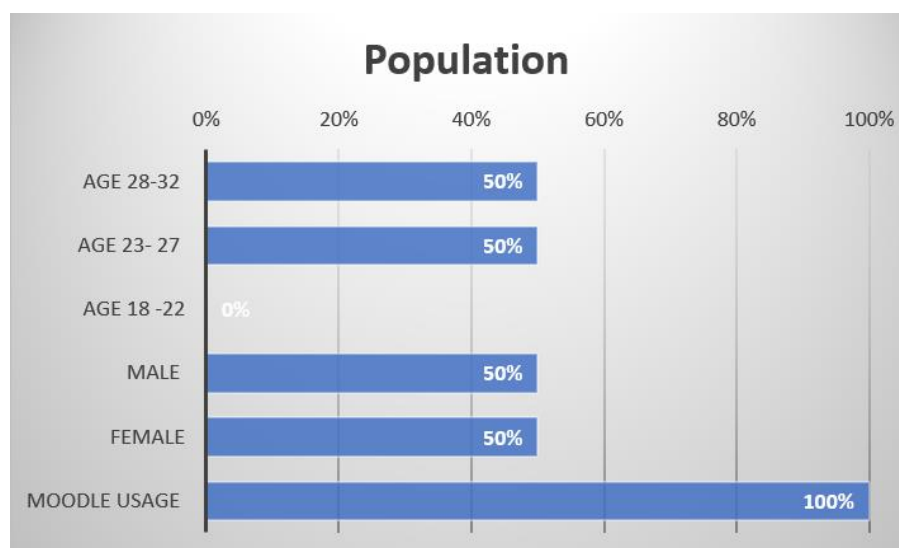
1. Have you used Moodle?
2. How many times per week?
3. For what do you use it mainly?
4. Do you like using it for the purpose you just said?
5. Why?
6. Is it all clear for you?
7. Why?
8. What will you change for your personal use?
9. Why?
10. Which platform on Moodle do you use for your studies?
11. Why?
12. Do you think Moodle has helped you during your studies?
13. Why?
14. How old are you?
15. Are you female or male?

Research Findings

As a first finding, it is showed below a world cluster created with Nvivo software, uploading the answers from the students interviewed.

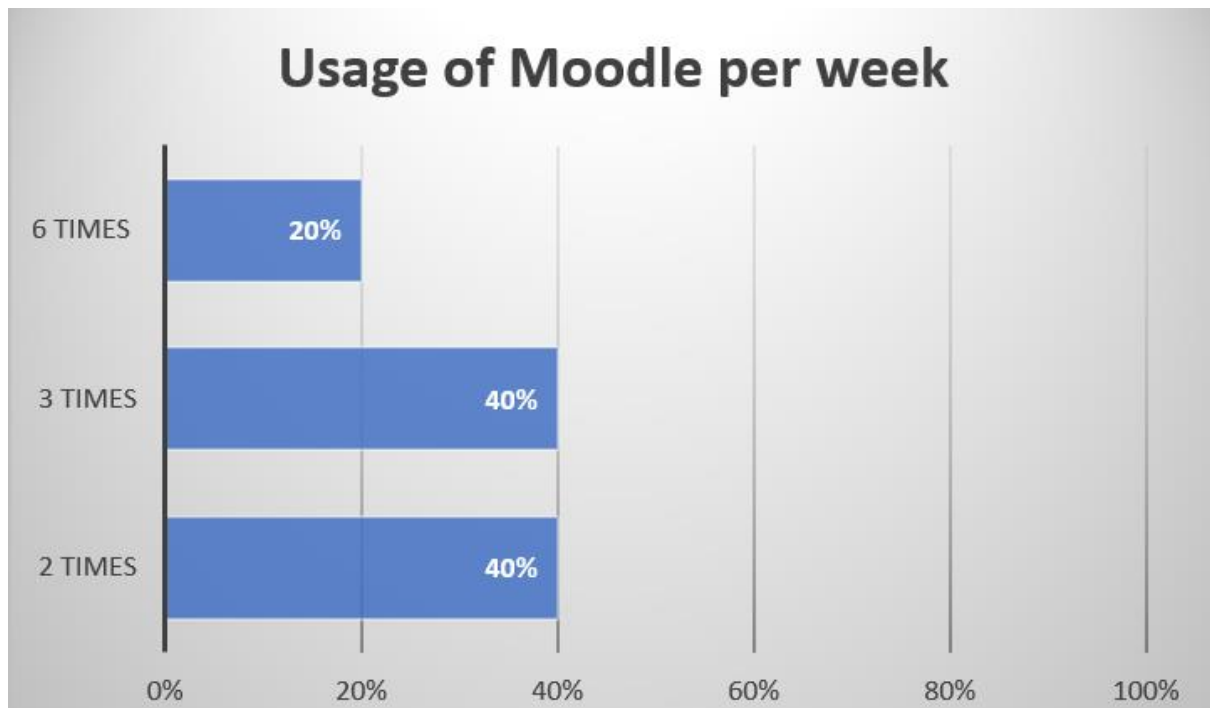


It is visible that we are talking about "Moodle" the word "Clear" is cited many times, and the "Library" has an impact for the students at first sight.

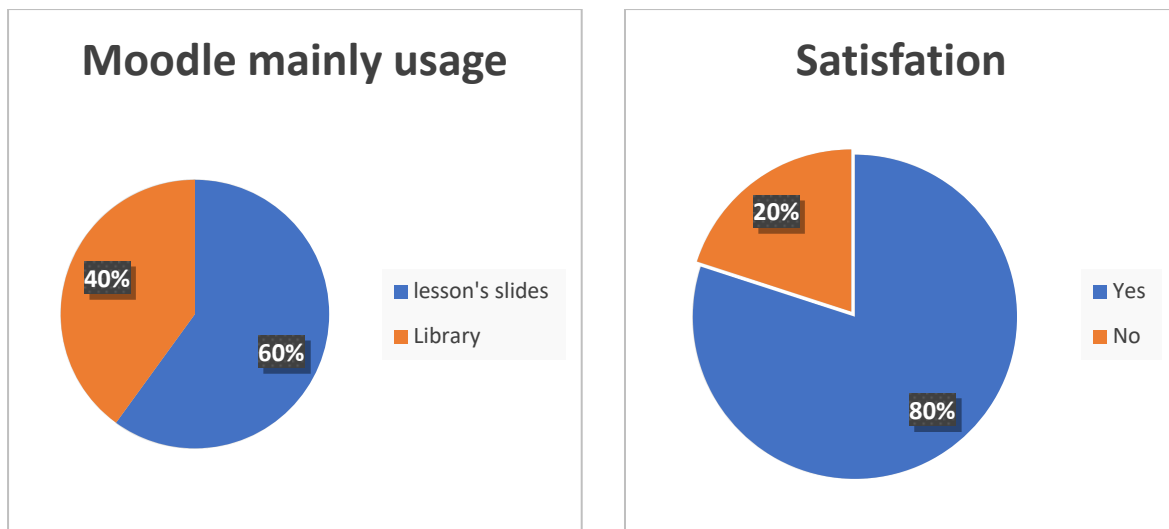


The data in the first bar chart reveal that 100% of the population is using Moodle, 50% male, and 50% female. 50% from 23 to 27 years old and 50% from 28 to 32 years old, while no

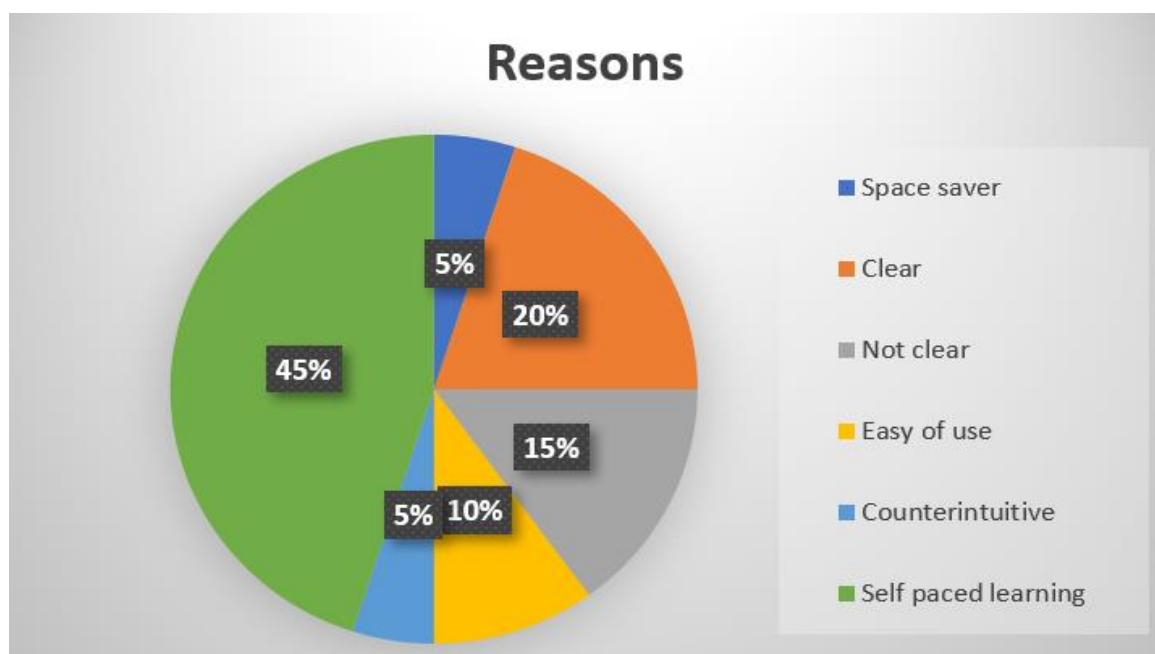
one was from 18 to 22 years old has been interviewed. It is also clear from the cluster words that females and males have the same proportion in dimensions and so confirmed by the chart as well.



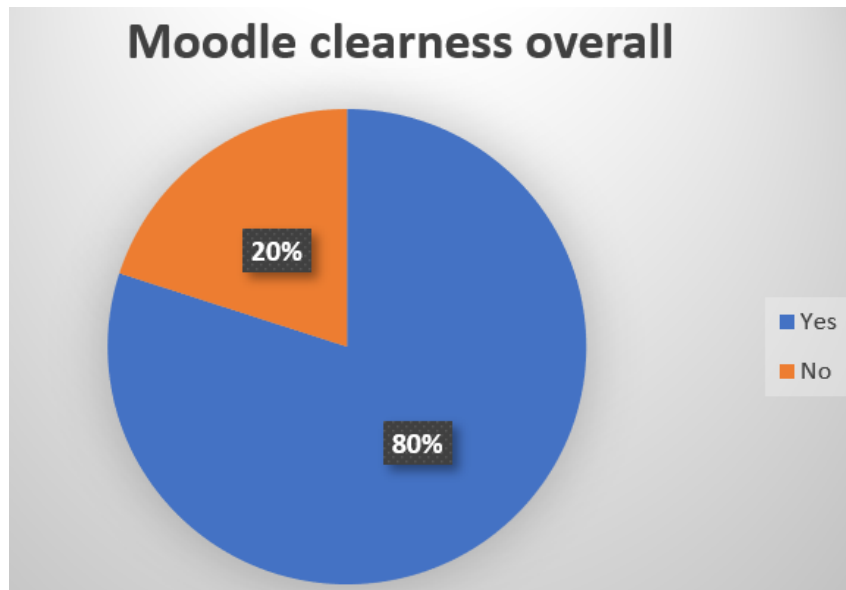
Students declared that only 20% of them are using Moodle 6 times per week in this bar chart, and the remaining 80% between 2 to 3 times per week.



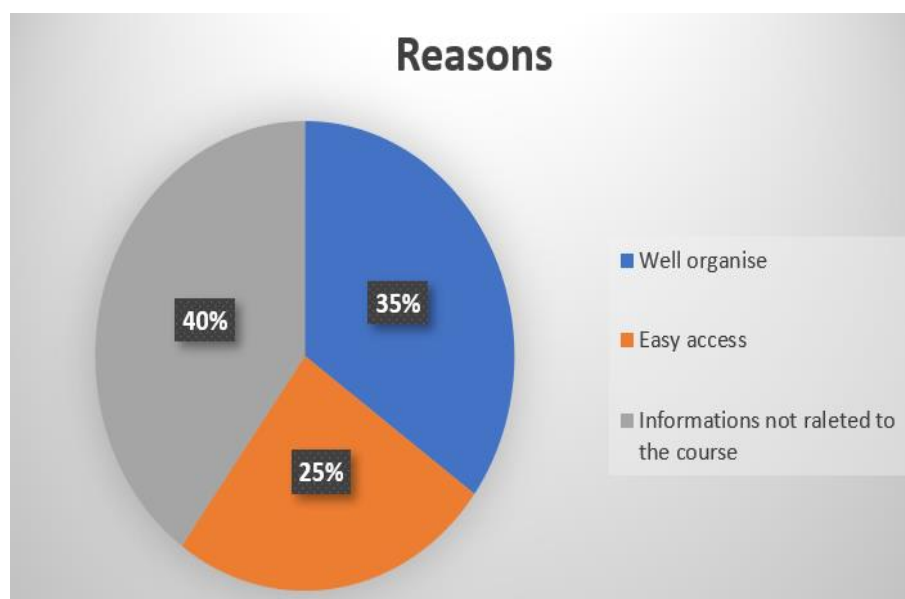
Moodle is mainly used for checking lesson slides, following the library usage. 80% of the students are satisfied and like using it.



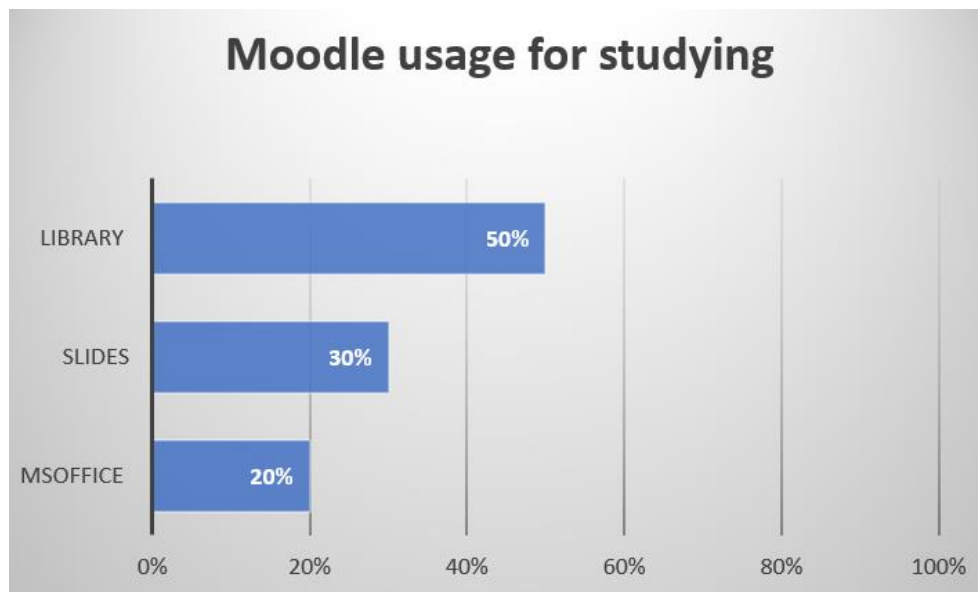
The main reasons why the library and the access to the classes' slides are appreciated is that students can study at their own pace, anytime and anywhere, and the advantage to be space saver, easy to use, and clear. However, 15% of students believe it is not clear and 5 % not intuitive, bringing 20% overall dissatisfaction. The remaining 80% is satisfied as proven in the previous pie chart above. The general clearness confirms that the majority of students find Moodle Clear, as shown in the pie chart below.



Students find Moodle easy because of the good organization and easy access. Still, the remaining 40% do not like that many information does not belong to the course; it is grouped all on the same page. Half of this 40% made them believed that for this reason, Moodle is not clear. The other 20% consider it is not a valid reason to classify Moodle as not clear.



Students confirmed that they would like to change Moodle with the relevant course information only, to make it easier and the navigation faster for personal use. Having a personalized folder for taking notes and saving their works to be more practical, made the library simpler, avoiding multiple links and log in to get access to the materials needed.



Students also revealed that from what available on Moodle, for their studies, 50% is using the library, while 30% mainly refer to the slides, and the minority, 20%, use Microsoft Office package.

Conclusion

VLE system as students survey reported as well as (Trombley & Lee, 2002) and (Sanchez and Hueros 2010) articles, that it is a great possibility to study at students' own time developing better personal education. There are always improvements to face and problems to overcome, but this system is constantly studied, as proven by references, for its development. Having a choice to do not travel and save time and money for a student is significant as having convenient access for all necessary education progress.

References

- Davis, F. D., Bagozzi, R. P., & Warshaw, P. R., 1989. User acceptance of computer technology: A comparison of two theoretical models. *Management Science*, pp. 982-1003.
- Hammoud L. Love S. Baldwin L., & Chen S. Y., 2008. Evaluating WebCT Use in Relation to Students' Attitude and Performance. *International Journal of Information and Communication Technology Education*, 4(2), pp. 26-43.
- Longworth, N., & Davies, W. K., 1996. *Lifelong learning*. London: Kogan page.
- Mirani, R., & King W. R. , 1994. Impacts of end-user and information center characteristics on end-user computing support. *Journal of Management Information Systems*, 11(1), p. 141–166.
- Mujiono S., & Purwanto S., 2017. To Govern e-learning system: a proposal to deal with regulation compliance, institution objective, and user need. *International Journal of Management and Applied Science*, 3(10), pp. 57-58.
- Mujiono S., Raka Y., & Arif R. D., 2019. Load balancing clustering on moodle LMS to overcome performance issue of e-learning system. *TELKOMNIKA*, 17(1), pp. 131-138.
- Ngai E. W. T., Poon J. K. L., & Chan Y. H. C., 2007. Empirical examination of adoption of WebCT using TAM. *Computers and education*, 48(2), pp. 250-267.
- Opdenakker R., 2006. *Advantages and Disadvantages of Four Interview Techniques in Qualitative Research*. Berlin Vol. 7, Iss.4.
- Sánchez R.A., & Hueros A.D., 2010. Motivational factors that influence the acceptance of Moodle using TAM. *Computers in human behavior*, Volume 26(Issue 6), p. 1632–1640.
- Selim, H. M., 2003. An empirical investigation of student acceptance of course websites. *Computers and Education*, Volume 40, p. 343–360.
- Sumner, M., & Hostetler, D, 1999. Factors influence the adoption of technology in teaching. *Journal of Computer Information Systems*, 40(1), pp. 81-87.
- Trombley, K. B., & Lee, D., 2002. Web-based learning in corporations: Who is using it and why, who is not and why not?. *Journal of Educational Media*, 27(3), p. 137–146.
- Venkatesh, V., & Davis, F. D., 2000. A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management science*, p. 186–204.

