

Student's learning experience with
Virtual Learning Environment (VLE) –
Moodle: Case study at University of
Wales Trinity Saint David London
Campus

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Introduction

Digital education has evolved significantly over the past years. Hiltz and Turoff (2005) were discussing the evolutionary changes in technological solutions for education, regarding online university courses as the solutions for moving higher education online. At that time, an argument for hybrid education was made, however, in light of the recent regulations regarding isolation and social distancing caused by the Covid-19 pandemic, the majority of universities in the UK and worldwide were forced to switch entirely in the online environment, as solution to limit physical contact (Weiss, 2020). This has caused some distress, as reported by the media (Musaddique, 2020), especially among international students. The aim of this study is to assess the impact of Virtual Learning Environment (VLE) on students in the UK. In order to achieve this aim, a quantitative analysis of how students from the University of Wales Trinity Saint David have experienced learning via the VLE platform Moodle.

Virtual Learning Environments (VLEs)

In an analysis of educational research trends concerning the evolution of e-Learning, Valverde-Berrosco et al. (2020) observed that education has evolved to a more interactive setting which generally combines e-Learning with in-class learning. Students are generally encouraged to engage in individual study using materials on online platforms. The most researched platforms of VLE according to Valverde-Berrosco et al. (2020) are those which offer MOOC (Massive Open Online Courses), where universities put individual courses either free or for a small fee. It was found that students who prefer MOOC often do so for particular courses which can either help them in their careers or are done as a hobby, with the purpose of personal development.

Moreover, a report published in Geneva by the International Baccalaureate Organisation (2020) has indicated that VLEs offer a wide range of interactive solutions for study to students worldwide. This was found to improve access to knowledge and enable international students to access courses they would not have the possibility to attend otherwise. A study focusing on the use of VLEs in the context of junior high school training has found that in particular Moodle allows students to access numerous web-based resources based on their individual needs. This allows students to develop their research skills and become more experienced in conducting their own research. In addition, Mosquera (2017) conducted a qualitative research regarding the implementation of VLE in an English as a Foreign Language class at a public university in Colombia, and found that while there are numerous benefits of implementing VLEs in regular curricula, such as enhancement of creativity, interactive activities and development of digital skills, there are also some threats, such as the capacity of internet laboratories of sustaining VLEs and the low speed of internet connectivity which can render the use of VLEs much more difficult for students and teachers as well. As these shortcomings are overcome, Mosquera (2017) found that the overall experience with e-Learning is satisfactory.

In addition, several studies (Webster, 2014; Alves et al., 2017) found that the use of VLEs as part of the regular higher education curricula enhances student performance and creativity. However, another study (Fredes and Espinoza, 2018) conducted in Chile has found that due to technological shortcomings (both extrinsic such as low internet connectivity and lack of proper equipment and intrinsic, such as lack of digital skills), students may have a negative experience with using VLEs.

As far as Moodle is concerned, there are several opinions both regarding the advantages and disadvantages of the platform. While Almenara et al. (2019) have found that Moodle is a platform generally used as a repository of information students can access with ease, Grossi et al. (2018) argued that Moodle presents a less user friendly interface which makes the experience more difficult for students when accessing the information, in comparison to Canvas. In addition, while Al-Huseiny (2015) considers Moodle as a complete VLE which can offer students the possibility of an enhanced study experience, Teo et al. (2019) argue that the user experience is highly dependent on student's age and digital skills, indicating that students with lower digital skills have had a worse experience with the platform than those with highly developed digital skills. Furthermore, studies (Laeq and Memon, 2018; Tapia-Repetto et al., 2019) have shown that for both students of a younger age and students of an older age, a combination of social media networking solutions and VLEs can improve the experience of use and the interaction between students. Often using WhatsApp for example (Tapia-Repetto et al., 2019) has enabled students to exchange information amongst them, share advice on how to access different resources using Moodle, or share actual information found amongst Moodle resources.

Primary data collection

The primary data used in this research was collected using a questionnaire. According to de Vaus (2014) this method qualifies as a quantitative method of research and its philosophical background is rooted in positivism. As opposed to interpretivism, positivism is focused on mathematical or scale measurements of a phenomenon and not on interpreting what is observed through the prism of the researcher's own knowledge and experience. This method was chosen as it was deemed appropriate to measure how students have experienced the use of VLE – Moodle, which is the aim of this study.

The questionnaire is presented in Appendix 1. 10 questions were devised as per the findings regarding VLEs from secondary research, as presented in the previous section. Half of the questions required a multiple choice answer with only one option available for answer and they measured age, whether or not students use Moodle or whether they would recommend it (see Appendix 1). Five items were built starting from de Vaus's (2014) presentation of Likert scales. Ethics (de Vaus, 2014) was taken into account and participants were informed about the purpose of the data collection. No personal data was stored. The survey was distributed online to students, and only 10 responses were received.

Analysis and discussion

The data was analysed using Excel statistical tools and graphs. The answers and their numerical mapping are presented in Appendix 2. From there it can be seen that all respondents are currently students at the University of Wales Trinity Saint David and are currently attending online classes. In terms of experience with attending such classes, the data is presented in the graph below:

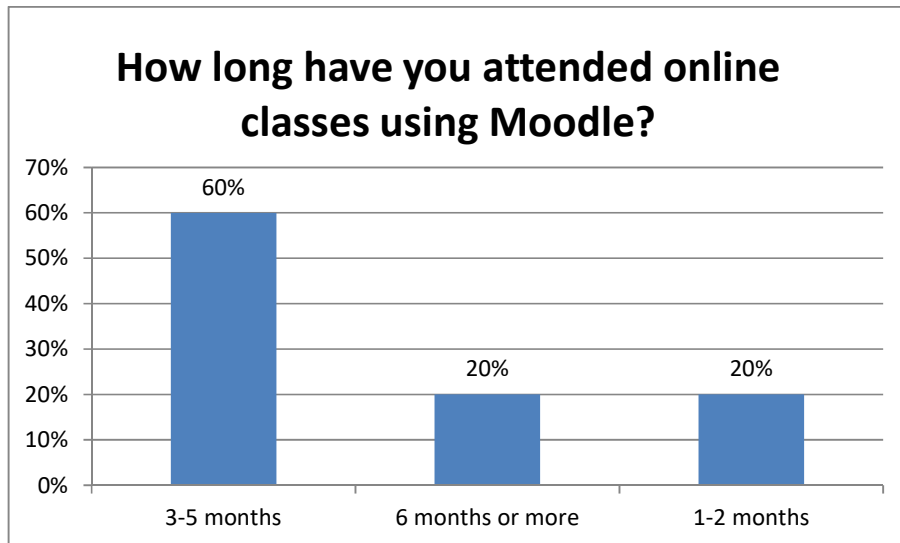


Image 1: Experience in attending online classes

The above image demonstrates that the majority of students currently using Moodle have started doing so in the last few months, which coincides with the legislative developments in the UK which led to university classes to be moved online due to social distancing. This also shows that the majority of students have not used VLEs intensively in the past and are therefore relatively new to the platform.

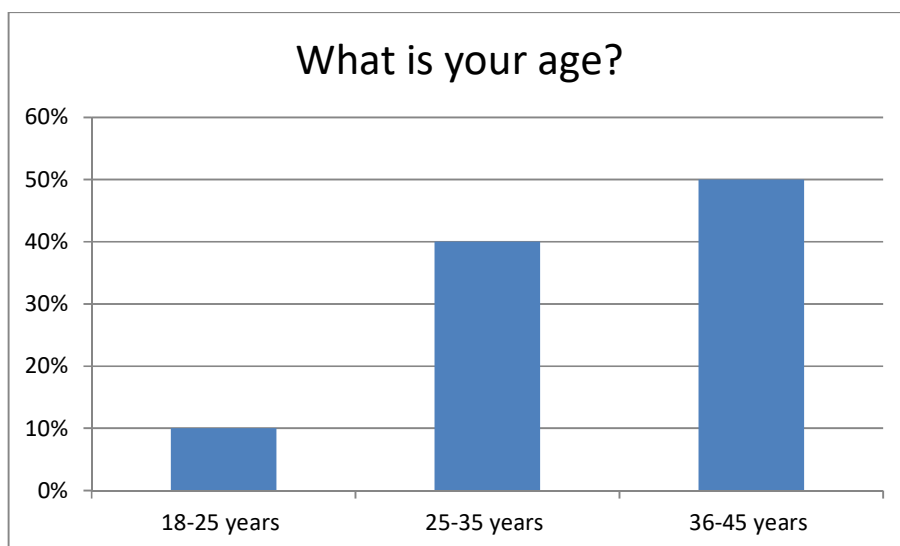


Image 2: Age ranges

This graphs shows that the majority of respondents are between the ages of 36 and 45, a fact which is relevant for the correlations conducted between age and the perceived ease of use of Moodle, as per the table below:

	<i>What is your age?</i>
On a scale of 1 to 5, please rate how easy to use you think the platform Moodle is	-0.703123049

Table 1: Correlation between age and perceived ease of use of Moodle

Table 1 shows a high negative correlation between age and perceived ease of use. The value indicates that there is a 70.3% probability that higher age would cause students to have more difficulties in using the platform in comparison to younger students. This is also consistent with the findings of the literature, as Teo et al. (2019) argued.

	<i>On a scale of 1 to 5, please rate how easy to use you think the platform Moodle is</i>
On a scale of 1 to 5, please rate your technological competencies	0.7699582

Table 2: Correlation between technological competencies and perceived ease of use of Moodle

The table above also correlates the respondents' self-assessment of their technological competencies with the perceived ease of use of the platform. In this case, a positive correlation can be seen, meaning that the higher one's digital competencies are, the easier it is for them to use Moodle for e-Learning. The value obtained indicates that for the presented sample of 10 respondents there is a 76.99% probability that digital competencies can explain the variation in the perceived ease of use of the platform. Numerous studies in the literature (Laeq and Memon, 2018; Tapia-Repetto et al., 2019; Teo et al., 2019) have discussed the role of digital skills in enhancing the experience of students when using Moodle.

More correlations are presented in Appendix 3. Significant correlations can be observed between perceived usefulness of Moodle as a VLE platform and time of using Moodle, perceived usefulness and perceived ease of use, perceived usefulness and perceived academic improvement, perceived ease of use and perceived academic improvement, and perceived usefulness, ease of use and academic improvement in correlation to the possibility to recommend to friends and family. As such, in terms of probability to recommend to friends and family, a negative correlation was observed in relation to perceived usefulness of the platform (-86.18%), perceived ease of use (-73.57%) and perceived improvement of academic results (-87.93%), which indicates that as these 3 factors are perceived to be low, the probability of not recommending the platform for use increases.

In addition, it is interesting to observe from the correlations in Appendix 3, that the students who perceive the platform as useful have also considered their academic results are improved by its use and consider it is user friendly (all correlations between the aforementioned variables are positive). This is consistent with numerous other studies (Webster, 2014; Mosquera, 2017; Alves et al., 2017; Valverde-Berrosco et al., 2020) who indicated that students' academic results have improved when using VLE and that students' overall satisfaction with e-Learning is satisfactory.

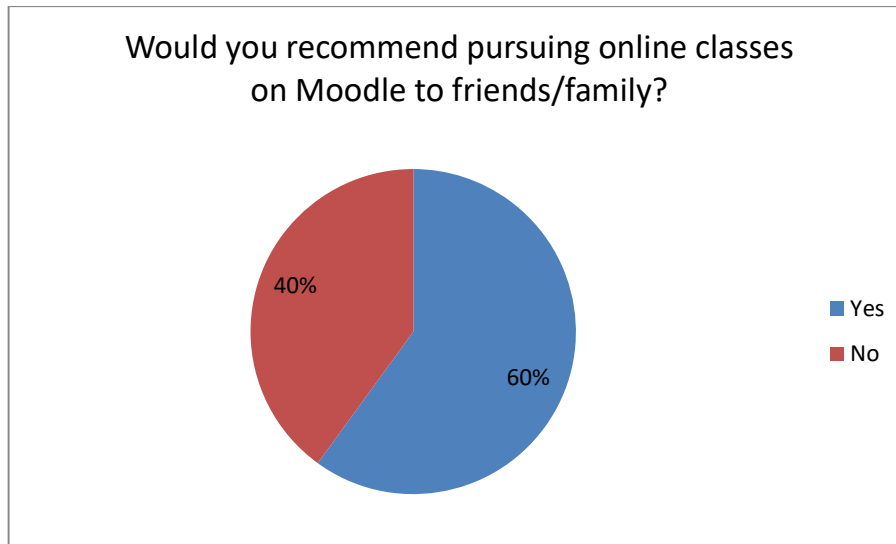


Image 3: Probability of recommending Moodle

A final point of the analysis, as per the pie chart in image 3, is that overall students seem to be satisfied with the use of Moodle, despite several identified shortcomings, and are therefore likely to recommend other people (friends, family) to pursue higher education programmes which involve the use of VLEs such as Moodle.

Conclusion

To conclude, statistical analysis has managed to lead to the achievement of the aim of this study, which was to assess the impact of VLE on students from the University of Wales Trinity Saint David, based on what they have experienced learning via the VLE platform Moodle. As shown by this study, students are overall satisfied with the use of Moodle as a solution for e-Learning during this time. Those students who have indicated they are struggling seem to experience issues due to lower digital skills. However, results seem to suggest that even students who are struggling have shown overall satisfaction and agree that their academic results may have improved, which suggests the possibility that having to use VLE improves students' digital skills.

The main limitation of this study is the small sample size of participants, which could have affected the statistical power of the data (i.e. the ability to correctly detect a phenomenon and report it to a larger scale). A recommendation for future study would be a replica of the current study at a much larger scale, encompassing a higher number of UK universities

impacted by the sudden switch to online courses as a result of rules and regulations aimed at limiting human contact to control the spread of Covid-19, and a more in depth exploration of the correlation between VLEs and the development of students' digital skills.

References

AL-Huseiny, M. (2015) "An e-Learning Environment Based on the Moodle Platform for Iraq Universities", *Wasit Journal of Engineering Sciences*, 3(2), pp. 5-67. doi: 10.31185/ejuow.vol3.iss2.39.

Alves, P., Miranda, L. and Morais, C. (2017) "The Influence of Virtual Learning Environments in Students' Performance", *Universal Journal of Educational Research*, 5(3), pp. 517-527. doi: 10.13189/ujer.2017.050325.

Cabero-Almenara, J., Arancibia, M. and Del Prete, A. (2019) "Technical and Didactic Knowledge of the Moodle LMS in Higher Education. Beyond Functional Use", *Journal of New Approaches in Educational Research*, 8(1), pp. 25-33. doi: 10.7821/naer.2019.1.327.

de Vaus, D. (2014) *Surveys in social research*. London: Routledge.

Fredes, C. and Espinoza, S. (2018) "Evaluation of an Experimental Virtual Learning Environment of Winemaking for Middle School and College Students in Chile", *Revista Electrónica Educare*, 22(2), pp. 1-10. doi: 10.15359/ree.22-2.13.

Grossi, M. et al. (2018) "The Educational Potentialities of the Virtual Learning Environments Moodle and Canvas: A Comparative Study", *International Journal of Information and Education Technology*, 8(7), pp. 514-519. doi: 10.18178/ijiet.2018.8.7.1091.

Herrera Mosquera, L. (2017) "Impact of Implementing a Virtual Learning Environment (VLE) in the EFL Classroom", *Íkala, Revista de Lenguaje y Cultura*, 22(3), pp. 479-498. doi: 10.17533/udea.ikala.v22n03a07.

Hiltz, S. and Turoff, M. (2005) "Education goes digital", *Communications of the ACM*, 48(10), pp. 59-64. doi: 10.1145/1089107.1089139.

International Baccalaureate Organization (2020) *Online learning, teaching and education continuity planning for schools*. Geneva: International Baccalaureate Organization.

Laeq, K. and Memon, Z. (2018) "An Integrated Model to Enhance Virtual Learning Environments with Current Social Networking Perspective", *International Journal of*

Emerging Technologies in Learning (iJET), 13(09), pp. 252-268. doi: 10.3991/ijet.v13i09.8000.

Musaddique, S. (2020) *International students are torn on whether to study in Britain as universities contemplate virtual classrooms*, *Business Insider*. Available at: <https://www.businessinsider.com/international-students-torn-as-uk-universities-go-virtual-2020-5> (Accessed: 14 August 2020).

Shulamit, K. and Yossi, E. (2011) "Development of E-Learning environments combining learning skills and science and technology content for junior high school", *Procedia - Social and Behavioral Sciences*, 11, pp. 175-179. doi: 10.1016/j.sbspro.2011.01.056.

Tapia-Repetto, G., Gutiérrez, C. and Tremillo-Maldonado, O. (2019) "Nuevas tecnologías en educación superior. Estudio de percepción en estudiantes acerca del uso de WhatsApp y Entornos Virtuales de Aprendizaje (Plataforma Moodle)", *Odontoestomatología*, 21(33), pp. 28-36. doi: 10.22592/ode2019n33a5.

Teo, T. et al. (2019) "Factors that influence university students' intention to use Moodle: a study in Macau", *Educational Technology Research and Development*, 67(3), pp. 749-766. doi: 10.1007/s11423-019-09650-x.

Valverde-Berrocoso, J. et al. (2020) "Trends in Educational Research about e-Learning: A Systematic Literature Review (2009–2018)", *Sustainability*, 12(12), pp. 5153-5176. doi: 10.3390/su12125153.

Webster, R. (2015) "Declarative knowledge acquisition in immersive virtual learning environments", *Interactive Learning Environments*, 24(6), pp. 1319-1333. doi: 10.1080/10494820.2014.994533.

Weiss, S. (2020) *This is online learning's moment. For universities, it's a total mess*, *WIRED UK*. Available at: <https://www.wired.co.uk/article/university-online-coronavirus> (Accessed: 14 August 2020).

Appendix 1

DSR Moodle Questionnaire

This questionnaire concerns the university's online learning platform, and feedback from other students is expected. Participation is optional and no personal information is required to be filled in. Submission is considered as your consent to participate in this research.

* Required

1. Are you currently a student at the University of Wales Trinity Saint David? *

Mark only one oval.

☐ Yes

☐ No

2. Do you currently attend classes using Moodle? *

Mark only one oval.

☐ Yes

☐ No

3. How long have you attended online classes using Moodle? *

Mark only one oval.

☐ 0-3 weeks

☐ 1-2 months

☐ 3-5 months

☐ 6 months or more

4. On a scale of 1 to 5, please rate how useful you think the platform Moodle is for online education *

Mark only one oval.

	1	2	3	4	5	
Not at all useful	☐	☐	☐	☐	☐	Very useful

5. On a scale of 1 to 5, please rate how easy to use you think the platform Moodle is *

Mark only one oval.

	1	2	3	4	5	
Not at all easy to use	☐	☐	☐	☐	☐	Very easy to use

6. On a scale of 1 to 5, please rate your technological competencies *

Mark only one oval.

	1	2	3	4	5	
Very low	☐	☐	☐	☐	☐	Very high

7. On a scale of 1 to 5, please rate how often you use other online or mobile platforms for learning (example: WhatsApp etc.). *

Mark only one oval.

	1	2	3	4	5	
Not at all often	☐	☐	☐	☐	☐	Very often

8. On a scale of 1 to 5, please rate how much has the use of Moodle improved your academic achievements. *

Mark only one oval.

	1	2	3	4	5	
Not at all	☐	☐	☐	☐	☐	Very much

9. Would you recommend pursuing online classes on Moodle to frinds/family? *

Mark only one oval.

- ☐ Yes
☐ No

10. What is your age?

Mark only one oval.

- ☐ 18-25 years
☐ 25-35 years
☐ 36-45 years
☐ Over 45 years

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Google Forms

<https://docs.google.com/forms/d/1cT4iiVNTn0I.../edit>

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Appendix 2

Are you currently a student at the University of Wales Trinity Saint David?	Do you currently attend classes using Moodle?	How long have you attended online classes using Moodle?	On a scale of 1 to 5, please rate how useful you think the platform Moodle is for online education	On a scale of 1 to 5, please rate how easy to use you think the platform Moodle is	On a scale of 1 to 5, please rate your technological competencies	On a scale of 1 to 5, please rate how much has the use of Moodle improved your academic achievements.	Would you recommend pursuing online classes on Moodle to friends/family?	What is your age?
Yes (1)	Yes (1)	3-5 months (3)	3	2	3	3	No (2)	36-45 years (3)
Yes (1)	Yes (1)	3-5 months (3)	4	4	5	3	Yes (1)	25-35 years (2)
Yes (1)	Yes (1)	6 months or more (4)	3	3	3	1	No (2)	36-45 years (3)
Yes (1)	Yes (1)	3-5 months (3)	3	3	3	1	No (2)	36-45 years (3)
Yes (1)	Yes (1)	3-5 months (3)	2	1	2	1	No (2)	36-45 years (3)
Yes (1)	Yes (1)	1-2 months (2)	5	4	3	4	Yes (1)	25-35 years (2)

Yes (1)	Yes (1)	3-5 months (3)	4	3	4	4	Yes (1)	36-45 years (3)
Yes (1)	Yes (1)	1-2 months (2)	5	3	4	4	Yes (1)	25-35 years (2)
Yes (1)	Yes (1)	3-5 months (3)	4	4	5	4	Yes (1)	18-25 years (1)
Yes (1)	Yes (1)	6 months or more (4)	4	4	5	4	Yes (1)	25-35 years (2)

Appendix 3

	<i>How long have you attended online classes using Moodle?</i>	<i>On a scale of 1 to 5, please rate how useful you think the platform Moodle is for online education</i>	<i>On a scale of 1 to 5, please rate how easy to use you think the platform Moodle is</i>	<i>On a scale of 1 to 5, please rate how much has the use of Moodle improved your academic achievements.</i>	<i>Would you recommend pursuing online classes on Moodle to friends/family?</i>
How long have you attended online classes using Moodle?	1				
On a scale of 1 to 5, please rate how useful you think the platform Moodle is for online education	-0.527046277	1			
On a scale of 1 to 5, please rate how easy to use you think the platform Moodle is	0	0.741998516	1		
On a scale of 1 to 5, please rate how much has the use of Moodle improved your academic achievements.	-0.364878192	0.829059829	0.578921919	1	

Would you recommend pursuing online classes on Moodle to frinds/family?	0.322748612	-0.861857502	-0.735661948	-0.87930401	1
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