

The impact of Virtual Learning Environment (VLE; as an example Moodle of our university) on the learning experience of the students at UWTSD London campus.

Abstract

There are several definitions of Virtual Learning Environments (VLE), but, essentially, all of them convey the same understanding thereof: it is an online, i.e. accessible on the web, environment that serves as a library, a study and a classroom and enables both students and teachers to disregard physical/geographical constraints in their interactions.

Although VLEs may be said to have been first introduced quite a long time ago, the first versions that loosely fit this definition were launched in the 1960s. Since then, VLEs developers followed the general advancements and swiftly employed the emerging technology that promised any benefit or new features to their systems.

This study aims to assess the current state of integration of VLEs into everyday higher school practice in general and investigate the opinion of the students about them in particular. To achieve the former goal, we conducted a literature review; the latter objective was accomplished with the help of a custom survey filled out by the students attending the University of Wales Trinity Saint David.

The literature review shows the VLEs are here to stay, and survey basically confirms what was established through similar efforts at other higher education institutions: VLE are viewed positively by the vast majority of the students and, if not boost their performance, they help keep it from degrading through the pandemic, although the adoption acceleration forced upon the parties involved by the said pandemic has its drawbacks.

Introduction

At the current stage of technological development of humankind, virtual learning environments (VLEs) are widely employed in education, middle schools through higher education institutions, as multifunctional communication media enabling teacher-student interactions almost as “live” as they are in face-to-face situations. When used in combination with classroom lessons, VLEs add value as sources of all the materials teachers and students have to share with each other, including homework assignments and papers, reference publications and books, and, in many cases, a fully-fledged library.

VLEs are often called “Learning Management Systems” (LMS) [1], although the definition of an LMS does not contain the teacher-student interaction part, whereas that of a VLE typically does. Thus, today, a VLE is a digital platform accessible online and enabling teachers and students to share study-related materials and effectively communicate. A current term used to describe the studying pattern that has classroom and online activities intertwined is “blended learning” [2], as used at the website of Moodle, one of the most popular VLE software worldwide.

The first VLE that fits the definition was PLATO, which stands for Programmed Logic for Automated Teaching Operations. It was developed at the University of Illinois at Urbana–Champaign and launched in 1960. This system fit the definition of a VLE as it reads nowadays: it allowed remote access to the study-related materials and even enabled teachers and students to communicate with each taking turns with a digital notepad [3]. PLATO was a rather advanced VLE with several roles and a set of features that is currently considered industry standard.

Currently, there are many VLEs available on the market; most of them distinguish themselves from the competition by mixing the feature sets in a unique way, although, essentially, all the VLEs offer solutions to one and the same list of tasks. Some are offered as a service, i.e., they require no infrastructure on the side of the educational institution and the users only need a browser to work with the system. Some, like Moodle, are installable pieces of software that

require a server to run. In other words, the market today has an offer for any specific need an educational institution may have.

In the context of this study, we conducted a literature review and a survey. The literature review yielded the understanding that nowadays VLEs are routinely used systems educational institutions rely on in their everyday activities, and the pandemic has boosted their development and magnified the significance. The survey revealed a positive attitude of the students towards VLEs, which are basically perceived as essential and integral tools facilitating the process of studying.

Rationale

The objective of this study was to investigate how higher education institutions make use of VLEs today and what do the students thereof think about VLEs as a tool integral to their studies. The former goal required a literature review, the latter called for a survey. We asked students attending the University of Wales Trinity Saint David (UWTSD) a set of VLE-related questions. The ultimate goal for us was to suggest improvements to the VLE application patterns adopted at the UWTSD.

The VLE used at UWTSD is Moodle, which generally stands for Modular Object-Oriented Dynamic Learning Environment. It is open-source installable software first launched in 2002 and evolving ever since, supported by both a team of dedicated developers and a large community of contributors. Moodle, currently used in over 100 countries, is one of the most popular VLEs in the world.

Methodology

This study consists of two parts, a literature review and a survey of participants (students).

The first part, the literature review, fully relies on online search powered by Google, which is, given the subject matter of this paper being VLEs, is very appropriate.

The second part, the survey, involved emailing the participants (n=32) invitation to fill in the questionnaire accessible online and a link thereto.

Literature review

Most articles covering VLE revolve around surveys and analyze data obtained with their help. Some consider VLE in general, some focus on a specific system, like Moodle and/or Blackboard.

Essentially, one way or another, all papers pose three questions the answers to which largely uncover the real effectiveness of VLE for all the parties involved in the higher school education process, namely:

- whether the use of a VLE has a positive impact on student learning;
- whether the use of a VLE in teaching and learning helps develop independent learning;
- and whether the use of a VLE increases students' motivation to learn.

Interestingly, parents of the students are typically kept out of the equation, although they are definitely an interested party, too.

The current concept of VLE is not stable, it evolves together with the technology it relies on. An ever-increasing number of educational institutions currently uses VLEs in their everyday activities, but the actual applicability of such systems expands beyond schools and into the corporate realm, with companies of varying sizes making extensive use of VLEs to onboard employees, track performance, foster personal professional development etc. Moreover, VLEs collect and structure much data that can be used for subsequent analysis to identify pros and cons of the currently practiced approach [3].

The degree of acceptance of VLE has been measured since such systems became widespread. There is a number of methodologies applied for the purpose, most based on social and behavioral theories. One of such methodologies is UTAUT, Unified Theory of Acceptance and Use of Technology, which is the modern version of TAM, Technology Acceptance Model. In a study [4] that relied on UTAUT to find out how well the students in England in Turkey perceive VLE and use it, the researchers have found that, generally, such a system was incorporated into curricula without resistance from the attending young people, but students in England tended to be more accepting thereof compared to their peers in Turkey.

Another study investigated acceptance of a VLE by EFL (English as foreign language) students and sought to identify the impact thereof. The researchers surveyed and observed 210 students and 5 teachers at the University of Colombia. The data collected included filled questionnaires and narratives from the teachers. Both the former and the latter were designed to capture and perceptions and attitudes of the participants to VLE. The study showed that students were enthusiastic and motivated to use VLE, although some of them acknowledged finding it difficult to quickly grasp functionality of this or that component of the system, despite belonging to the digital generation. The threat to VLE evolution and expansion, as identified by this research effort, came from the internet connectivity and other technical aspects the environments rely on.

As for the teachers, a study by Dahlstrom, Brooks, and Bichsel [6] specifically sought to find out their genuine attitude towards VLEs. This work dates back to 2014, when VLEs were already widely used through the world but not yet as commonplace as they are nowadays, in the age of the pandemic. The study revealed that 74% of teachers believed VLEs are a very useful tool that improves the process of teaching in general, and 71% said it also helped students to do better at their schools. As for the scale of use of VLEs, with the limitations of this study factored in, it was established that 99% of educational institutions have a VLE deployed and used; 85% of teachers use it and 56% do so every day; 83% of students log on to their educational institution's VLE and 56% use the environment in connection with every or almost every course of the curriculum.

With the COVID-19 pandemic in the backdrop, there is also a problem of forced, accelerated adoption of VLEs. A study by Spanish researchers aimed to uncover the attitude of students of the University of Granada to such a "crash course" approach. As is typical for such works, the data collection method selected involved an online questionnaire. Having processed the filled out submitted questionnaires, the researchers discovered that, overall, the students were dissatisfied with the transition to the VLE as a main medium of contact between them and the professors. The same opinion was voiced about the adequacy of teaching methodologies and involvement of the professors. Although use of the University's VLE did see a spike, the students confessed to insufficient proficiency with the tools that were now used in the learning process much more often, such tools being image, video, graphics editors, synchronous response systems, anti-plagiarism tools. The professors, according to the students surveyed, were equally as non-proficient with the said tools as the students themselves.

Primary data analysis

University of Wales Trinity Saint David has Moodle powering the VLE for each of its students. According to the system's website, Moodle is the world's most popular learning management system.

As of 2020-06-15 Moodle powers hundreds of thousands of learning environments globally. It is trusted by institutions and organisations large and small, including Shell, London School of Economics, State University of New York, Microsoft and the Open University. Over 213 users rely on Moodle-enabled VLEs throughout the world, across both academic and enterprise domains.

The sample selected for this study was comprised of UWTSD students (n=30) of various age, the mean being 27 years. Overall, all of the respondents expressed favorable opinions about VLEs in general and Moodle in particular, but some concerns, in line with those we encountered in the literature, were voiced, too.

The most popular answer to the question of adaptation to distance learning and extensive reliance on Moodle was “well”, with the extreme options here being “great” and “badly” (**Figure 1**). Most students also stated they liked using Moodle, but the deeper introduction thereof into their daily routines had little effect on the students’ motivation, i.e., the most common answer to the question of “Has distance learning changed your motivation to study?” was “Hasn’t changed it” (**Figure 2**).

The time spent on Moodle has increased significantly since switching to distance learning: all respondents claimed to be spending upwards of 4 hours a week logged into the system. It should be noted, though, that there is no available pre-pandemic data this to figure can be compared to.

Moodle was also the prevailing pathway the students submitted their works through. Interestingly, the other options suggested for this question were two popular messengers and email, but, considering the size of the sample in this study, their share was insignificant (**Figure 3**).

As for the quality of teaching via the VLE, the students had mixed impressions. Some of them stated they understood everything, others mentioned that the experience was just satisfactory and they did not grasp the material given fully. The latter opinions may also stem from the poor skill of some teachers with Moodle.

Secondary data analysis

Our literature review indicates that VLEs are here to stay. They are generally well accepted by both students and teachers in all types of educational institutions. In many cases, VLEs are instrumental to the learning process, delivering both the versatility and the ease of access to the content powered by the advanced technology.

The part played by the pandemic in the development of VLEs is double-sided. On the one hand, the switch to distance learning as the primary mode of giving and receiving education has boosted adoption of VLEs. While such systems were already deployed in most educational institutions, they remained underused, some of their functions neglected. The COVID-19 pandemic changed that and made VLEs truly integral to the process, but the associated steep learning curve (the need to master software and functions neither students nor teachers were using before) has put some of the users off.

Nevertheless, the integration of VLEs into the process of providing and receiving education will evolve, and some curricula may become online-only, which is already the case for specific trade courses offered by both the higher school and private companies without direct affiliation therewith.

Conclusions

This study aimed to assess how VLEs are used in everyday higher school practice, the degree of their integration thereto, and find out the relevant opinions of the students. The two parts of the study, a literature review and a survey, revealed that a) VLEs are widely adopted in higher education institutions throughout the world, b) the pandemic, i.e., the switch to distance learning, gave their integration an additional boost and c) students generally perceive VLEs as a regular tool in the education process, although heavy reliance thereon did translate into some challenges for them.

References

1. History of virtual learning environments
2. About Moodle
3. The Influence of Virtual Learning Environments in Students' Performance
4. The acceptance and use of a virtual learning environment in higher education: an empirical study in Turkey, and the UK
5. Impact of Implementing a Virtual Learning Environment (VLE) in the EFL Classroom
6. Dahlstrom, E., Brooks, C., & Bichsel, J. The Current Ecosystem of Learning Management Systems in Higher Education: Student, Faculty, and IT Perspectives. Research report. Louisville, CO: ECAR, September 2014.
7. César Torres Martín, Christian Acal, Mohammed El Homrani, Ángel Custodio Mingorance Estrada. Impact on the Virtual Learning Environment Due to COVID-19

Figures

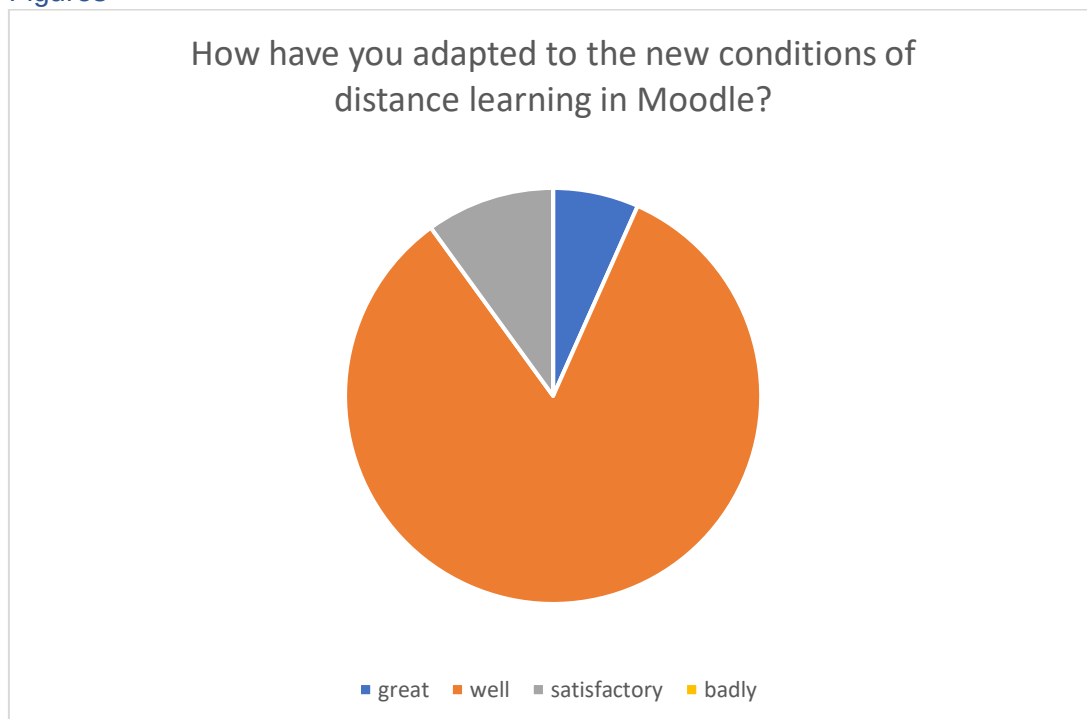


Figure 1.

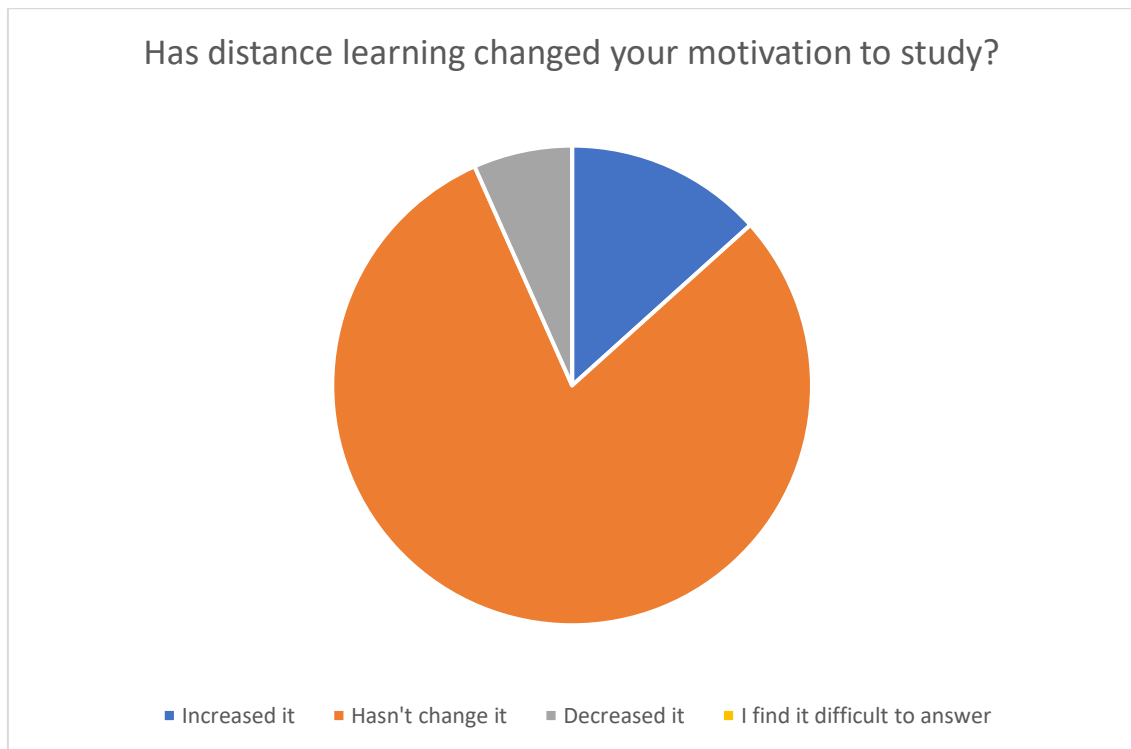


Figure 2

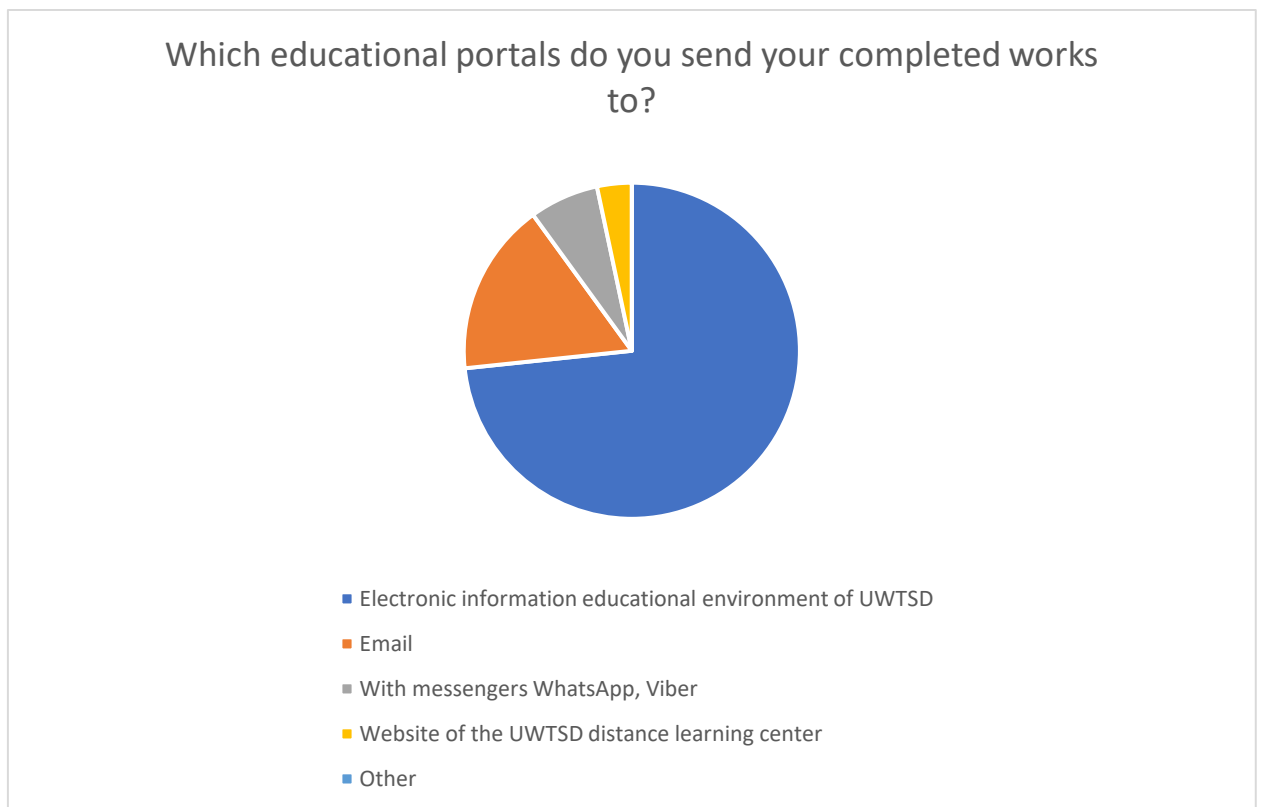


Figure 3.

In-Class exercise: Questionnaire Design.

Student Name: Daria Mutlu

Student ID: 2030586

Module Name: Digital Skills and Research Methods Term 2 Group: 6

1) Your gender:

☐ Male

☐ Female

☐ Prefer not to say

2) Your age:

☐ 18-25

☐ 25-35

☐ 35-45

☐ 45 and older

3) How have you adapted to the new conditions of distance learning in Moodle?

☐ Great

☐ Well

☐ Satisfactory

☐ Badly

4) Is it convenient for you to use Moodle?

☐ I like it

☐ It's difficult

☐ It's easy

☐ Sometimes probably

☐ I find it difficult to answer

5) The level of motivation to learn from you in the framework of the distance:

☐ Increased

☐ Hasn't changed

☐ Decreased

☐ I find it difficult to answer

6) How many hours are you using Moodle on a week?

☐ 1-2 hours

☐3-4 hours

☐4 hours and more

7) Which educational portals do you send your completed works to?

☐Electronic information educational environment of UWTSD

☐Email

☐With messengers WhatsApp, Viber

☐Website of the UWTSD distance learning center

☐Other...

8) How do you assess the work of the teaching staff in the UWTSD university on a distance learning?

☐Excellent, everything is clear and interesting

☐It is good but I would like more additional materials on the topics being studied

☐Satisfactory, I do not fully master the material

☐It is bad, I do not understand the topic

☐I find it difficult to answer

9) What do you think VLE (Virtual Learning Environment) is it good experience for student?

☐Yes

☐No

☐Probably to answer

10) Are you satisfied with the learning in UWTSD in the distance learning mode?

☐Yes

☐No

☐Rather yes than no

☐Rather no than yes

☐Other...