STUDENTS' ATTITUDES TOWARDS TECHNOLOGY-ENABLED LEARNING: A CHANGE IN LEARNING PATTERNS? THE CASE OF A MASTER'S COURSE IN POLITICAL SCIENCE

Mihai Păunescu, National School of Political and Administrative Studies, Bucharest, Romania

Abstract

This article sets to explore the attitudes of higher education students enrolled in a political science programme at Master level towards e-learning facilitated by the introduction of a Moodle platform. The students have been surveyed at the end of public management course in the first semester of the programme asking them to evaluate both the contents (resources) available on the virtual learning environment, as well as the type of activities and the general interaction with technology. The objectives of our survey were twofold: first to carry a thorough evaluation of the course in order to collect evidence for further improvement, but also, more importantly, to unravel the established patterns of students' learning and their attitudes towards a set of technology facilitated type of learning activities. We conclude that the implementation of a VLE is definitely not likely to immediately change existing learning/teaching practice. It is seen mainly as a support and complementing activity of face-to-face course deliveries, but does not yet change the pedagogical underpinnings of the learning practices. On the other hand, a thorough evaluation of students' attitudes towards technology-enabled learning is crucial for consistently planning course designs and for embedding a quality culture at course level.

Keywords: e-learning, learning strategies, learning theories, higher education, students' attitudes.

Objectives

This article sets to explore the attitudes of higher education students enrolled in a political science programme at Master's level towards e-learning facilitated by the introduction of a Moodle platform. The students have been surveyed at the end of *public management* course in the first semester of the programme asking them to evaluate both the contents (resources) available on the virtual learning environment, as well as the type of activities and the general interaction with technology. The objectives of our survey were twofold: first to carry a thorough evaluation of the course in order to collect evidence for further improvement, but also, more importantly, to unravel established patterns of students' learning and their attitudes towards a set of technology facilitated type of learning activities. The literature review that was undertaken for the purpose of this study has also considered two streams of research. First, we reviewed articles on the factual attitudes and representations of students towards technology in learning also comparing to teachers' views and actual use of technology in higher education. Secondly, we spanned some normative models that link various types of tools and technology to educational theories suggesting how to develop consistent design in order to reach the proposed learning outcomes. The first strand of reviewed literature is factual, while the second is more normative.

ISSN 1027-5207

The 'Factual' Literature Review

There is a quite impressive strand of educational research on the impact of technology on the students' attitudes, habits and patterns of learning as well as on their students and teachers' representations of learning with technology (Vogel and Oliver, 2004; Oliver and Price, 2005; Price and Oliver, 2007; Conole et al., 2008; Edmunds et al., 2012). Recent research (Edmunds et al., 2012) shows that usefulness and ease of use are key dimensions of students attitudes towards technology; thus the students attitudes are very much pragmatic and oriented towards effectiveness and flexibility between study, work and leisure. This is consistent with the finding that "technology use at work is an important driver for technology use in other areas" (p. 71). The same research also draws the attention to the fact that students do not necessarily share teachers' perceptions of what is functional and that they "have clear requirements in terms of technology enabling them to produce more in the time they have, and enabling them to be more effective" (p.83). Therefore thorough evaluation of the students' attitudes and their ways of interaction with technology shall be undertaken in order to take full advantage in planning and designing a learning environment. Another piece of research (Conole et al., 2008) that supports these findings also shows that technology provides "alternative routes to engagement, responsive and immediate modes of interaction and communication and flexibility, which allows home, work and university life to become manageable" (p. 523). The research concludes that students are comfortable with technology, see it as integral, are sophisticated users and have specific expectations, such as up-to-date and relevant information and communication. Aspects of learning such as directed study, resource discovery, preparation of assignments, communication and collaboration are supported by students' use of technology. Analyzing the students' attitudes towards a hypermedia Learning Environment, Heike Theyssen (2006) argues that flexibility, including the free choice of time, individual timing and the option of repeats is, from the students' point of view, the most important advantage; "a second important advantage can be seen in the self determined use of the advices within the HML, which implies a certain degree of self-control of the learning process".

On the other hand, as Vogel and Oliver (2004) show teachers tend to think of their virtual learning environment (VLE) area as a publishing platform and not as a course representation; academics are using technology mainly as a support and complementary element. Furthermore Oliver and Price (2005) found that the use of VLEs radically changed the way teachers in higher education do things, but not the purposes and pedagogical values of their practice; teachers tend to focus their use of VLEs on tasks that are easy to implement, usually employing a 'transmissive' model of pedagogy.

Consequently, an important strand of research carried to date warns us of the possible mismatch between the universities "current offerings and students use and a further mismatch between institutions' perceptions of students' use of technology and actual use" (Conole et al., 2008, p.513).

There are, nonetheless, other researches which adopt a more contingent perspective on students' attitudes towards technology use. The individual situation in which a student may be impacts on the attitudes and perceptions towards using a learning platform (Graff, Davies and McNorton, 2004; Alobiedat & Saraierh, 2010). "Although an illusory 'typical learner' exists, a variety of factors, including students' gender, access to the internet, age, owning laptop, and motivation, could explain different reactions among the student population." Graff, Davies and McNorton (2004) argue that "differences exist principally on two levels, which are nationality and cognitive learning style." The authors suggest "that future design of web-based and computer-assisted learning systems need to take account of these differences".

ISSN 1027-5207

Normative Models of E-Learning Integration

On the other hand, a number of studies have focused on normative models and ways of mapping pedagogy, tools and practice for effective e-learning design (Conole et al, 2004; de Freitas et al., 2008). Conole and Fill (2005) have also proposed a taxonomy of learning activities establishing correspondences between pedagogical approaches, type of learning tasks, educational techniques and technological tools. Based on key learning theories, Conole et al. (2004) developed a framework model consisting of six components that constitute alternatives in designing learning activities. According to Conole et al. (2004, p.22-23) these components are:

- *Individual* – Where the individual is the focus of learning.
- *Social* – learning is explained through interaction with others (such as a tutor or fellow students), through discourse and collaboration and the wider social context within which the learning takes place.
- *Reflection* – Where conscious reflection on experience is the basis by which experience is transformed into learning.
- *Non-reflection* – Where learning is explained with reference to processes such as conditioning, preconscious learning, skills learning and memorisation (Jarvis, Holford, & Griffin, 1998)
- *Information* – Where an external body of information such as text, artefacts and bodies of knowledge form the basis of experience and the raw material for learning.
- *Experience* – Where learning arises through direct experience, activity and practical application.

Conole et al. (2004) assert that the different pedagogical approaches, such as behaviourism, reflective learning, experiential learning can be mapped to different parts of the model and thus consistent learning activities could be designed. This model constituted the normative starting point of our research; we thus included survey items that not only evaluated the course components (resources and activities), but also the students attitudes and opinions towards specific type of activities, such as activities centred on individual learning vs. peer collaborative activities, reflective vs. memory based activities, or information vs. experiential type of activities. A set of learning activities such as online discussion, lecture, peer presentation, marked assignment etc. can be mapped against the three dimension of the model as well as against a corresponding learning theory.

Context

It is also important to depict the social and legal context of the introduction of Moodle to our political science students. The study programme and all the courses are offered face-to-face, there being weekly encounters between teacher and students (generally one hour of course and two hours of seminar each week/course). This is a legal requirement for regular face-to-face (non-distance) learning programmes. In addition to this legal requirement, each teacher has the autonomy to design the students' extra hours of learning (besides the face-to-face ones which are mandatory) using various types of technology, resources and activities. This usually leads to a de facto 'blended course' design, although this form of teaching and learning is not legally defined as such (currently the alternative to face-to-face is distance learning which simply implies there is a weaker legal requirement for a far lower number face-to-face hours; generally distance learning programmes are seen as poor quality usually leading to an inflation of diplomas without real acquisition of learning outcomes). Thus, also given the poor reputation of distance learning programmes, flexibility is brought in the traditional courses by complementing the mandatory

ISSN 1027-5207

face-to-face teacher-students interaction with various types of technology. As a consequence, the students in our faculty have long used various types of technology & tools in order to facilitate the learning process, to improve flexibility and accessibility as well as to minimize costs. One of the basic tools, but most frequently used, is the yahoo groups. These have fulfilled two major functions: first a repository of learning resources, be these in the form of textbooks, seminar readers or other materials, second, as an administrative tool where various announcements and information was shared. A general forum is usually used in addition to a repository of files. What is most interesting is that yahoo groups are usually the initiative of students themselves, organized in years of study (generations) and/or specialization, are designed by students, while the teachers use them as a platform for distributing their own content. In a fewer courses did teachers take ownership of such a virtual group and designed and organized it entirely.

In this context, the introduction of a Moodle platform – called the Digital School – alongside with the aim of developing teachers' competences to design their own courses for e-learning was a challenge for both teachers as well as for the established patterns of learning that students use.

Methodology

We have undertaken an exploratory study to unravel the *public management* course students' attitudes towards different types of learning activity on a Moodle platform. The course was offered as blended learning for one semester to students enrolled in a Master study programme on public policy evaluation. We have thus sent an online questionnaire to all 66 students enrolled to this course in the academic year 2011/2012. The students answered the online survey after they completed the course. 47 students answered the questionnaire, thus leading to a response rate of 71 % that is excellent, despite the low overall population. The latter aspect constitutes a limitation of the study, but our intention was not to test any hypothesis, but to formulate plausible propositions from an exploratory research that can be further analyzed and tested in various other learning contexts. The students were all Master level, after having completed three years of Bachelor; most of them, 80 %, were aged 20 – 25 at the time of the survey; 10 % were aged 26 – 35 and 10 % over 36. The gender structure of the population was female 72 % and male students 28 %. The questionnaire was structured in six sections: global course evaluation, course resources and themes, pedagogical approaches, Moodle platform, general student information and demographics. We were thus interested in finding out students' opinions and attitudes towards the following dimensions of the course:

- the general evaluation of the course;
- students' participation on the VLE and face-to-face sessions;
- evaluation of the course themes;
- evaluation of learning activities (face-to-face interaction, group exercises, readings, individual assignments, forum interaction, final research project);
- prior and actual level of students' interaction with the VLE;
- VLE's overall usefulness for learning;
- students' self evaluation of their learning styles.

The questionnaire thus included 23 closed-ended questions covering the above mentioned dimensions. Of particular interest for this article are the items concerning students attitudes towards the pedagogical approaches inferred from the type of learning activities used as well as students' opinions about the Moodle platform per se.

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Results

The results are broadly consistent with the previous research findings pointing to usefulness, ease of use and pragmatism. Thus when asked about the usefulness of using an online learning platform, by far the most of the students answered that the online virtual environment is useful for the resources and materials that are uploaded (65 %) – Figure 1; the same percentage (a multiple response question) also mention that the online platform complements the information received during face-to-face courses. These reveal the usefulness and ease of use factors that were isolated in Edmunds et al. (2012) research. Flexibility adds to this, over 52 % of students mentioning that the VLE allows for more flexibility in time planning. On the other hand, it is warning that only 20 % mention the VLE as a good modality to interact with peers. Also, 10 % of students mention that they preferred the classic pure face-to-face delivery of courses.

Furthermore, directed learning (instructional system design or didactic approach) is still more prevalent than autonomous search for knowledge. More than 61 % declare that they preferred to sit in a course lecture and take notes, while only 51 % also answered that they liked to work independently on projects and assignments. This emphasizes a learning pattern rather centred on information and non-reflection according to Conole et al., 2004. Learning in teams with peers (social learning) is even less spread, only 41 % also agreeing with this option. Although the majority prefers the classic directive style of learning, flexibility and autonomy in planning their time is still important: "I will listen to what teachers say, but I want to organize my activity myself" is an assertion that more than 80 % agree with.

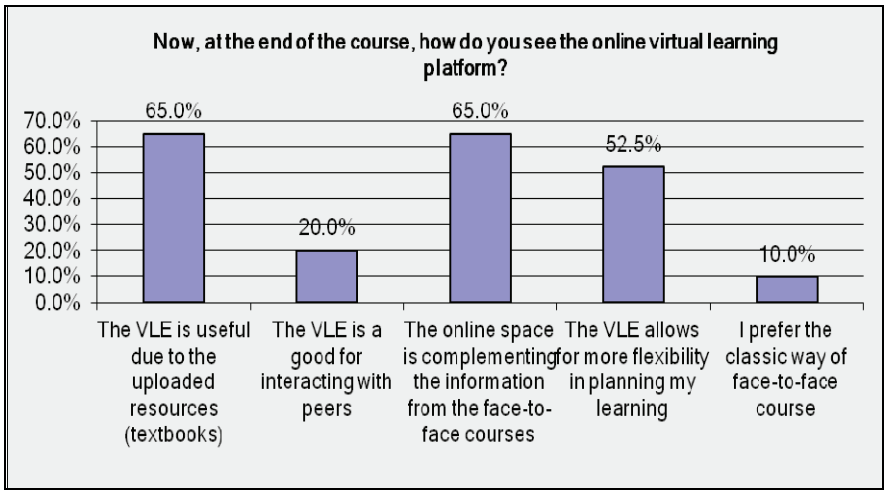

Figure 1. Students' evaluation of the VLE's usefulness

Note: The students were asked how would they see the use of a virtual learning platform after they have completed the course. It was a multiple response closed-ended question having the following:

1. The VLE is useful due to the uploaded resources (textbooks),
2. The VLE is good for interacting with peers,
3. The online space is complementing the information from the face-to-face courses,
4. The VLE allows for more flexibility in planning my learning,
5. I prefer the classic way of face-to-face course.

When asked to evaluate the type of activities (Figure 2), students answered as most useful the teacher's lectures (over 76 % consider these as useful) and individual assignments (over 78 %

ISSN 1027-5207

consider these as useful); the individual readings of the resources hosted by the VLE were also considered useful by almost 70 % of students. On the contrary, face-to-face group exercises, students' interaction on VLE forum as well peer presentations were considered less useful. This is consistent with the above findings pointing towards a directive style of learning centred on transmitted information, non-reflection and individual; this corresponds to a rather behaviourist approach to learning, while at the same time assuming flexibility and pragmatism in planning their own time and integrating learning with other social/work/home activities.

Although consistent with other international research findings, most of these attitudes can also be explained by the particular context where they are placed. A contingent approach that takes into account nationality, cognitive styles or other students' characteristics, as Graff, Davies and McNorton suggest, could shed more lights on these findings. Thus, the results suggest that the most widely spread type of learning design in our university is still 'transmissive', mostly centred on individual acquisition of information. While students are used to that, they prefer to do it in the most effective way possible thus emphasizing flexibility and autonomy in planning their learning time. On the other hand, to the degree that technology has pervaded the traditional face-to-face courses, it has resulted on VLEs or other support technologies being used as repository for learning resources and materials, and less as coherent design of learning activities (as Vogel and Oliver, 2004, also show). The widespread use of yahoo groups, usually managed by students themselves that constitute platforms for uploading textbooks and course content is a practice that has largely reveals the actual learning/teaching patters in our university.

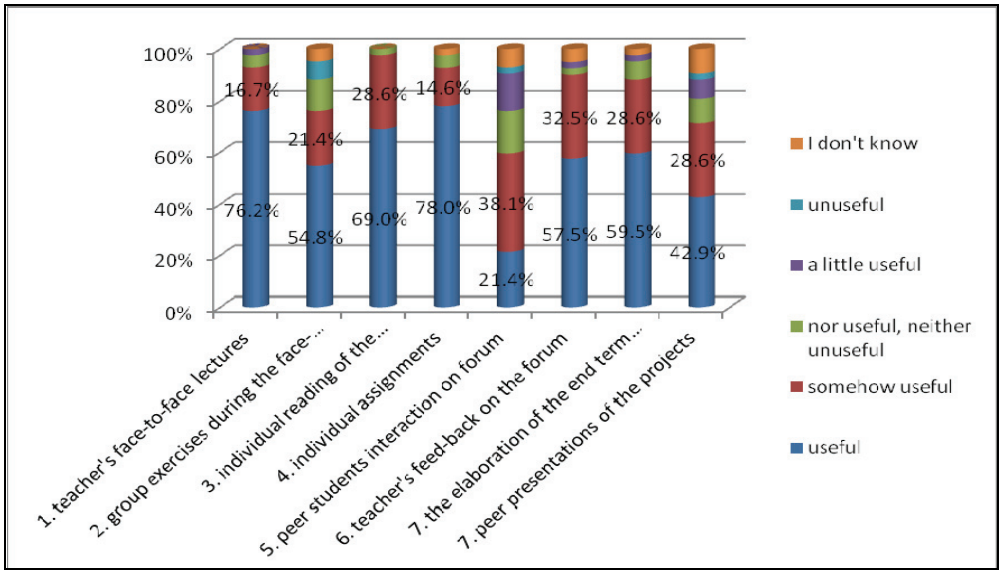

Figure 2. Students' evaluation of the pedagogical methods and learning activities of the courseware

Note: The students gave feed-back on how useful the following pedagogical methods and activities turned to be in their process of learning. The students answered a matrix question with seven items that were scored on a Likert-type scale:

1. useful,
2. somehow useful,
3. nor useful neither unuseful,
4. a little useful,
5. unuseful,
6. I cannot appreciate.

ISSN 1027-5207

The following items have been included:

1. Teacher's lectures during the face-to-face sessions;
2. Group exercises during the face-to-face sessions;
3. Individual readings of the textbooks uploaded on Moodle;
4. Individual assignments;
5. Peer interactions on the forum;
6. Teacher's feed-back on the forum discussions;
7. The elaboration of the final research project;
8. Peer presentations of the projects.

Conclusions

The implementation of a VLE is definitely not likely to immediately change existing learning/teaching practice. It is seen mainly as a support and complementing activity of face-to-face course deliveries, but does not necessarily change the pedagogical underpinnings of the learning practices. Students' use of the VLE is mainly driven by the flexibility, pragmatism and ease of use, but not yet towards changing their established patterns of learning which tend yet to emphasize directive, information based and individual learning. This findings are yet highly contextual; they need to be interpreted by taking into account the particular situation in which the students are. Thus, in the Romanian case, there are particular cognitive styles and patterns both in higher education as well as in secondary education that cannot be changed over night. Yet, the VLE is an important element for students' empowerment and allows them much more autonomy and control in planning their learning time. When planning the introduction of a VLE, it is this evidence that highlights the importance of autonomy and personalisation of learning that shall be considered seriously in drafting the course design. On the other hand, in the near future, the degree of autonomy that is fostered by the VLE will eventually change the learning patterns allowing for the personalisation and consequently differentiation of learning. This is already visible both in some of the students' answers as well as in their actions: while some are still more leaned towards face-to-face encounters with their peers, there are others whose ways of self expression are given more freedom online. While some prefer to attend the regular face-to-face courses, others are more active on the asynchronous discussion forums as it allows them to be reconcile study with employment or leisure. Technology is primarily viewed as a learning alternative complementing the face-to-face encounters, not necessarily replacing them. Further studies shall undertake an evolutionary perspective into the ways learning and teaching attitudes and practices change following a steady integration of technology and tools into the actual learning design. On the other hand, a thorough evaluation of students' attitudes towards technology as well as a depiction of their learning patterns is fundamental for two interrelated reasons. First, these will eventually lead to avoiding "the mismatch between institutions' perceptions of students' use of technology and their actual use" (Conole et al., 2008, p.513). Second, they will contribute to enhancing the quality of the learning designs proposed by the teachers and the higher education institutions respectively by adopting evidence-based teaching strategies. This is also equivalent to "embedding quality assurance into current teaching/learning and research activities of the universities", being "meant to increase institutional responsibility towards quality" (Authors, 2012).

ISSN 1027-5207

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Author

Mihai Păunescu,
Head of Department of Political Sciences, National School of Political and Administrative Studies, Bucharest.

Correspondence concerning this article should be addressed to
Mihai Păunescu,
Department of Political Sciences, National School of Political and Administrative Studies, 6, Povernei Street, 010643, Bucharest.
E-mail : paunescu.mihai@gmail.com

This article acknowledges the financial support of the European Social Fund – the Sectoral Operation Programme for the Development of Human Resources – within the project Academic innovation and success on the labour market, contract POSDRU/18/1.2/G/11495.