BLENDED LEARNING AND LEARNER AUTONOMY IN HIGHER EDUCATION: A STUDY WITH MECHANICAL ENGINEERING STUDENTS

M. Duarte

Instituto Politécnico do Porto (PORTUGAL)
mic@isep.ipp.pt

Abstract

As higher education faces the challenge of new and diverse demand, with more and non-traditional students enrolling in courses, it seems difficult to find a way to keep the standards as the funds decrease and the budget isn't enough to hire new faculty.

A solution to this challenge is to use blended learning, combining online and in-class content and participation. This technology based model allows students to access resources at any time, according to their needs and constraints, such as work schedules. The faculty can monitor student access and work, and offer additional explanation when needed.

On the other hand, as face-to-face classes decrease, and fewer contact hours are involved, it's necessary to move fundamental knowledge acquisition out of the classroom and devote classroom time to applying, integrating and synthesizing the knowledge, allowing faculty to work with smaller groups. This means that a greater part of the teaching-learning transaction occurs away from schools and faculty, and that students have more control of their own learning, shifting from academic teaching staff to the learner, which fosters student-centred learning.

Also, taking charge of one's learning is a fundamental skill to lifelong learning, which has been recognized as an essential element of the European Higher Education Area. But, are all students ready to take charge of their own learning? Are all students able to take charge of their own learning?

Learner autonomy is the ability to take charge of one's own learning, as long as the learning environment provides opportunities for the learner to take control of their learning.

In this study the relationship between students' perception of their own learner autonomy and the willingness to learn in a blended learning environment is investigated. No relationship was found due to a high predisposition to blended learning.

Keywords: learner autonomy, blended learning, higher education.

1 LEARNER AUTONOMY IN HIGHER EDUCATION

The term "learner autonomy" was first used in 1979 [1] as being the "ability to take charge of one's own learning". Other definitions include "the capacity to take charge of, or responsibility for, one's own learning" [2], "The ability and will of the learner to choose independently" [3] and "a capacity and willingness to act independently and in cooperation with others, as a social, responsible person" [4].

In spite of the apparent similarity in these citations, other authors [5], [6] point out the variety of terms and definitions used to describe learner autonomy: self-efficacy, self learning, self-directed learning, among others. Brockett and Hiemstra [7] also mentioned that the ideas of learner independence, autonomy and personal development are implicit in several definitions as lifelong learning, self-directed learning, self-planned learning, self teaching, autonomous learning, independent study, and distance education that have in common the emphasis personal responsibility in the learning transaction. For Benson [2], the sense in which these terms are used, is one of the most important aspects of learner's autonomy and independence.

Holec [1] discusses the relation between learner's autonomy and self-directed learning. To the author [1] autonomy can be learned and when individuals learn it, they must be willing to use it and have the conditions to do so. The learner who has this ability and makes full use of it is involved in self-directed learning. According to Holec [1] only an autonomous learner can learn in a self-directed way; on the other hand, an autonomous learner can choose not to use this ability, only partially involving himself in self-directed learning. That is, autonomy is related with the individual's capacity and not with a

characteristic of the learning process, while the expression "self-directed learning" describes the learning process in which the autonomous learner is involved.

Little [3] points out that learner autonomy has been a main concern of adult education for over two decades, and instead of trying to clarify the concept, he clarifies some misconceptions: learner autonomy is not synonymous with self-instruction, is not something teachers provide for their students, is not a single, easily described behavior, is not a steady state achieved by certain learners and does not requires the teacher to relinquish all initiative and control in the classroom context. According to [8], the learners' acceptance of responsibility is the basis of learner autonomy.

According to Boud [9], an autonomous learner in higher education is able to learn effectively without the constant presence or intervention of a teacher. The author [9] argues that "independence in learning within an educational institution may or may not be an ideal towards which an individual may strive; it is, nevertheless, a vital requisite for someone to be able to function effectively in modern society" because "no learner can be effective in more than a very limited area if he or she cannot make decisions for themselves about what they should be learning and how they should be learning it: teachers cannot, and do not wish to, guide every aspect of the process of learning".

About the importance of learner autonomy in higher education, Boud [9] points out that "is not likely that students who are dependent on their teachers are going to be as effective in the world of learning or subsequent employment as those who have developed strategies which enable them to find and use their own resources for learning". But, is not all up to the students, because "if students are denied opportunities to participate in decision-making about their learning, they are less likely to develop the skills they need in order to plan and organize for lifelong learning which depends on their decisions about their learning needs and activities [9].

To Boud [9] the main characteristic of autonomy as an approach to learning is that "students take some significant responsibility for their own learning over and above responding to instruction. Such an approach might involve students taking the initiative in any or all of the following: identifying learning needs, setting goals, planning learning activities, finding resources needed for learning, working collaboratively with others, selecting learning projects, choosing when and where to learn, using teachers as guides and counsellors rather than instructors, engaged in self-assessment, deciding when learning is complete; reflecting on their learning processes". The author also argues that any given teaching and learning practice, whether or not it is identified with autonomy can be judged by the extent to which it promotes aspects of autonomous learning.

There is no doubt that taking charge of one's learning is a fundamental skill to lifelong learning, which has been recognized as an essential element of the European Higher Education Area.

2   BLENDED LEARNING IN HIGHER EDUCATION

As new and diverse students enrolled in higher education institutions, they must address changing expectations associated with the quality of the learning experience and the wave of technological innovations. Participants in the higher education enterprise are questioning traditional approaches and whether they are achieving the high levels of learning promised [10]. With more and non-traditional students enrolling in courses, it seems difficult to find a way to keep the standards as the funds decrease and the budget isn't enough to hire new faculty.

A solution to this challenge is to use blended learning, combining online and in-class content and participation. This technology based model allows students to access resources at any time, according to their needs and constraints, such as work schedules. The faculty can monitor student access and work, and offer additional explanation when needed.

On the other hand, as face-to-face classes decrease, and fewer contact hours are involved, it's necessary to move fundamental knowledge acquisition out of the classroom and devote classroom time to applying, integrating and synthesizing the knowledge, allowing faculty to work with smaller groups. This means that a greater part of the teaching-learning transaction occurs away from schools and faculty, and that students have more control of their own learning, shifting from academic teaching staff to the learner, which fosters student-centred learning.

Bonk and Graham [11] point out that the assumed superiority of classroom teaching, which seems, above all alternatives, a dogma in the academia, "is beginning to give away to a more nuanced understanding of the suitability of nonclassroom environments for formal study and the desirability of adding new forms of communications to enhance, and yes, sometimes supplant, the professional

lecture". Also, "the emerging view is of a mutually respectful relationship between teaching at a distance and teaching in the classroom, and the idea that each can do its proper work is now encapsulated in the concept of blended learning" [11].

Garrison and Kanuka [12] argue that blended learning is both simple and complex, because "at its simplest, is the thoughtful integration of classroom face-to-face learning experiences with online learning experiences (…) but at the same time, there is considerable complexity in its implementation with the challenge of virtually limitless design possibilities and applicability to so many contexts". In spite of not being just about finding the right mix of technologies or increasing access to learning, it is true that the use of these technologies increase efficiency and convenience for students and professor [12].

3   THE CASE STUDIE

Thermodynamics is a second year course in a Mechanical Engineer graduation of Oporto's School of Engineering (ISEP). In 2012/13, 375 students were enrolled; 268 (71,5%) students attended live lectures and problem classes (133 (35,5%) during the day and 135 (36,0%) at night); 111 (29,5%) students choose blended learning, which included course material, videos of lectures presentations and problems resolutions, quizzes and examination questions in the moodle platform. The blended learning students were free to attended tutorial classes with the teacher two times a week, and they were "invited" to choose the topics of these sessions. Alternatively, they could contact the teacher by email to clarify doubts in problems resolution. Only students who were enrolled in previous years and failed could choose blended learning.

At the end of the semester, students enrolled in blended learning were asked (with an anonymous online questionnaire) about the quality and quantity of the resources and the difficulty of accessing the resources in the moodle platform. It was also asked if they could go back, would they choose blended learning again, if there were more courses with blended learning, would they prefer it instead of live classes, and finally how autonomous were they in their learning.

4   RESULTS

Of the 111 students enrolled in blended learning, 34 (30,6%) responded to the online questionnaire.

The satisfaction degree with the quantity and quality of the online material was 85% and 87%, respectively. These items should be as high as possible.

The difficulty degree in using the platform and the online resources (a negative item) was 43%. This item should be as low as possible.

Almost all students (97%) would choose blended learning again in this course, if they could go back; 3% of the students were undecided. None of the students regretted having chosen blended learning. This preference for blended learning was independent of academic achievement, as 50% of these students passed and 50% failed the course.

In spite of 97% of the students stated that they would choose blended learning again in this course, only 74% would choose it in others courses, if blended learning were available. This show that even without seeing the content of other courses online resources, these students have a predisposition for blended learning, with a small degree (26%) of indecision.

Concerning the autonomy in learning, the average value was 79%, ranging from 50% to 100%. 6% of the students reported 50% autonomy, 75% reported 75% autonomy and 21% reported 100% autonomy.

To test the existence of a relationship between students' perception of their own learner autonomy and the willingness to learn in a blended learning environment, Spearman's rho was used. The correlation coefficient was 0,057 (p=0,748) which indicates that students' perception of their own learner autonomy and the willingness to learn in a blended learning environment are independent.

5 CONCLUSIONS

The overall results show that students have a high predisposition to blended learning, in spite of the perception of their own learner autonomy, and even students with the lower scores in learner autonomy have a high willingness to learn in a blended learning environment.

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