

FACEBOOK + MOODLE: ENVIRONMENTS TO FOSTER STUDENTS' INVOLVEMENT IN DISTANCE LEARNING

Inês Messias, Lina Morgado

Universidade Aberta (PORTUGAL)

Abstract

Web 2.0 has changed our daily lives, and is now part of our society, both professionally and for entertainment. As Education changes, accompanying society, it has evolved to become more personal, focused on knowledge, reflexive, socially connected and involved, as to include not only the digital natives, but also the digital immigrants [1]. Students are now acquiring skills and competences that allow them to use digital tools to research, select information and reflect upon it, work collaboratively and share their created knowledge online.

As the use of Web 2.0 tools increases in Higher Education Institutions for learning and knowledge creation, to be connected is now a relevant skill, especially for students in Distance learning, not only to overcome isolation, but also to help create online informal communities using 2.0 tools, giving a sense of belonging, fostering involvement and collectively create and share knowledge.

According to Forbes, in December 2013, Facebook is still the online social network with more users *"Facebook continues to lead the pack in terms of number of active monthly users (1.15 billion at last count)."* [2]. As for Moodle, it is the most used open source LMS in Higher Education Institutions. This paper reflects on the possible implications that the use of formal and informal learning platforms can bring to online distance learning in higher education, and discusses how the complementary use of these two platforms (Facebook and Moodle) can contribute to the students' involvement and effective learning.

Keywords: Facebook, Moodle, Web 2.0, LMS, Distance Learning, Higher Education.

1 WEB 2.0 AND SOCIAL NETWORKS

Regarding innovation, Web 2.0 distinguishes itself by allowing to contribute with content to the web, without being necessary to have computing technical expertise, making possible the involvement and participation of all users. Blogs, Wikis, Bookmarking tools, Online Social Networks and all other tools that arose with Web 2.0 have in common the characteristic of being collaborative, allow sharing and interaction among users, and this has made possible for them to continually grow in their daily usage, defining today's society as being a digital one. According to Castells [3] web 2.0 is the nucleus of our society: *"the network society is not the emerging social structure of the information Age: it already configures the nucleus of our societies."*

In the beginning of the Web, sites were just for consultation and asynchronous, it would be necessary to have computing expertise to publish a website. The email was introduced on a larger scale later on, then chatrooms allowing synchronous communication, and then wikis. But it was in 2004, with Online Social Networks and Blogs, that the usage of the Web had a boom. Online communities such as Facebook, Flickr, YouTube, WordPress and Diigo have contributed to the rapid growth of Web usage, that together with the fact that computers are now more economically affordable and therefore accessible, have made possible the continuous and rapid usage of the web tools that we know today, to communicate as well as to share photos, videos, ideas or to create documents in collaboration in real time or even to share professional portfolios.

The evolution of Web 2.0 has brought a more dynamic Web, where the content can be created and changed by anyone, and where the online synchronous communication is possible, either through Social Networks or by video calls. It allows anyone to edit content or share online, in real time, with collaborative tools, such as Google Drive. Web 2.0 is collaborative in its essence, and Online Social Networks are one of the most used tools. These imply the creation of a profile, uploading photos with personal descriptions, as well as publication of personal or professional interests, opinions or even subjects that are considered relevant for sharing. According to Ahmad [4] the definition of Online Social Networks is: *"A web site that provides a social community for people interested in a particular subject or interest together."*

Boyd and Ellison [5] state that Online Social Networks since they were introduced have attracted millions of users, that have made them part of their daily routines. These authors suggest this happened because they allow the user to maintain permanent contact with friends, make contact of professional relevance, and access information of professional interest almost instantaneously, access news and articles. All these social and professional possibilities have made these platforms appealing.

Burke et al. [6] refer in their study the elements that make the success of an Online Social Network as being: the information made available by the users, in online discussion groups or for all contacts, that generate message exchange, which therefore generates the participants involvement and, consequently, more publications and participations.

There are nowadays several Online Social Networks, being the more popular Facebook, LinkedIn, Orkut, Twitter, YouTube and Myspace. In June 2013 the most used in Europe, America and Australia was Facebook. Considering these data, some academics have started to adopt Facebook as a way of being available for students out of the classroom. According to Arnold and Paulus [7] Facebook and other Online Social Networks are being more and more used each day in educational context, where teachers explore these tools to teaching and learning, and this is why it is so important to know how to use them effectively.

As to understand the positive and negative impact of Facebook usage in educational context, it is important to first understand its characteristics.

2 FACEBOOK CHARACTERISTICS'

Facebook consists in a set of profiles linked together by friendships or likes. Each user can see its own profile, the content feed (that includes all its contacts' publications) and the individual profiles of all its contacts and/or pages of interest (events, institutions, groups, etc.). The core component of this network are the publications made by its users, allowing to like or comment on each other's publications, hence demonstrating one's interests and opinions. It includes a system for private or group messaging. Allows the creation of groups among contacts, in a way to manage who sees the publications, making them visible only to part of your contacts, if and when you wish it so. It's possible to create private discussion groups, where only the participants can see the discussions. It allows the usage of applications, such as, games, pools, questionnaires and tools to analyse the network and groups to which one belongs.

Created in 2004 by Mark Zuckerberg, after only one month of its creation half the students of Harvard had created a profile in Facebook, that today is the most used Online Social Network in the world. In 2005 more than 800 university and secondary students belonged to this network. In 2006 it allowed access to more than 22,000 commercial organizations and also had its boom by allowing everyone with more than 13 years old, with a valid email, to access it [8]. Its growth continues until today, expanding globally and in diverse age groups. According to the latest statistics Facebook had 1.23 billion active users by December 2013, of which 757 million used it daily [9]

]. And although initially designed for Higher Education students, in 2010 20% had more than 34 years old [8].

To Wilson et al. [8] although this network is in constant updating, with more users and tools each time. The studies made until today are still valid, due to the maintaining of its organizational structure and its purpose since its creation: *“(a) post self-relevant information on an individualized profile page, (b) link to other members and create a “friends” list, and (c) interact with other members”* [8].

All the goals mentioned above reflect the nature of this Online Social Network, making us think about the purposes of the ones that use it: to socialize, to create connections between users who share the same interests and maintain existing connections already made offline, but that by their distance without these networks would not be possible of keep daily contact, or even links of interest, that benefit the user.

3 USING ONLINE SOCIAL NETWORKS IN EDUCATIONAL CONTEXT

Used to multitask between several platforms simultaneously, today's students feel little enthusiasm when it comes to traditional teaching or even with poorly dynamic platforms. However, to have access to all available technology and to apply it without meaning is not enough. It is necessary to know how to use it properly from a pedagogical point of view [10] as to enhance a greater involvement by

students in their learning processes, developing other skills such as deep learning, critical thinking, collaboration among peers and reflection.

Although many teachers see the need for their students to develop skills to help them use Web 2.0 tools properly for education and future professional context, even if many institutions use these technologies in their teaching, there are several constraints, such as barriers set by teachers, that do not comprehend its potential when used according to proper pedagogical principles, and then consider them merely ludic, with no increase to their future professional competences, even forbidding them in their classrooms [11]. It is interesting to point out that Roblyer et al. state that: *“Faculty member have a track record of prohibiting classroom uses of technologies that are frequently used by students. (...) students are much more likely than faculty to use Facebook and are significantly more open to the possibility of using Facebook and similar technologies to support classroom work. Faculty members are more likely to use more “traditional” technologies such as email.”*[11]

The question that arises is therefore more than ever, to understand how these tools can be useful to enhance student involvement? How can these platforms help students in eLearning make effective learning?

Burke et al. [6] identify and group the different types of participation in Online Social Networks in 3 categories: a) Social Learning happens when a user sees what other users do; b) Return, the effect the users have in a new user; c) Distribution, the general content and exposure structure gained through participation. These three categories allow verifying levels of participation of the users in this type of network. A user that only reads what his contacts publish but does not contribute with comments, or with new publication, does not have many opportunities to grow his contact network or even to contribute with knowledge to the community he belongs to. The learning that occurs in an Online Social Network goes through the same steps as face to face learning. There is a period of attention, when the user observes the behaviour of his peers online, a period of retention, while remembering those behaviours, a period of reproduction of the same behaviours, by sharing similar publications, and a period of motivation, when starts to receive positive reinforcement by his peers, with likes, or positive comments, or even when verifying the influence of his posts by being shared by peers. Having this in mind, we can infer that if the students are motivated to share, in these networks, content related to their fields of study, the teacher will be making possible for the students to provide sharing and knowledge creation activities in one more space, other than just the classroom.

In addition to the types of participation suggested by Burke et al. [6], Nentwich and Konig [11] specify types of profiles, that they divide in 5 levels (although they highlight that these are ideal types, and that usually what happens are mixed profiles), they indicate from the most rudimentary that seldom goes online, to the active users, with roles of moderation and group administration. They set as the most common profile, the level 1 user (*The Me-too presence*) that seldom visits the network and that shares only on occasion; the level 2 user (*The Digital calling card*) with a more detailed profile, but that does not share much; the level 3 user (*The Passive Networking*) with irregular publications that reacts to contact suggestions and that communicates sporadically with other users; The Level 4 user (*Active networking and communication*) a regular user that utilizes several network services and that searches for new potential contacts; and the Level 5 user (*The Cyberentrepreneurship*) the most rare of profiles that actively participates with publications and comments and has the role of administrator or manager of groups.

Students should be motivated to be active users, participative, proactive and reflexive of Online Social Networks, and to that extent it is also necessary that teachers have also that profile. So that this happens and learning occurs in a professional and/or research fashion within Online Social Networks such as Facebook, it is relevant to create a network that not only includes friends, but professionally relevant contacts, with the same areas of interest, so that the possibility increases of finding educationally relevant publications.

The feeling of isolation and loneliness was detected in some studies that found a connection among the time spent online and social isolation and loneliness. This negative aspect is mentioned as general to the usage of the internet and not only to Online Social Networks. However, more recent studies differentiate between using Internet as a social tool or just for entertainment, and found that the isolation and loneliness only happens to users that utilize Internet when they feel alone and need something to spend time [13]. Studies like Zhao's [14] or Kraut's et al. [15] demonstrate that the social feedback that comes from internet usage depends of the personality of the user, referring that the most shy, with few contacts or that do not interact much socially, even online, tend to feel lonely, and that more extroverted users with larger networks and with more easiness in making comments and

publications, tend to feel even more accompanied, strengthening ties with those already known offline and creating bonds with those who only have contact at a distance.

Considering all these studies, it is important to point out what are the positive and the negative aspects to have in mind when giving students the tools and competencies necessary to acquire when using Web 2.0 tools in educational context, so that it is possible to create effective knowledge through these environments.

3.1 Positive aspects

To feel part of a community is pointed out in several studies as being a key aspect to students' motivation. According to Madge et al. [16] socialization is one of the most significant contributes that Facebook has brought to college students. In her study, this author mentions that 56% of first year students that answered the questionnaires state that Facebook has helped them to integrate, 84% say they use this network in a daily basis and 68% say they feel part of the Facebook community, being an important part of their social lives. The same study states that 54% of the students that enrolls in a University already has an account on Facebook, and that 25% created that account before entering the university to make a few contacts before entering, already knowing that it is a social network for college students, and also that 13% joined Facebook immediately after classes have begun. The sense of belonging in a community helps not only the integration process but also the communication process among students that belong to that same community. For students that enrol in distance learning these online communities like Facebook, can have a positive impact, especially when it comes to form groups among students, between students and teachers or even to address a discussion topic of a course, once it facilitates communication at a distance and at a same time makes them feel part of a community in an environment already familiar to them.

This aspect could lead the student to also feel a greater follow up by the school's community. However, the contact through Facebook between students and teachers should be made with caution. Madge et al. [16] notes that although 53% of the students have answered positively when asked about using this network for educational activities, having even suggested some activities, only 7% states using this network in formal learning, only 22% states it was helpful in some situations, and only 10% refers using Facebook for academic debating among peers. This same study by Madge et al. defend that although these numbers have increased throughout the academic year, students mentioned that teachers should only make academic related posts or that they only follow teachers to which they have a positive relation with in the classroom. Some of the problems pointed out by the students regarding to the presence of teachers in Facebook can be eliminated with the creation of lists only for students, giving the teachers the possibility to select which publications to make visible to them. The question lies in using Online Social Networks in a smart way, filtering academic publications so they don't interfere with the personal component.

In educational terms, the question of increasing the network of contacts is also important, especially for the creation of relevant contacts in the area of interest so as to enhance access to relevant information, such as: new discussion topics, developments in the field, reading suggestions, pages of interest, conferences, lectures and other contacts. According to Nentwich and Konig [12] Facebook demonstrates to have the potential to be a public relations platform for scientists, universities, institutes and scholarly associations. The same authors report that platforms like Facebook can be used for synchronous communication to exchange information in the form of micro-blogging through the posts, or via chat platform, specifically referring to the contribution they can bring to e-learning, because, as the authors indicate, the number of academics and scientists on social networks tends to increase, as new generations enter into higher education and research. While creating a contacts' network of relevance in specific areas of interest, you can use Facebook not only as a means of communication but for cooperation and motivation. But for this, you will need to overcome or clarify certain issues identified as negative.

3.2 Negative aspects

Apart from the aspect of security and privacy pointed out by several authors, Nentwich and Konig [12] point out negative aspects such as technical limitations, lack of experience in using social networks, scepticism regarding security issues, the need to create a culture of online collaboration, the distraction caused by personal publications and possible simultaneous use of multiple platforms and the issue of access to too much information and the need to develop skills of filtering.

For those who already use Facebook, like most students, privacy issues do not arise, since those previously were accepted. For researchers and teachers reluctant to publish about their academic work this could be a problem, though, this is an issue that applies to all and any internet social network, not just Facebook.

4 FACEBOOK'S POTENTIAL FOR DISTANCE LEARNING

According to Bassani [17] the definition of online learning has had different terminologies, such as e-learning, Web-based learning, distance learning, although all refer to the use of the Internet to access online materials and interact with content, with the teacher and other students, in order to obtain support during the learning process and thus gain knowledge, to construct personal meaning and grow professionally with the learning experience. All these features can only be enhanced by social networks like Facebook.

In a study conducted in 2010 by Moira Burke [13], it is mentioned the benefits that social media can bring because of its social structure. Benefits include access to new information acquired through established contacts in social networks, and the approval and support of publications by their peers. This aspect, together with the possibility of exchanging ideas with relevant publications to and online contacts to their areas of study, along with the social component and sense of belonging in these communities, means that Facebook is a platform with potential for Distance Learning.

But why suggest the use of Facebook instead of other social network more dedicated to research? Professional social networks are not attractive to most students, unlike Facebook, which is part of their daily routines. *"Research has suggested that Facebook is a potentially useful tool for promoting effective academic practice"* [16]. And although to create a network with relevance at educational and scientific levels can take time and its benefits are not able to glance the short term, Nentwich and Konig [18] state that for the success of educational investment in this network, scepticism must be exceeded. An initial step might be to create groups of closed access for students of a specific course or chair, where only students enter, institution or class.

Social networks such as Facebook have the potential to increase the frequency and diversity of collaborative works between students and even among teachers and researchers. Particularly for Distance Learning, where one of the problems is the isolation of students, sometimes leading to abandon their studies, these networks may contribute positively due to their social side and as they allow frequent and close contact with either colleagues or teachers, but also experts, creating the feeling of belonging to a community and enhancing integration, at the same time it enhances sharing and collaboration.

According to Burke et al. [13] the success of discussion groups in a community depends on motivating participation, generated by a group with several participants, where the quantity and quality of contributions tend to grow with the motivation of participants. Belonging to a community that does not show itself enclosed on formal platforms but that is dynamic and open to the world and to collaboration as well as the social networks to which students already call theirs, may bring the necessary motivation to the higher distance education student, not only to remain enrolled but also to excel in its studies. *"A small-scale survey (Mazer, Murphy, & Simonds, 2007) found that students who experienced more instructor self-disclosure on Facebook reported more motivation and higher levels of learning"* [19].

5 FORMAL LEARNING ENVIRONMENTS – LEARNING MANAGEMENT SYSTEMS (LMS)

The continuous increase in the usage of technology has been noticed by academics that have started to change the teacher-centred paradigm to a more student-centred one, leading to the adoption of online closed platforms, where students and teachers can interact in a formal online environment. There are several environments that allow structuring distance courses, known as Learning Management Systems (LMS). These offer a set of tools that allow the teacher to create and manage online courses, some of these LMS are: Moodle, BlackBoard, Toobook, WebCT, among others, that vary not only in the language they were developed in, but also in the set of tools they offer, what they all have in common is the main goal to centralize and make simple the management of the teaching and learning process in e-Learning or b-Learning. The most used of these platforms is Moodle, probably because this is also an open source environment, reducing financial costs with the platform acquisition and maintenance.

5.1 Moodle's characteristics

The Moodle (Modular Object-Oriented Dynamic Learning Environment) platform was developed by an Australian PhD student in 1999 and was opened to the public in 2001, after having been tested. According to the description available on Moodle's online page the goal of this project is to give educators tools to manage and promote learning. It is an online platform, open source, which integrates a set of tools that let you create and manage a space where students can access content made available by the teacher and where the agents can interact among themselves synchronously and/or asynchronously. According to Alves and Gomes [20] the specific features of Moodle meet in four dimensions:

- I. Protected access and management of user's profiles - creating a private web environment for participants of a course, while it allows you to assign different levels of permissions for teachers and students;
- II. Managing access to content, allowing the teacher to put online content in various formats, manage the time that students have access to certain content and even control how students interact with the content;
- III. It has tools for synchronous and asynchronous communication, allowing communication between users;
- IV. Allows control of activities and keeps record of all activities and actions made by students and teachers.

The communication tools that Moodle has were designed taking into account a model to allow the creation of community, in order to maximize the success of this platform. One aspect that differentiates Moodle from other platforms is that the code is open source, allowing modifications. In addition, its creator registered the name "Moodle", thereby differentiating between the name and the software, which enables its users to be able to create different versions of the platform that may redistribute if the modified code is published in the public domain of Moodle. These features of Moodle make it accessible financially, since the costs only apply to the hardware needed to accommodate the platform. *"Moodle is built not only of open source software but also upon it. Because the database and operating system for running Moodle can be open source and free, the cost of set-up can be as little as the hardware."* [21]. The characteristic of adaptability provided by the creator of Moodle, combined with the low cost of this platform, has made it one of the most used LMS between institutions of higher education around the world.

Moodle allows three user levels: The administrator role, the teacher and the student. They all have different permissions: Administrator can manage the whole environment, the teacher can manage events, courses and subjects within areas previously defined by the administrator, and the student can access and interact in events to which he subscribed.

Apart from the above mentioned features, Moodle has a simple interface, divided by modules, allowing a rapid learning curve regarding its use [22].

However, some negative aspects have been regarded throughout the studies developed on this platform, including privacy issues relating to questions on forums of the courses, because every time a student makes a contribution to a forum an email is sent to all users who participate in it, leading to some students, at first, feel inhibited to ask questions or comments, such as would be desired [23].

Apart from this aspect, Wood [22] stated that although it was expected that the users of university age, nowadays, already belong to the digital generation, some of the students have never had or do not have continuous contact with a computer. This same author reported that only a minority of students today are actually digitally savvy, demonstrating difficulties of integration on platforms with which they are not acclimatized.

6 FINAL CONSIDERATIONS

Although, as stated by Rambe [24], the impact of online social networks in education and student-teacher relationship is still pretty much speculative due to the low number of investigations on the subject, the number of teachers who use Facebook in their educational practices has increased. It equally has been increasing the number of students who use this and other online social networks for learning. As regards Burke et al. [6] social networks have huge potential, as large as that of its users "Social networking sites (SNS) as only as good as the content their users share. Therefore, designers

of SNS seek to improve the overall user experience by encouraging members to contribute more content.” [6] Facebook may have an important role in the socialization and integration of students in distance education, and a great potential to build and expand the network of contacts of interest to the student and even faculty, fostering collaboration and connectivity. The use of social networks like Facebook in distance education will depend on the role that teachers adopt to integrate these networks into their teaching methodologies. As in any learning situation, the student learns from the example set by the teacher. Thus, the teacher should be leading by example and take the first step by creating discussion groups, having a network of contacts aimed at education and research, which can provide students easier contact and exchange of ideas.

As for the use of LMS platforms such as Moodle, their usage should also be carefully thought, and teachers should be aware of all the tools there available, in order to better integrate the students in this environment.

Considering that both platforms, Facebook and Moodle are nowadays simultaneously used in educational context, they should be used complementarily, each one specifically focussed on its own main goal, i.e. Facebook as a tool to foster communication, integration and motivation, and Moodle for course management activities.

REFERENCES

- [1] Prensky, M. (n.d.). Digital Natives, Digital Immigrants. On the Horizon (MCB University Press, Vol. 9 No. 5). Retrieved April 12, 2014, from <http://www.marcprensky.com/writing/Prensky - Digital Natives, Digital Immigrants - Part1.pdf>
- [2] DeMers, J. (2013). The Top 7 Social Media Marketing Trends That Will Dominate 2014 - Forbes. *Forbes*. Retrieved March 26, 2014, from <http://www.forbes.com/sites/jaysondemers/2013/09/24/the-top-7-social-media-marketing-trends-that-will-dominate-2014/>
- [3] Castells, M. (2004). *The Network Society - A cross-cultural perspective*. (M. Castells, Ed.) (Vol. 59). Massachusetts: Edward Elgar Publishing, Inc. doi:10.2307/778114
- [4] Ahmad, A. (2011). A Short Description of Social Networking Websites And Its Uses. (*IJACSA International Journal of Advanced Computer Science and Applications*, Vol. 2, No.2. Retrieved April 06, 2014, from <http://www.thesai.org/downloads/Volume2No2/Paper 20-A Short Description of Social Networking Websites And Its Uses.pdf>
- [5] Boyd, D. M., & Ellison, N. B. (2008). Social Network Sites: Definition, History, and Scholarship. *Journal of Computer-Mediated Communication*. doi:10.1111/j.1083-6101.2007.00393.x
- [6] Burke, M., Marlow, C., & Lento, T. (2009). Feed Me: Motivating Newcomer Contribution in Social Network Sites. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. Retrieved April 07, 2014, from <http://www.thoughtcrumbs.com/publications/paper0778-burke.pdf>
- [7] Arnold, N., & Paulus, T. (2010). Using a social networking site for experiential learning: Appropriating, lurking, modeling and community building. *The Internet and Higher Education*, 13(4), 188–196. doi:10.1016/j.iheduc.2010.04.002
- [8] Wilson, R. E., Gosling, S. D., & Graham, L. T. (2012). Perspectives on Psychological Science. SAGE. Retrieved April 07, 2014, from <http://00t0holtgrav.iweb.bsu.edu/492/Perspectives on Psychological Science-2012-Wilson-203-20.pdf>
- [9] Facebook. (2014). Company Info | Facebook Newsroom. *Facebook Newsroom*. Retrieved April 06, 2014, from <http://newsroom.fb.com/company-info/>
- [10] Morgado, L. (2011). A web 2.0 e o ensino da psicologia do desenvolvimento: desenvolvimento de competências em técnicos de educação. In *Atas da XI Congresso internacional galego-portugues de psicopedagogia* (pp. 285–396). La Coruña.
- [11] Roblyer, M. D., McDaniel, M., Webb, M., Herman, J., & Witty, J. V. (2010). Findings on Facebook in higher education: A comparison of college faculty and student uses and perceptions of social networking sites. *The Internet and Higher Education*, 13(3), 134–140. doi:10.1016/j.iheduc.2010.03.002

- [12] Nentwich, M., & Konig, R. (2014). Academia Goes Facebook? The Potential of Social Network Sites in the Scholarly Realm. In *Opening Science: The Evolving Guide on How the Internet is Changing Research, Collaboration and Scholarly Publishing* (pp. 107–124). SPRINGER Open. doi:10.1007/978-3-319-00026-8_7
- [13] Burke, M., Marlow, C., & Lento, T. (2010). Social Network Activity and Social Well-Being. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 1909–1912). ACM. Retrieved from <http://www.cameronmarlow.com/media/burke-2010-social-well-being.pdf>
- [14] Zhao, S. (2006). Do Internet Users Have More Social Ties? A Call for Differentiated Analyses of Internet Use. *Journal of Computer-Mediated Communication*, 844–862. doi:10.1111/j.1083-6101.2006.00038.x
- [15] Kraut, R., Kiesler, S., Boneva, B., Cummings, J., Helgeson, V., & Crawford, A. (2002). Internet Paradox Revisited. *Journal of Social Issues*, 58(1), 49–74. Retrieved from <http://homenet.hcii.cs.cmu.edu/progress/paradox-revisited-16-2.pdf>
- [16] Madge, C., Meek, J., Wellens, J., & Hooley, T. (2009). Facebook , social integration and informal learning at university: “It is more for socialising and talking to friends about work than for actually doing work.” *Learning, Media and Technology*, 34(2), 141–155. doi:10.1080/17439880902923606
- [17] Bassani, P. B. S. (2011). Interpersonal exchanges in discussion forums: A study of learning communities in distance learning settings. *Computers & Education*, 56(4), 931–938. doi:10.1016/j.compedu.2010.11.009
- [18] Nentwich, M., & Konig, R. (2014). Academia Goes Facebook? The Potential of Social Network Sites in the Scholarly Realm. In *Opening Science: The Evolving Guide on How the Internet is Changing Research, Collaboration and Scholarly Publishing* (pp. 107–124). SPRINGER Open. doi:10.1007/978-3-319-00026-8_7
- [19] Junco, R. (2012). The relationship between frequency of Facebook use, participation in Facebook activities, and student engagement. *Computers & Education*, 58(1), 162–171. doi:10.1016/j.compedu.2011.08.004
- [20] Alves, A. P., & Gomes, M. J. (2007). O ambiente Moodle no apoio a situações de formação não presencial. In *Challenges 2007 : actas da V Conferência Internacional de Tecnologias de Informação e Comunicação na Educação* (pp. 337–349). Braga
- [21] Costello, E. (2014). Opening up to open source: looking at how Moodle was adopted in higher education. *Open Learning: The Journal of Open, Distance and E-Learning*, 28(3), 187–200. doi:10.1080/02680513.2013.856289
- [22] Wood, S. L. (2010). Technology for Teaching and Learning : Moodle as a Tool for Higher Education. *International Journal of Teaching and Learning in Higher Education*, 22(3), 299–307.
- [23] Martinho, M., Almeida, P. A., & Teixeira-Dias, J. (2014). Fostering Students Questioning through Moodle: Does it Work? *Procedia - Social and Behavioral Sciences*, 116(iv), 2537–2542. doi:10.1016/j.sbspro.2014.01.607
- [24] Rambe, P. (2012). Critical discourse analysis of collaborative engagement in Facebook postings. *Australasian Journal of Educational Technology*, 28(2), 295–314. Retrieved from <http://www.ascilite.org.au/ajet/ajet28/rambe.pdf>