

LMS Vs. SNS: Can Social Networking Sites Act as a Learning Management Systems?

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Abstract

The popularity of using social networking sites as an educational tool is increasing every day. Many educators are now trying to integrate these online teaching platforms that were provided by commercial services such as Google, LinkedIn and Facebook into learning environment. On the other side, Learning Management Systems also have great potential that makes learning environment readily available at any time and at any place. The main purpose of this paper is to consider whether social networking sites guaranteed as a formal e-learning platform as an alternative to the institutions' current Learning Management Systems. This report documents the educational value of using social networking sites as a Learning Management System. First part of the paper discusses Learning Management Systems a function of learning tool. Subsequently, this paper provides in-depth discussion of the power of Social Networking System as an educational tool. In the end, this paper concludes with the comparison of SNS and LMS.

Keywords: Social Networking Sites, Learning Management Systems, Course Management Systems, E-Learning

Introduction

E-learning incorporates all educational activities run by learners over the internet via computers or other electronic devices (Naidu, 2006). E-Learning is a way of using technology to deliver the lesson activities. Distance education is the widely used e-learning applications as off campus education application; however, there are many classes that are designed based on the e-learning principles for on-campus instruction. Both in the campus as well as distance education applications have been used Course Management System to accelerate their e-learning applications due to the flexibility of Learning Management Systems (LMS). Szabo and Flesher (2002) defines LMS is the infrastructure that delivers and manages instructional content, identifies and assesses individual and organisational learning goals, tracks the progress towards meeting those goals and collects and presents data for monitoring the learning process of the establishment as a whole. Indeed, many of the universities are administrated LMS, which has become an indispensable part of the most of the traditional courses. Although the many applications of LMS are just limited by the form of Course Management Systems (CMS) which is defined as a group of software tools providing an online environment for course communications (Gremu & Halse, 2012). A CMS typically includes a variety of online tools and environments, such as:

- An area for faculty posting of class materials such as course syllabus and handouts
- An area for student posting of papers and other assignments
- A grade book where faculty can record scores and each student can see his or her grades
- An integrated email tool allowing participants to send announcement email messages to the entire class or to a subset of the total family
- A chat tool allowing synchronous communication among class participants
- A threaded discussion board allowing asynchronous communication among participants by both pupils and teachers to make a special effort.

For many educational settings, the LMS, is the most significant initiative system for teaching and learning. The LMS is the means by which course information is given out to students. It is not unusual for an organization to periodically review its LMS system, especially if it has been in use five years or more.

From an organizational and administrative viewpoint in a large institute, the drive of an LMS is bringing and following training and learning information. While the following is certainly unspectacular, many organizations rely on LMS following to validate the agreement with assurance and supervisory necessities and to confirm that their staffs are meeting a minimum level of training and growth expectations (Meeker, 2011).

LMS enables students to become acquainted with the web-based activities. The importance of LMS in education, particularly using its Web is a well-known fact. A wealth of resources and techniques now exist which serve as a source both for exciting examples of new teaching practices, as well as easily accessible methods for acceptance into various formats of teaching and learning. The primary source of information is given on the internet as the students can replicate and incorporate into new learning activities so they will have the opportunity to keep an uninterrupted path of teaching. LMS has contained many tools such as forums, content, resources, assignment, announcements, messages, discussion groups, and file systems submission. Besides, it provides options for different assessment process, quizzes, tests and exams. In addition to this, LMS tools foster communication with students and parents outside of the classroom. This may include: discussion forums, real-time messaging, video conferencing, E-mail and announcement posts.

With 1.7 billion people using social media globally, social media communication is now undeniably a mainstream activity. Exactly 10 years ago, only a very limited sector was using social media tools to establish a connection on behalf of socialization henceforth these tools are now using by many large masses of different age groups for many purposes. With the rise of in the accessibility of the internet, leads the social media be the one of the fastest spreading cultures. In fact, it has become a new way of communication tool all over the world. Simply to say, social media refers to media used for social networking sites such as Facebook, Friendster, LinkedIn, Live Journal and MySpace are growing extensively and widely (Boyd & Ellison, 2007).

As an effect of the widespread use of social networking sites in all areas, is increasing widespread use in the field of education. Aside from the social purposes, the social media tools are very welcome in the educational area particularly in higher education. Most of the stakeholders in a university environment, integrate these tools in their governance and teaching purposes. All new students get benefited from social media in order to gain new friends and to participate in appropriate special interest group communities. Nowadays, most of the university's social media marketing departments are using social media tools to create content that draws attention to the university and encourages pupils to enroll the university.

The role of social networking sites in higher education is much diversified. Students get communication with classmates, share files, documents, etc. thru Facebook. Teachers can upload videos, docs on their blogs and wikis. Both teachers and students follow the news, technical innovations, musicians, artists, other friends or each other's profiles, share thought, knowledge, ideas or media thru Twitter. Students can find an expert in a field they are interested in and they can follow them. Boyd and Ellison (2007) define social networking sites (SNSs) as web-based tools that allow users to develop a public or semi-public profile, electronically communicate with other users with whom they share a connection, and view and comment on their list of communications with other members of the group. For example, Lee and McLaughlin (2010) suggest that online social networks enable learners and instructors to present themselves socially in an online environment and connect with one another while enabling individuals to engage in recurring meaningful experiences with others.

Researchers highly recommend using Social Networking Sites (SNS) alternative to LMS (Jenkins, Clinton, Purushotoma, Robinson & Weigel, 2006; Wheeler, Yeomans & Wheeler, 2008). For instance, Chen and Bryer (2012) indicated that if SNS properly facilitated and framed, they can benefit student learning by creating more connections across boundaries and over time. Social networking is a nice form of entertainment, great for meeting people with similar interests and can be effective, business technique for entrepreneurs, authors, actors, musicians or artists. Social networking allows people to form a group into specific groups like rural communities, particularly in the workplaces, universities, and high schools. Within the same logic, when these social networking is actualizing online, websites are used for socialization and called social networking websites. The socialization among these websites includes reading profile pages and containing of the online community members.

This paper explores the extent to which social networking sites that have been used in learning contexts can provide insights into the patterns of learning activities that were provided in Learning Management systems. Specifically, this paper attempts to answer the following question: Can social networking sites replace with LMS?

Learning Management System as a Platform for Learning

The Learning Management System has been serving as learning platform more than 10 years or so in the educational institutions, and yet for many it is now regarded as the core system required for delivering e-learning in an asylum. An LMS is a software application or web-based technology used to design, implement, and assess a specific learning process (Alias and Zainuddin, 2005, p. 28). Typically, a learning management system provides an instructor with a way to create and deliver content, monitor student progress and participation, assess student performance. Students are also benefiting from interactive features such as debates, video conferencing and discussion forums. Commonly used LMSs such as Moodle (2007), Blackboard (2007), and WebCT (2007) are emphasizing on provision for teachers and administrators in generating, managing, and handling of online courses. LMSs offer a great variation of features which can be included in the courses such as learning material, quizzes, forums, chats, assignments, wikis, and so on. Bailey (1993) presents the following general characteristics for an LMS in education:

- Instructional objectives are tied to individual lessons;
- Lessons are incorporated into the standardized curriculum;
- Courseware extends several grade levels in a consistent manner;
- A management system collects the results of student performance; and
- Lessons are provided based on the individual student's learning progress.

LMSs are a powerful technology that has yet to reach their full potential and are very important for the Information Age paradigm of education. There are some advantages of LMS for students such as: (1) Centralized Learning Environment to Ensure Consistency: LMS makes all types of teaching content, developmental content, and performance content available to individuals 24/7 from any location with web access. Multiple users can access the LMS at any given point in time, (2) Tracking and Reporting for Enhanced Performance: The LMS allows organizational users to view a required learning path, track progress against the learning path, review records of success, and register for additional courses. Employers can offer these courses through various media, including instructor-led training, web-based training, or webinars. (3) Immediate Capabilities Evaluation: The LMS allows users to be evaluated prior to taking a course, while taking part in the course, and upon course completion (David, 2013). Employers can evaluate retention by periodically administering scheduled assessments via the LMS. They can review the records of the results to determine success levels and the actual time taken to complete each course and its component. As such, LMSs have become very successful in technology enhanced learning. One of the functions of an LMS is both carrying and following teaching and memorizing information. While the following is certainly unspectacular, many institutions rely on LMS following to demonstrate compliance with insurance and regulatory requirements and to ensure that their students are meeting a minimum level of instruction and development expectations (Meeker, 2011).

Although the initially designed LMSs were more traditional nature, however nowadays, based on the changing structure of web technologies it has to make a much more useful and user friendly interface. In fact, how, for what purposes and the followed approach are very important factor, but even more importantly, developers of LMSs decide on how learning can take place in the LMS and build the LMS based on pedagogical strategies. Such pedagogical strategies can be, for example, based on concepts of learning theories such as behaviourism, cognitivism, and constructivism. Another example is that LMSs should emphasize a more learner-centered approach or teacher-centered approach. Each LMS follows some pedagogical strategy regardless of whether developers used it intentionally or not. Similarly to improve the LMSs functionality, there should be definite roles of LMSs in order to satisfy the end-users. Taylor (2004) proposed that LMS needs to support collaborative learning inside and outside of the school in order to widen the learning environment to the home and further involve parents. Similarly, Dalsgaard (2006) proposed two approaches that new generation LMSs should follow, the first and crucial one is to provide students with an assortment of tools for their self-governed and problem-based activities; to empower students, offering them tools for independent work, reflection, construction and collaboration. Second, the approach suggests facilitating students' engagement in different networks. The current structure of the LMS is facing several challenges while embedding them into educational settings, however, learners, teachers and other stakeholders are the ones who should work together in order to actualize their full potential (Watson & Watson, 2007).

Rising Power of Social Networking Sites

As a consequence of its widespread use in the last days, the discussions on the use of SNS, a large sector defense that it should be utilized in education and the positive effects obtained from research studies now begin with this staggering level. Social networking (SN) tools are web-based services through which individuals may maintain and develop social ties with people in their personal network in a multifaceted and multisensory environment (Jones & Bronack, 2008).

SN refers to the gathering, representation, processing and dissemination of social information, such as race, sexual orientation and partners, religion, body type, favorite books and movies, relationship statuses and photo albums (Mason, 2008). In 2013 Social Media Guidebook, Möller and Stone (2013) defines the term social media as “the use of web-based and mobile technologies to turn communication into an interactive dialogue”. Social media can be a group of Internet-based applications that build on the ideological and technological foundations of the so-called Web 2.0, and that allow the creation and exchange of user-generated content. Social media is a way to transmit, or share information with a broad audience. Everyone has the opportunity to create and distribute, all the users really need is an internet connection and they are off to the races. On the other hand, social networking is an act of engagement. Groups of people with common interests, or like-minds, associate together on SN. Social networking can be invested in the social media. That is to say, SN is distributing among social media tools. Social Media are tools, and SN is the process of applying those tools. The Internet, social media, and Web 2.0 are becoming vital elements of students’ education due to the learners’ desirability to them. Learners in various ages are cooperating in such web based platforms over study groups, blogs, and wikis. Teachers who want to discourse the same language with the students evidently pay the same attention to these new communication technologies and they try to integrate the SNSs in their teaching activities apart from their personal uses. SN is becoming more and more important in schools—Facebook, Moodle, Second Life, Digg, and other sites are often used by instructors to communicate with students or for out-of-classroom discussions. Teachers are attempting to find ways of how to use social. Based on the recent research studies the social media can:

- Reduce attrition through social support of peers, teachers, education systems and external networks
- Provide opportunities and expertise in social capital building
- Provide opportunities for learners to develop lifelong learning networks and social skills
- Provide tools for creating, locating and tagging learning objects, artifacts and portfolios
- Extend and enhance learner achievement and collaborative learning expertise.
- Create and maintain networks of teachers, administrators, business and professional colleagues and a whole lot more (Vescio, Ross, & Adams, 2008).

Teachers manage lessons with SNSs, as in the course of LMSs lecture notes, communicate these materials the students of any social networking site via, for example, Google+, Facebook or Twitter. In addition, social networking sites for educational purposes can be used in many different ways. Another common example is an application according to a lot of different social networking system and in higher demand for video sharing together, for example to use YouTube, Flickr for the visuals create a group for discussion and activities such as the use of blogs or document for a Google doc for the Google group. Students can further explore topics that they are interested in through online social networking. By making connections with other people who have the same interest, kids can learn and exchange knowledge with others, they may not have had the opportunity to interact with.

Teachers often take advantage of students’ SN abilities to create class blogs, discussion forums, videos, and more. For instance, teachers set up study groups that allow students to collaborate outside of the classroom, create to-do lists, set up meeting times, work on group projects, prepare for tests, and share notes online (Sullivan, 2010). Besides, teachers record students’ Power Point presentations and post them on social networks for students to refer back to as study guides (Su, 2011). In their study, Valetsianos and Navarrette (2012) used SN platform as a medium to teach a graduate-level online course where the results of the study indicate the complexities of implementing social networking technologies in ecological valid environments, highlighting the benefits and multifaceted tensions that may result when adopting such tools in online education.

The website Edmodo.com may be the best example of a safe and secure social network specifically designed by educational support staff for educational purposes (Weber, 2012). In addition, the opinion of SN sites should be used CMSs are becoming increasingly common.

SN sites which are used in the form of CMS in the educational institutions are said to be effective for more powerful and seamless communication between students and teachers. By collaborating with other students and teachers through online social networking, children are able to build stronger school communities.

SNs are extremely effective for facilitating learning, especially by connecting colleagues and enabling informal learning in conjunction with participating in online courses. LMSs and social networks will need to learn from each other to make sure that colleagues can capture the benefits of collaboration and informal learning while still providing the formal documentation necessary to meet compliance and management requirements. For Kimberly and others, social networking sites and web-based services will allow —individuals to: (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system (Kimberly et al., 2008). Instead, users are rapidly adopting new interest-based social networks such as Pinterest, Instagram, Thumb, Foodspotting, and even the very new Fitocracy. The numbers tell the tale around users' appetites for these new interest-based social networks. Pinterest, the increasingly popular virtual pin board, crossed 10M monthly unique users in the US in January 2012, achieving 8 digits worth of monthly unique faster than any site ever (www.comScore.com). According to Silicon Valley uber-investor Ron Conway, Pinterest is growing like Facebook 5 years ago.

Is it Social Networking for Learning or Learning with Social Networking?

SNSs soon began to be used in education from the date of commonly used in daily life. So why so fast and widespread social networking sites are have found its place in education. In other words, what features of Web 2.0 has become attractive for use by educators. SNSs bring not only old friends, but also serve as a venue for sharing knowledge and updates in all different subject area or interest. According to Greenhow and Robelia (2009), while proving that SNSs offer more than just social fulfillment or potential job contacts, also have implications for educators, who now have a vast opportunity to support what students are learning on the Web sites. Facilitates open communication, leading to enhanced information discovery and delivery, allows students to discuss ideas, post thoughts, ask questions, and share links, provides an opportunity to widen knowledge context and creates different opportunities for interaction are the most prominent features of SNs that were emerging from the studies. There are a number of reasons to use social media technologies in learning and teaching settings, including:

- Instructors can create a more student-centered learning environment in their courses.
- Students can create their own content and build their own meaning (constructivist pedagogy).
- Students and instructors can create communities of learning and practice to enhance learning.
- Students and instructors can share content and ideas that lead to more authentic learning contexts.
- Students and instructors can create personal learning environments and networks that contribute to a process of lifelong learning.
- Social media may facilitate critical discussion and analysis, and may facilitate group tasks.

No need to explicitly specify the purpose and the emergence of social networking sites on the use of educational activities, though not continue to become more widespread use of learning-teaching environments (Tian, Yu, Vogel, & Kwok, 2011). However, at the moment one of the most hotly debated issues is the use of social media for education or to support the use of learning will give us more effective results. There are various different opinions on this subject in the literature (Alvarez & Olivera-Smith, 2013; Forkosh-Baruch & Hershkovitz, 2012). There are mainly two ways to use social media tools for educational purpose. One way is to integrate social media tools into the current educational system as a teaching and learning resource to assist the process of curriculum delivery. Now, we can see a gradual merging of those tools with CMS. This is a wise move with the least interruption of exiting the curriculum delivery system. Another way is to use social media as a parallel learning channel to compliment current curriculum delivery, and to extend the learning environment to the real world and to enrich students learning experiences with real life practice. The second way will be more challenging and difficult to implement and manage for current education status quo. For instance, Liu (2010) stated that "Technology should not and will never replace education, but assist educational practice, improve teaching efficiency, and enhance student learning experiences".

Educational networking is the new term that refers use of social networking technologies for educational purposes (Davis, 2008).

It has a working definition of educationally-focused networks which potentially includes functionality like file sharing, communication (chat & discussion forums), information networking technologies (del.icio.us), and social networking technologies (profile, connect) (education.wikia.com). Although these websites are able to create an environment that cannot be duplicated elsewhere for networking students that will not meet face to face and they can be very diverse and expose the students to many new viewpoints, ideas, and opinions that she may not be familiar with. However, there are some obstacles to educational networking such as privacy, intellectual property, student desire, managing learning. Edutainment is the entertainment aspect of social media tools. Multimedia easily uploaded or downloaded and sharing with the help of Social media so this motivates both the educator and learners. Each update of these tools, LMSs and enterprise social networks makes them look more and more alike, as LMSs continue to add social networking features and social networks develop more tracking features. Just waiting to see who gets there first.

Conclusion: System for Management of Learning or Social Networking?

This paper discusses the integration of social media tools in education of students while comparing these tools with the ones commonly used LMSs. Actually, this paper tries to prepare the readers to see the both aspects of these tools that educators are employed in teaching activities. The use of LMSs of higher education institutions has been very extensive since the basic characteristics that they offer makes the organization and distribution of course content in a very simple and useful mode to learners. Since the primary function of the LMSs just delivers lesson content to the students, students are mainly concentrating only on the substance of the lesson topic. At this point, it is very important that the students are being distracted when they do their study because in many research subjects that were conducted with the Facebook users have demonstrated that the usage of social media may cause the student's attention to shift in different directions most of the cases (Friedman & Friedman, 2011). But that surely does not prove that the LMS has not the functionality or interaction element. On the contrary, most of the LMS such as Moodle has the characteristics of Web 2.0 applications, especially in the most recent versions. Web 2.0 technologies are common features of SNSs and they are completely embedded into these sites. The appeal of Web 2.0 technologies makes the SNS are much trendier in all age groups of the society. These features of the SNSs make more attractive and superior to users over LMSs. Naturally, educators are heading towards to social media tools which are becoming an integral part of students' daily life in order to create an easier and more efficient learning environments for students. Due to these reasons, many SNS are used as the LMS. In fact, both platforms are making new arrangements and update in order to get closer to each other. It should be noted that the compilation and updates are arranged according to the demands of users. In line with the changing personal tastes of individual users or learners, the SNS and LMS have more similar characteristics to each other. Already, most of the time, users are producing their own solutions to eliminate the missing elements. As a consequence of this, blended learning is increasing and spreading. Many educators prefer to use them by mixing them or completing each other's missing parts. So where do we go with this? What kind of e-learning platforms are waiting for educators in future? Will there any platforms such that both SNS and LMS can be used together that respond to all needs of users, or one will be the winner and can declare victory in this race?

References

- Alias N.A., & Zainuddin A.M. (2005). Innovation for better teaching and learning: adopting the learning management system. *Malaysian Online Journal of Instructional Technology*, 2, 27–40.
- Alivera, I.M & Olivera-Smith, M. (2013). Learning in social networks: Rationale and ideas for its implementation in higher education, *Education Science*, 3, 314-325.
- Bailey, G. D. (1993). *Wanted: A Road Map for Understanding Integrated Learning Systems*. In G. D. Bailey (Ed.), *Computer-based Integrated Learning Systems* (pp. 3-9). Englewood Cliffs, NJ: Educational Technology Publications.
- Boyd, D. M., & Ellison, N. B. (2007). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication*, 13 (1), 210-230
- Chen, B. & Bryer, T. (2012). Investigating instructional strategies for using social media in formal and informal learning. *International Review of Research in Open and Distance Learning*, 13 (1), 87-104. Retrieved from <http://www.irrodl.org/index.php/irrodl/article/view/1027/2073>
- Dalsgaard, C. (2006). Social software: E-learning beyond learning management systems. *European Journal of Open, Distance and E-Learning*, 2006 Vol 2. http://www.eurodl.org/materials/contrib/2006/Christian_Dalsgaard.htm
- David, S. A. (2013). A Critical Understanding of Learning Management System. Retrieved from https://www.academia.edu/3382729/A_Critical_Understanding_of_Learning_Management_System_-_2013
- Davis, V. (2008, January 18). It is about Educational Networking Not Social Networking, [Blog post]. Retrieved from http://education.wikia.com/wiki/Educational_networking
- Friedman, H.H., & Friedman, L.W. (2011). Crises in education: Online learning as a solution. *Creative Education*, 2, 156-163.
- Forkosh-Baruch, A., & Hershkovitz, A. (2012). A case study of Israeli higher-education institutes sharing scholarly information with the community via social networks. *Internet High. Educ.*, 15, 58–68.
- Grenhow, C., & Robelia, B. (2009). Old communication, new literacies: Social network sites as social learning resources. *Journal of Computer-Mediated Communication*, 14, 1130–1161. doi: 10.1111/j.1083-6101.2009.01484.x
- Gremu, C. D., & Halse, M. (2012). *The Educational Value of Integrating a Social Networking Platform and a Learning Management System*. Retrieved from <http://www.cs.ru.ac.za/research/g12G1792/documents/shortpaper.pdf>
- Jenkins, H., Clinton, K., Purushotoma, R., Robinson, A., & Weigel, M. (2006). *Confronting the challenges of participatory culture: Media education for the 21st century*. Chicago: The MacArthur Foundation.
- Jones, J. & Bronack, S. (2008). Rethinking Cognition, Representation and Processes in 3D Online Social Environments, in Rivoltella, P. C. (Ed), *Digital Literacy: Tools and Methodologies for the Information Society*, IGI Publishing: London, 176-206.
- Kimberly B., Charles A. B., & Sittie N. D. (2008). Social networking sites affect one's academic performance adversely. *Cyber Psychology & Behavior*, 17 (2), 58-59.
- Liu, R.D. (2010). Psychological research in educational technology in China. *British Journal of Educational Technology*, 41 (4), pp. 593–606
- Mason, R. (2008). *E-Learning and social networking handbook: Resources for higher education*. New York: Routledge.
- McGloughlin, C. & Lee, M.J.W. (2010). Personalised and self-regulated learning in the Web 2.0 era: International exemplars of innovative pedagogy using social software. *Australasian Journal of Educational Technology*, 26 (1) (2010), pp. 28–43
- Meeker, K. (2011). Can Social Networks Replace Your LMS? [Blog post]. Retrieved from <https://www.opensesame.com/blog/can-social-networks-replace-your-lms>
- Möller, C., & Stone, M. (2013). *Social Media Guidebook : Representative on Freedom of the Media*. Vienna: OSCE. Retrieved from <http://www.osce.org/fom/99563>.
- Naidu, S. (2006). *E-Learning: A guidebook of principles, procedures and practices*. 2nd Revised Edition. New Delhi, India: Commonwealth Educational Media Center for Asia (CEMCA), and the Commonwealth of Learning.

- Su, E.Y. (2011). Social Networking Helps Students Perform Better, Professor Says. California Watch, August 26,2011. Retrieved from <http://californiawatch.org/dailyreports/social-networking-helps-students-perform-better-proffessor-says-12292>.
- Sullivan, J. (2010). *Social Networking Tips for Teachers by Facebook Chief Security Officer Joe Sullivan*. Education World, San Diego, CA. Retrieved from http://www.educationworld.com/a_tech/tech/tech256.shtml.
- Szabo, M. & Flesher, K. (2002). CMI Theory and Practice: Historical Roots of Learning Management Systems. Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2002 (White Paper) (Montreal, Canada: In M. Driscoll & T. Reeves (Eds.)): pp. 929–936. ISBN 1-880094-46-0.
- Taylor, F. P. (2004). Education technology helps unite school communities, improve academic achievement. *T.H.E. Journal*, 31(10), 46-48.
- Tian, S.W., Yu, A.Y., Vogel, D., & Kwok, R.C-W. (2011). The impact of online social networking on learning: a social integration perspective. *International Journal of Networking and Virtual Organisations*, 8 (3/4), 264-280.
- Vescio, V., Ross, D., & Adams, A. (2008). A review of research on the impact of professional learning communities on teaching practice and student learning. *Teaching and Teacher Education*, 24 (1), 80-91.
- Veletsianos, G. & Navarrete, C. (2012). Online social networks as formal learning environments: Learner experiences and activities. *The International Review of Research In Open And Distance Learning*, 13 (1), 144-166.
- Watson, W. R. & Watson, S. L. (2007). An argument for clarity: What are learning management systems, what are they not, and what should they become? *Tech Trends*, 51 (2) (2007), pp. 28–34.
- Weber, A. S. (2012). Considerations for social network site (SNS) use in education. *International Journal of Digital Information and Wireless Communications (IJDIWC)* 2 (4), 37-52.
- Wheeler, S., Yeomans, P. & Wheeler, D. (2008). The good, the bad and the wiki: Evaluating student generated content as a collaborative learning tool. *British Journal of Educational Technology*,39 (6), 987-995.