

An Authoring and Peer Reviewing Activity in the Master's Program of eLearning Pedagogy: The Teacher and Students' Perspectives

Maria Paula Silva
Universidade Aberta
Portugal
mpaulasilva@gmail.com

Maria João Spilker
Universidade Aberta
Portugal
mjspilker@gmail.com

Marina Moleirinho
Universidade Aberta
Portugal
mmoleirinho@gmail.com

Lina Morgado
Universidade Aberta
Portugal
lmorgado@univ-ab.pt

Abstract: This article describes an activity that was developed in the curriculum unit of Models of Distance Education, as part of the Master program of eLearning Pedagogy, at Universidade Aberta, Portugal. The students were asked to assume the roles of author of a theme and reviewer of another. Several existing and emerging models and theories relevant to Distance Online Learning were researched and worked on, namely: Blended Learning, Connectivism, Mobile Learning, Personal Learning Environments (PLEs), Virtual Worlds and Total Online Learning. The activity was considered simultaneously complex, challenging and motivating as it gave students the opportunity to acquire knowledge on different themes, to develop the necessary skills for the collaborative and cooperative work, as well as to prepare themselves for the art of writing a scientific article.

1. Introduction

Education (Davidson & Goldberg, 2010), and particularly online education (Anderson, 2008a), has no choice but to respond to new realities in an engaged and effective way. Learners have now new needs and expectations concerning their learning process and are used to new ways of interacting with other people and with information and knowledge, all of which require new modes of facilitating and supporting their learning (Alleman & Wartman, 2009).

Furthermore, personalization and control of their own learning become key issues, with learners having a very active role in the process, as the participatory culture of the Web requires participatory pedagogies.

Online learning has always had a strong focus on collaboration and the building of a learning community, but the social and cultural phenomenon known as Web 2.0 has diversified and deepened the potential of the technologies used for collaboration and cooperation, as well as the sense of community itself (Harasim, 1989, 2000; Anderson, 2008b, Anderson & Dron, 2011). In a way, there has been a strengthening of the student-centered learning perspective, more flexible and personalized, in a process where they sometimes become producers of content and not just consumers (Downes, 2007; McElvaney & Berge, 2009). On the other hand, interaction and dialogue have increased and widened (Moore, 2007), not only among the members of a class or cohort but also outside the formal

settings, extending the learning process beyond the walls of the virtual classroom and creating what might be called a *networked class*. (Mott, 2010; Morgado, 2011).

2. Background

The Master's program in eLearning Pedagogy was created in 2004, as a response to a growing need of training and specialization in distance education, more specifically the need to establish a solid pedagogic foundation in elearning for those working in teaching, training, elearning design, content creation or research in the field. At the same time, it sought to meet the challenges of a tight and effective integration of information and communication technologies in Education and of educating individuals for the knowledge society.

Since its inception, the Master's has followed Universidade Aberta's pedagogical model, based on the principles of flexibility, autonomy, interaction and collaboration (Pereira, Mendes, Morgado, Amante & Bidarra, 2007). It has also focused heavily on innovating and exploring new paths, based both on the relentless technological advances (and the cultural and social changes associated to them) and on the growing research in the field.

The base virtual learning environment used is *Moodle* (the platform adopted by Universidade Aberta), combined with a host of social media tools and services. The program is taught completely online and resorts mainly to asynchronous communication and through a *Learning Contract* (Morgado, Mendes & Pereira, 2008).

The learning process is activity driven, with students performing significant, real life tasks and producing digital artifacts that they publish using in that process a variety of tools and services, such as blogs, wikis, podcasts and videos, social bookmarking, *Slideshare*, *Voicethread*, *Facebook*, *Twitter*, or *Second Life*, to name the most relevant. The students work both individually, in pairs or in small teams, according to the task or, sometimes, to their own will. Cooperation in the form of sharing (ideas, resources, reflections), peer feedback and peer review are strongly encouraged and occasionally designed in the task. The fact that students publish their work on the Internet allows for interaction and dialogue with a wider audience, which results in greater meaning and motivation in the learning process, as they become part of a "networked class" and move far beyond the virtual classroom walls of a private garden like *Moodle*. Since 2008 [3rd edition] the Master's program follows the Bologna process principles. The Master's program is divided in two semesters with 4 curricular units (CUs) each, for a total of 8 curricular units. Each unit lasts for about 20 weeks and the 4 CUs in each semester are taught simultaneously. The class has an average of 25 students.

The master's is supervised by a coordinator, who participates in its design and implementation, both with respect to organization, articulation and teacher support, as well as to the pedagogical aspects involved in order to assure the quality of teaching and learning. This coordinator also plays an important role in the relationship with the students, being in charge of the introductory familiarization module, where students get in touch with some relevant tools and processes to be used in the course, and is responsible for moderating a coordination space throughout the two semesters. Only students have access to this space and it is where they can get help with any problems they might be having in their learning process not related to the contents of the curricular units.

2. 1. The Learning Design of an Activity Emulating the Production of a Peer-Reviewed Journal

The course of *Models of Distance Education* seeks to introduce students to the problems of distance education, including the theoretical and conceptual heritage of distance education. Students analyze the various theoretical models of distance learning pedagogy and issues around distance interaction. The course starts with the foundational concepts in distance education (Bates, 1993; Garrison, 2000; Garrison & Anderson, 2003), moves on to the discussion and analysis of the work of many of its pioneering authors (Bernard & Vidal, 2007) - Holmberg (1986, 2001), Wedemeyer, Moore (1989, 1991, 1993) and Peters (1993, 2002) to culminate with the analysis of new models and emerging trends in distance learning such as connectivism (Siemens, 2004, 2006), mobile learning (Aly, 2009), personal learning environments (Anderson, 2006; Mota, 2009) or virtual worlds.

The metaphor that guided the design of the described learning activity (Conole, 2007) and served as its spark (Salmon, 2002) was the publication of a special issue of a journal devoted to online education. By means of engaging in this activity, students were expected to acquire a sound knowledge on online teaching; to get to know the existing models and relevant emerging theories in Online Education; to define and apply criteria for assessment of an academic article; and to apply the basic principles in the elaboration of an article, observing the rules of academic writing. This five-week activity was structured in five phases, with timings and checkpoints in order to regulate the

spacing of the various ongoing projects and to coordinate their organization, including moments of individual work and of team work and collaboration.

A given set of themes was established to serve as the contents for the journal issue and a thematic bibliography consisting of peer-reviewed articles and peer-reviewed journals was provided to support the study and writing on the given themes (IRRODL, EURODL, *Distance Education*, *America Journal of Distance Education*, JALN, RUSC, *The Internet and Higher Education*, *Interactive Learning Environments* and others).

A team of peer-reviewers was assigned to each theme, responsible for defining the criteria for the assessment of the articles submitted and for providing a brief critical assessment of those articles. After the assessment criteria for each team were published, all students had to submit an abstract of the four-page article they wanted to write on the theme of their choosing, with the requirement that the group members could not have contributed an article on the subject they were reviewing. These abstracts were reviewed by the teams for each theme and feedback was given to the authors, who then wrote the full articles and submitted them. The full articles were then assessed by the teams of peer-reviewers and, again, feedback was given to the authors. Each team had a discussion forum where its members could collaborate on the work they had to do. The detailed planning of the activity was as follows:

Phase 1 – two days: students explore the given resources and

- a) choose, among the various themes defined, the one whose team they want to be part of;
- b) choose the theme in which they want to submit an article for publication.

Phase 2 – ten days: students widen and deepen the exploration of the resources given and

- a) teams present the set of criteria they have defined for assessing the articles submitted in their theme;
- b) students present a half-page abstract of the article they want to write.

Phase 3 – ten days: students write and submit their articles.

Phase 4 – six days: teams write a brief assessment of the articles submitted in their theme.

Phase 5 – two days: reflection and evaluation of the process.

The assessment criteria for this activity and its weight in the overall grade of the course were made explicit beforehand to the students.

3. Methodology

The methodology used for the analysis of the developed work during the activity of MED (Models of Distance Learning) consisted on a process of the existing written discourse analysis (messages of the forums) of the master students, from which the students' actions were inferred (Garrison, Anderson, & Archer, 2000; Rourke, Anderson, Garrison & Archer, 2001). According to what was expected in the learning design of the activity, an analysis was made to the final available students' products. The data collection kept up with the activity from its start to its end. Given the complexity and scope of the activity, it seemed adequate to perform a rather more extensive than exhaustive analysis.

In order to describe the individual activity of preparing a paper, a content analysis of messages recorded mainly in the *General Support Forum* and in the forums of each of the *Peer-Review* teams was conducted. The content of the messages was classified into categories described in the section "Master students as paper authors".

For the description of the group activity, apart from the definition of three to four criteria for the paper's appraisal and the preparation of a brief critical review of the submitted papers, we also analyzed all the messages in the *General Support Forum*, the forums of the peer reviewer teams and the web pages (Wiki and Google-Docs). Finally, all the messages of the topic "Assessment of the activity" were analyzed as a means to find aspects valued by students, whether expressing positive ideas or difficulties.

4. Development of the Activity

Once some clarifications were made on the purpose of the activity, its developing process started with the formation of the peer reviewers' teams. Therefore a both global and detailed perspective of the activity progress will be provided.

4.1. The Formation of the Peer-Reviewers' Teams

The following table presents the choice and subsequent distribution of the different teams of peer reviewers and authors. Regarding the number of members per group, the distribution is relatively homogeneous, ranging from three to five members. An exception was the *Peer-Review* team for the topic Second Life, for which no students applied (the review task had to be performed by the teacher herself) although there were four articles submitted in this area.

Choice	Mobile Learning	Connectivism	Second Life	PLEs	Blended Learning	Total Online
<i>Peer-Review Team</i>	4	5	1	4	4	4
	Student I Student J Student L Student M	Student N Student O Student P Student Q Student R	Teacher X	Student S Student T Student U Student V	Student E Student F Student G Student H	Student A Student B Student C Student D
<i>Authoring Team</i>	3	3	4	3	4	4
	Student D Student G Student R	Student A Student E Student V	Student C Student N Student O Student P	Student B Student H Student Q	Student I Student J Student L Student M	Student F Student S Student T Student U
Total of 'Experts'	7	8	5	7	8	8

Table 1: Distribution of *Peer-Reviewers* and *Authors* among the teams

Table 1 shows a group formation based on (personal) preferences of various kinds. For example, the members of the *Peer-Review* team "m-Learning" correspond entirely to the *Author* team "b-Learning". We could undertake a study to find out whether the formation of the teams was a coincidence or whether peers made any kind of previous arrangement privately, using e-mail, for example. The formation of other teams tends to emphasize that the master students' priority for their topic choice was based on their personal likes and on the knowledge about the subject. This seems to fit both the choice of *Peer-Review* and *Author* teams (this thesis could also be studied).

4.2. Master Students as Paper Authors

With the intention of exposing the experience of the activity as it was felt by master students, we studied the messages recorded in the virtual learning platform, within MDE (Models of Distance Education) curricular unit. The content analysis of the forums messages - *General Support Forum* and forums of the *Peer-Review* teams - where ideas about the individual activity were shared, enabled us to arrive at the following categories which will be delineated and explored from our point of view as participating researchers in the activity.

One of the first inferred categories was connected with the initial difficulties faced by authors, in a brainstorming stage, given the feeling of anxiety that precedes the writing of an article. One student referred to the decision about the type of article to submit as a difficulty (*should students write an exploratory study, a comparative analysis, a reflection, a review on the topic?*). Despite the general bibliography provided by the teacher, there were requests for more specific bibliography. The difficulties concerning the delimitation of the theme, for example, the doubt of what sub-theme to be selected, and the constraint of writing four pages were acutely felt by many authors. One of the authors raised doubts about the real purpose of writing the article, wondering if this was really aimed for publication in a specialized journal.

Some ways to overcome the difficulties previously identified were shared in the forums of the *Peer-Review* teams. There was sharing of links to online sites and to articles related to the proposed topics for paper submission. Some authors intervened in the forum of their correspondent *Peer-Review* team to take account of the difficulties

experienced (for example, some authors did it to achieve a change of format, which would allow them to write beyond the four page fixed limit).

The task of drawing up the abstract raised a few hesitations. The doubts posted in the *General Forum* questioned the way the abstract was designed, and proved it was difficult to obtain a summary drawing up before the author had defined the theme for the article. This would have been one of the reasons that explains the request postponement of the task so that authors could have more time to work.

According to the design of the activity, having ended the expected tasks, there was a period for an assessment of the activity. Master students were asked to express themselves freely. The guidelines given by the teacher suggested that each student could refer to the way this activity was experienced, report positive and negative aspects, the degree of involvement, learning outcomes, obstacles, etc.

Having analyzed the response messages, a total of 28, it was possible to highlight the categories closely linked to authorial activity. We began by the difficulties related to this learning exercise, which was viewed as a training activity for academic writing. The authors reported that the criteria for the drawing up of the article were very tight and they gave emphasis to the maximum of four page restriction. In this phase the difficulties of the act of having to pass from a research phase to a phase of text writing and the difficulty of finding a clear thread of thought for the article were also repeated. Some messages refer to this phase as a solitary moment.

The messages tell of several positive aspects that lend to this activity a major enrichment contribution. It was recognized that the expected skills – a thorough knowledge of online learning and the development of academic writing – were acquired. In this sense, the complexity of the activity and its demanding nature, viewed positively as a training exercise for future work, were a sign of meaningful learning. The given freedom to choose the working themes motivated and enhanced the development of these learning outcomes.

One of the positive aspects that stood out the most was the methodology used in the activity as a whole. This was an aspect that encouraged the work of the authors. This methodology was described as innovative, imaginative and creative. In the topic “General Assessment”, the importance of having had the possibility of choosing of the theme, and then developing it according to the students’ preferences was again emphasized. It was noted that the fact that the criteria for the article reviewing had been previously set by the *Peer-Review* team helped master students to have a perception of what would be expected as them as authors. The availability of the final set of articles for the whole class was considered a source of knowledge for the students.

From the authors’ point of view, in the category *learning outcomes*, several aspects were pointed out. These assume the form of learned illations as far as the drawing up of an article is concerned:

- The need a good preparation with time required to perform varied and extensive readings.
- The research implies the knowledge/the search for information in specialized journals and special libraries, such as the Portuguese Online Knowledge Library (*b-on*).
- Based on readings an exercise of delimitation of the theme must be carried out.
- Simultaneously, a perspective must be selected.
- Formal rules of text formatting and style (citations and references) are relevant. Some messages pointed out the importance of a proper use of APA style and the experience of adequate in-text citations.
- Limiting the number of pages is a means to train reasoning and concise, focused, and summarized writing.

The individual authorship activity was accomplished. All students completed their article, even though (and thanks to the flexibility which characterizes this type of elearning master program) some authors had provided the final work beyond the stipulated period. The degree of involvement in the two tasks can be considered a high one, the skills were acquired and several learning outcomes were brought about. Some of the students published their papers in their blogs.

4.3 Master Students as Article Peer-Reviewers

In this section we intend to provide an account of the experience that the students from different groups had during the development of the activity, now as reviewers of articles. Each group of *Peer-Review* had to define the articles’ submission criteria concerning general format and content appraisal. Once articles were submitted they were reviewed according to the criteria established by the *Peer-Review* team. Each student had the opportunity to perform the role of a peer reviewer for an online publication.

The *General Support Forum* was the space of interaction and mutual support for the master students throughout the activity. There were 24 topics with a total of 142 messages registered. Besides all the messages

exchanged by e-mail, this forum was the delivery space for abstracts, articles and formal text appraisals of the submitted articles.

Peer-Review Forum	Number of Topics in the Forum	Total of Messages	Thematical References	Available References on Format	Set of Criteria	Other Tools
Mobile Learning	9	45	X		X	Wiki (open access)
Connectivism	10	68			X	Google Docs (open access)
Second Life	11	13			X	-----
PLEs	10	65			X	Google Docs (restricted access)
Blended Learning	19	124		X	X	Google Docs (restricted access)
Total Online	12	24			X	Wiki (open access)
Total	71	339				

Table 2: *Peer-Review Forum* and other data

Besides the support forums of the *Peer-Review* teams, as it can be observed in Table 2, the groups used different communication tools, not only synchronous (Skype, MSN, Google-Talks) but also asynchronous, as email. Having in mind the experiences felt by the authors of this article, in different groups of peer reviewers, it was observed that open tools were used when the communication was intended to be public (i. e., could be seen by colleagues and teacher). The level of communication and interaction among the members of a team was higher or, in some occasions, more significant, in the group restricted access communication tool. Those were the moments for discussions concerning the organization and the performance of the guidelines of the group.

The groups selected the tools they intended to work throughout the activity, namely Wikis and Google-Docs. These tools were used in several ways, whether for work organization (timetable, task distribution, collaborative writing, discussion, etc.) or for the selection of thematic references, acceptable general format within the context of scientific work, and for the preparation of criteria for an article's appraisal if it was to be submitted to an online publication. Although not all the information was publicly available, we can locate this data in the tools the groups left accessible, namely Mobile Learning, Connectivism and Total Online groups.

The criteria production was a transparent task within the groups that used open tools. Firstly, students accessed the links suggested by the teacher. After that, a research to collect further accurate data on article format and criteria for academic writing was undertaken. Finally, after some extra research, all groups were prepared to write down their criteria. This task enabled students to gather information about online publications, the importance of indexation and publication, periodicity of online journals as well as the organizations that promote open (open access) or restricted (not free) publication of scientific articles.

Peer-Review Teams	Structure and organization	Rules for general format	Rules for citation and references	Content
Mobile Learning	- Author's name - Affiliation	- Four-page limit - Word format for	Portuguese Norm (NP 405-1, 1994)	- Pertinent, reflexive, updated and objective

	<ul style="list-style-type: none"> -Title -Abstract -Key-words -Introduction -Development -Conclusion 	<ul style="list-style-type: none"> scientific articles -Reduced use of notes to appear at the end of the text -Indexation and subtitling of diagrams, images and tables 		<ul style="list-style-type: none"> approach -Comprehensible and clear and language -Observance of ethical factors
Connectivism	<ul style="list-style-type: none"> -Title and sub-title -Key-words -Abstract -Introduction -Development -Conclusion 	---	APA	<ul style="list-style-type: none"> -Quality, correctness and content relevance -Mastery of concepts -Clarity of thinking and writing -Reflection and critical analysis skills
Second Life	<ul style="list-style-type: none"> -Introduction -Definition of goals -Methodology -Conclusion 	----	----	<ul style="list-style-type: none"> -Relevance -Correctness -Structure
PLEs	<ul style="list-style-type: none"> -Introduction -Development -Conclusion 	<ul style="list-style-type: none"> -Title of the Article -Author -Abstract -Key-words -References and citation -Tables and diagrams -Acronyms and abbreviations 	APA – 6th Edition	<ul style="list-style-type: none"> -Clarity of thinking and adequate analysis delimitation -Mastery of concepts and / or ideas and relevance in the present context -Justified ideas -Ability to reflect personal perspective
Blended Learning	<ul style="list-style-type: none"> -Title -Author -Abstract -Body-text style -References 	<ul style="list-style-type: none"> -Title and subtitle -Body-text -Subtitles -Citations 	----	<ul style="list-style-type: none"> -Topic pertinence -Clear definition of the article aims -Clear and objective argumentation -Personal perspective
Total Online	<ul style="list-style-type: none"> -Title -Abstract -Key-words -Introduction -Body -Conclusion -References 	<ul style="list-style-type: none"> -General format (page, title, author, and affiliation, etc.) -Specific format (tables, diagrams and graphics; footnotes) 	APA	<ul style="list-style-type: none"> -Appropriate language -Valid argumentation -Defense of a personal perspective

Table 3: Appraisal criteria displayed by *Peer- Review* teams

As the table 3 shows, criteria can be organized into four categories: *Structure and organization of the article*; *General format*; *Citation and references*; and *Content*.

The last phase of the activity was the preparation of a brief critical appraisal of the submitted articles, which were expected to be posted in the *Peer-Review Forum*. For this task most of the teams used synchronous communication tools (Skype, EtherPad, MSN). They made their appraisal taking into account the previously defined criteria, and provided a qualitative feedback sometimes including suggestions for improvement. This task concurred to the awareness that refereeing is an arduous task, especially if the peer-reviewer is willing to suggest improvements and pay attention to every detail.

As participant members in the activity, we can add some explanations for the fact that not all teams dealt with their work in an entirely opened way. The review activity implied an assessment of the colleagues work and judgments about it. In order not to outrage a few susceptibilities, some groups chose not to open their entire work, mainly when they were in the process of assessing a colleague's article. Another reason might be connected to a certain degree of (natural or unaware) competition among the students. This activity had a significant weight on the students' evaluation grades, and consequently it could stimulate a desire to show a better performance.

It is also possible to realize that there was a certain attempt not to lessen the colleagues' grade in the present activity. To achieve this, two types of assessment could be perceived. There is a rather more objective, but restrictive, assessment, that only the group is aware of, and a more enhanced and polite one (public and known by the teacher) applied to less accomplished articles.

Regarding the role of *Peer-Reviewers*, some positive aspects were mentioned in the final assessment of the activity, namely:

- The discovery of the duties of a peer-reviewer and the skills needed to perform this role;
- The selection of key criteria that a scientific paper should satisfy, when its purpose is its submission to an online specialized journal;
- The need of appraising articles according to the given criteria;
- The requirement for profound knowledge on the subject under reviewing;
- The fact that the work was conducted in groups facilitated its accomplishment (because of its multiple layers, the task ended up by being very demanding and energy consuming).

Regarding the difficulties experienced by master students as peer reviewers, we highlight the following items:

- Uncertainty regarding the definition of a rescheduling for the different stages of the activity;
- The type of appraisal of the submitted articles, which some master students expected to be less focused on formal issues and more on the discussion/appreciation of the conveyed ideas;
- The awkward feeling of having to examine and evaluate your peers' work.

The cooperative and collaborative reviewing task was successfully performed. The groups discussed and appraised, by consensus, the articles which had been submitted. The reviews were announced and made available in the peer review forums. Some less clear feedbacks were questioned or, in the absence of comments, further suggestions were requested by the authors in an attempt to improve their own submitted articles.

5. Conclusions and Suggestions for Further Research

The activity was originally scheduled to last five weeks. The teacher had to concede some degree of flexibility of deadlines. Different students' working rhythms led to an extension of the activity to seven weeks. The learning design of this activity proved to be complex and challenging one (Salmon, 2002; Conole, 2007), allowing students to develop knowledge, at least, in two online education theme areas but also working in teams, coordinating different kind of tasks and develop higher order skills (Garrison & Anderson, 2003). Further knowledge, which was required to write a grounded article and assess another one, was obtained. In a sustained way, the students became familiar with a display of international, online published journals, with their submission criteria, as well as with their refereeing methods for evaluation of articles.

Throughout the activity, some questions worthy of further investigation were raised:

- What factors determined the choice of different teams (affinities among group members or thematic area)?
- How far was the peer reviewers work conditioned, encouraged or supported by the authoring work?
- What are the constraints of peer reviewing (would it have been more or less acutely regarded, using additional comments about content and form, if it had been made anonymously) ?
- How far was the work within the group transparent to the teacher, since the forum discussion was not used in a continuing way?

As final remarks, it should be stressed that the activity we have described so far culminated with the present article. This was an opportunity grabbed by the authors to put into practice acquired knowledge and the individual and collaborative process of knowledge production. Furthermore, the authors of this article considered this a way to reflect about the activity and its complex process.

References

- Alleman, A. M. & Wartman, K. (2009). *Online Social Networking on Campus: Understanding What Matters in Student Culture*. New York: Routledge.
- Aly, M. (2009). *Mobile Learning .Transforming the Delivery of Education and Training*, Athabasca: Au Press.
- Anderson, T. & Dron, J. (2011). Three generations of distance education. *International Review of Research in Open and Distance Learning*, Vol. 12, 3, March, 87-97.
- Anderson, T. (2008a). *The Theory and Practice of Online Learning*. Athabasca: Au Press.
- Anderson, T. (2008b). Social Software to support distance education learners. Anderson, T. (Ed.). *Theory and Practice of Online Learning*, (pp. 221-241). Athabasca: Au Press.
- Anderson, T. (2006). PLE's versus LMS: Are PLEs ready for Prime time? *Virtual Canuck*. Available at <http://terrya.edublogs.org/2006/01/09/ples-versus-lms-are-ples-ready-for-prime-time/>
- Bates, T. (1993). Theory and practice in the use of technology in distance education. In D. Keegan (Ed.), *Theoretical principles of Distance Education* (pp. 213-233). London: Routledge.
- Bernard, U. & Vidal, M. (2007). The Theories and the Theorists: Why Theory is important for Research - With Børje Holmberg, Michael Graham Moore and Otto Peters. In *Distances et Savoirs*, vol 5, (3), 427 -458.
- Conole, G. (2007). Describing learning activities: tools and resources to guide practice. In H. Beetham & R. Sharpe (Ed.), *Rethinking Pedagogy for a Digital Age* (pp. 81-91). London: Routledge.
- Davidson, C. & Goldberg, D. (2010). *The Future of Thinking: Learning Institutions in a Digital Age*. The Massachusetts: MIT Press.
- Downes, S. (18-04-2007). The Future of Online Learning and Personal Learning Environments. Available at <http://www.downes.ca/cgi-bin/page.cgi?presentation=46>
- Garrison, R. & Anderson, T. (2003). *E-Learning in the 21st Century*. London: Routledge Falmer.
- Garrison, R., Anderson, T. & Archer, W. (2000). Critical Inquiry in a text-based environment: Computer conferencing in higher education. *Internet and Higher Education*, 11(2), 1-14.
- Garrison, R. (2000). Theoretical Challenges for Distance Education in the 21st Century: A Shift from Structural to Transactional Issues. *International Review of Research in Open and Distance Learning*, 1, (1), 1-17.
- Garrison, R. (1990). Communication and Technology. In R. Garrison & D. Shale (Eds.), *Education at a Distance: From Issues to Practice*, (pp. 41- 52). Malabar: Robert E. Krieger Publishing Company.
- Harasim, L. (2000). Shift happens: Online education as a new paradigm in learning. *The Internet and Higher Education*, 3, (1), 41-61.
- Harasim, L. (1989). On-Line Education: A New Domain. In R. Mason & A. Kaye (Eds.), *Mindweave: Communication, Computers and Distance Education*, (pp. 50-62). Oxford: Pergamon Press.
- Holmberg, B. (2001). *Distance Education in Essence. An overview of theory and practice in the early twenty-first century*. Oldenburg: Bibliotheks- und Informationssystem der Universität Oldenburg.
- Holmberg, B. (1986). A discipline of Distance Education. *Journal of Distance Education*, vol. 1, (1), 1-10.
- McElvaney, J. & Berge, Z. (2009). Weaving a Personal Web: Using online technologies to create customized, connected, and dynamic learning environments. *Canadian Journal of Learning and Technology*, 35 (2). Available at <http://www.cjlt.ca/index.php/cjlt/article/view/524/257>.
- Moore, M. (2007). Editorial - Web 2.0: Does it really matter? *American Journal of Distance Education*, 21 (4), November, 177-183.
- Moore, M. (1993). Theory of transactional distance. In D. Keegan (Ed.), *Theoretical Principles of Distance Education*, (pp. 22-38). New York: Routledge.
- Moore, M. (1991). Distance Education Theory. In *American Journal of Distance Education*, 5, (83), 1-3.

- Moore, M. (1989). Three Types of Interaction. In *The American Journal of Distance Education*, 3, (2), 1-6.
- Morgado, L. (2011). The networked class in a master's program: Personalization and Openness Through Social Media. In C. Wankel (Ed), *Educating Educators with Social Media* (Cutting-Edge Technologies in Higher Education) (pp. 135-155). United Kingdom: Emerald Group Publishing.
- Morgado, L., Mendes, A. Q. & Pereira, A., (2008). The “contract” as an instrument to mediate learning. In A. Mendes, R. Costa & I. Pereira. (Eds), *Computers and education towards educational change and innovation* (pp.63–72). Amsterdam: Springer Science.
- Mota, J. (2009). Da Web 2.0 ao Elearning 2.0: Aprender na Rede, Master Dissertation. Lisbon: Universidade Aberta. Available at http://repositorioaberto.univ-ab.pt/bitstream/10400.2/1381/1/web20_e-learning20_aprender_na_rede.pdf
- Mott, J. (2010). Envisioning the Post-LMS Era: The Open Learning Network. *EDUCAUSE Quarterly*, 33 (1). Available at <http://www.educause.edu/EDUCAUSE+Quarterly/EDUCAUSEQuarterlyMagazineVolum/EnvisioningthePostLMSEraTheOpe/199389>.
- Rourke, L., Anderson, T., Garrison, R. & Archer, W. (2001). Methodological issues in the content analysis of computer conference transcripts. *International Journal of Artificial Intelligence in Education*, 12, 8-22.
- Pereira, A., Mendes, A., Morgado, L., Amante, L., & Bidarra, J. (2007). *Universidade Aberta's pedagogical model for distance education*. Lisbon: Universidade Aberta. Available at <http://repositorioaberto.univ-ab.pt/bitstream/10400.2/1295/1/Modelo%20Pedagogico%20Virtual.pdf>
- Peters, O. (2002). *Distance Education in Transition. New Trends and Challenges*. Oldenburg: Bibliotheks- und Informationssystem der Carl von Ossietzky Universität Oldenburg.
- Peters, O. (1993). Distance education in a post industrial society. In D. Keegan (Ed.), *Theoretical Principles of Distance Education*, (pp. 39-58). New York: Routledge.
- Salmon, G. (2002). *E-tivities: The Key to Online Teaching, Training and Learning*. London: Routledge.
- Siemens, G. & Tittenberger, T. (2009). *Handbook of Emerging Technologies for Learning*. University of Manitoba: LTC. Available at http://ltc.umanitoba.ca/wikis/etl/index.php/Handbook_of_Emerging_Technologies_for_Learning
- Siemens, G. (2006). *Knowing Knowledge*. Available at http://www.elearnspace.org/KnowingKnowledge_LowRes.pdf
- Siemens, G. (2004). Connectivism: A Learning Theory for the Digital Age. *elearnspace*. Available at <http://www.elearnspace.org/Articles/connectivism.htm>