



LECTURE VS WEBINAR: ENGAGEMENT AND DISTRACTION IN DISTANCE LEARNING ADULT TEACHERS

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Introduction

The landscape of learning is currently witnessing convergent streamlines of change. Among potential recipients of education interventions an increasing request towards high quality education can be perceived. Simultaneously, the community of educators/instructors is striving towards increasing the offer, making it more democratically available and improving the service. The movement for openness of learning content and courseware is pushing a paradigm change and a need for new approaches in using ICT for smart environment. There are numerous fields of study which can profitably be utilized in planning distance learning (Oblinger, 2013; Salmon, 2014) or blended courses (see for instance Ligorio et al., 2006; Merrill, 2002). Further to such studies a new thread of investigations recently emerged regarding quality and efficiency of MOOCs (Downes, 2013; Morrison, 2013; Read & Rodrigo, 2014; Oblinger, 2013). In fact MOOCs, which were born with a promise of democratization and of improvement of teaching quality, provide us with information on huge numbers of subjects and on courses repeated several times, thus granting strong external validity to the performed studies (Kim et al., 2014). Moreover, the line of research dealing with study motivation is also reviving, in considering motivation and volition in distance learners and also in exploring causes and consequences of nowadays study environments, in which students make use, with multiple goals, of their own electronic device (BYOD – Bring Your Own Device) (Rosen et al., 2013; Park et al., 2013).

Here we propose an investigation on data collected in the past academic year within a blended course devoted to adult students aimed at a post-graduate training, who were prevalently, and simultaneously, full-time engaged as high school teachers. The reflections we suggest are based on the analysis of the answers provided by the students to a questionnaire of final evaluation of the course. We shall devote attention to the problem of the complex interplay among engagement, motivation and study context. We ought to anticipate that the group we worked with was extremely motivated by the tight connection between course completion and future job stability. We shall examine their difficulties due to the time limitations for study (concentrated in a few months, and in few parts of the day) and to the interferences between study and context requirements (family and social context). We investigated whether it is possible to describe the interplay between such forces and the motivational aspects. We shall

consider various pertinent research fields and we shall synthetically refer to the hypotheses and the results of each. We will report on the results concerning the motivation, the problem of time (how much and when to study), the choice of the resources (what to study and what one would like to) and the causes of disturbance (if any), external or internal.

Background

Lifelong learning

Research on Lifelong Learning is copious, especially because of the increasing interest and need of adults to approach frameworks of formal education and become students again. This happens to those who must attend refresher courses, post-graduate courses, training stages or habilitation tracks, such as, according to current Italian regulations, TFA (Tirocinio Formativo Attivo) and PAS (Percorso Abilitativo Speciale), which are courses for school teachers holding only temporary positions. These are people already holding a degree, working, who are motivated to complete such an education program with the aim of obtaining or stabilizing their teaching position. The opportunity to resume study is facilitated by the fact that distance and blended courses are available, which, as it is well-known, reduces logistic problems, allows choosing times and places for attendance and study. Unfortunately, reducing logistic problems not always corresponds to a complete removal. It may be unnecessary to transfer to classrooms places, it may be possible to attend to lectures from home in the evening, or at night. However *time* is required, that is probably the scarcest supply of working students, and also *engagement* is needed, in listening, reading and studying the course material. A mental effort is requested even during Distance Learning or Enhanced Learning. Finding extra time after work may be troublesome, even more so to exploit it for study with concentration and persistence in order to elaborate information.

Learning problems may occur due to the peculiar character of the students and to the study material, to defects of material planning, as it has been studied and pointed out by researchers in the field of multimedia learning (see Mayer, 2005).

However also other aspects may come into play, among which those related to motivation and to the digital context. Research on BYOD, on multitasking and on volition displays a framework of problems of attention which may affect blended students. One in particular is concerned with the problem of interference due to the multi-purpose use of the available devices and the consequence of being always connected and available. As a consequence, the study is often interrupted: by receiving a text ringtone, or the alert of a news feed the student may turn its attention to such stimuli. Sometimes it may be the matter of a few seconds of interruption, in other instances time goes on and the concentration is lost. Rosen (Rosen et al., 2013) report that even during a short term (15 minutes) observation students, aware of being observed, were unable to stick the attention to the task, with an average of 6 minutes on the task before switching. Splitting the attention among several tasks makes the process slower in most of the cases, it reduces the quality of learning, and also the amount of acquired information (Monsell, 2003; Arrington & Logan, 2004; Pashler et al., 2013; Paoletti, in press). Besides external sources of distraction, internal sources may compromise elaboration and

learning. This is the case of task-unrelated-thinking and of *mind wandering*. In daily life we often find ourselves thinking to something having no connection with the current task, or we get stuck fantasizing (Risko et al., 2012). *Mind wandering* consists of a shift of attention from an exterior stimulus to internal thoughts which seems to compromise coding information of external origin. Task-unrelated-thinking and mind wandering can disrupt external information coding as much as a phone ringing (Risko et al., 2012). Quoting Mayr and Bell (2006) there exists indeed a “global switch cost” linked to the mere opportunity to perform multitasking, to the perception of having to perform more than one task, or homework to be prepared or graded.

MOOCs and dropout (macro and micro)

MOOCs (Massive Open Online Courses) are well-known as the emerging educational resources, as they carry a great expectation in terms of inclusion, democratic access, quality of instruction (Oblinger, 2013; Conole, 2013; Salmon, 2014). At the same time, problems of isolation and low engagement experienced by learners using such resources are also well-known. The consequences are clear: low performances, high rate of dropouts. The dropout phenomenon comes in two aspects: a macro and a micro dimension. It turns out that only one course out of ten is brought to completion and leads to a certification. Among such a small percentage of those who endure to complete the course, one out of two lectures/sessions is interrupted within a few minutes (Kim et al., 2014). It has been realized that it is not so simple to require listening to a long recorded lecture. Guo conducted an investigation in order to establish the duration of attention in online learning (Guo et al., 2014). Unsurprisingly, students engaged more with shorter videos. Traditional in-person lectures usually last an hour, but students have much shorter attention spans when watching educational videos online. He aggregated over several million video watching sessions and he found that students quit watching a video after six minutes roughly (median 4.4, for videos of 12-15 minutes). Seaton (Seaton et al., 2014), while studying the access to online resources of three groups of graduate students in an MIT MOOCs, shows that half of the participants watches less than half of the videos and completely skips textual material, text and wiki (still speaking of the 10% students who achieve the certificate). Quite likely, most of the dropouts from MOOCs may be due to an incorrect initial choice, students initiate a course and soon afterwards realize that its content is not the expected one. Still it appears that this is not the only reason for quitting. The distant learner, who commits herself to the initial decision to restart studying, needs to keep her motivation alive, must update the initial choice in the several phases of study, continuing, persisting, resisting to distraction of external type (noise, phone calls...) and of internal type (own thoughts and mind wandering). Our investigation is aimed at describing the context of elaboration and study of blended students dealing with various kinds of learning materials enabling, or not, interaction (webinars, classroom lectures) and control on the pace of the presentations (the recorded resources). Our expectation was that: interactive tools should potentially alleviate the isolation and distance feelings reported by studies on MOOCs. Interactivity may increase engagement and retention of attention on the material and on the lesson. The material under the students' control might have diminished the elaboration difficulties linked the difficulties of concentrating on a single task in a

multitasking environment. We have verified such hypotheses on the basis of the students' answers to our questionnaire. In what follows we shall discuss some of the most relevant emerging consequences.

Method

Subjects

The questionnaire on the motivations of attending the course was completed by 83 students on 97 enrolled. They (26 male students and 57 females) were specialized in several disciplinary fields (36 in the area of Science, 32 in the area of Human Studies, 15 in the area of Music). The full-time employed subjects were 63.

Material

The course PAS (Percorso Abilitante Speciale, special habilitation track) has been performed in a blended modality, with also in-lab group activities. The recorded behaviours, the opinions and the beliefs we shall describe only concern the part of the course regarding the pedagogical content, which was common to students of all areas and consisted of 18 credits. Each of the three blocks forming the whole course (Disability, Evaluation, Teaching technologies) consisted of 10 hours of classroom lecture, plus 15 hours of audio, video material (video lectures, webinars) and texts (by links to written resources, tests, research publications) all of which were available through the University's distance education environment Moodle. Part of the material was administered in synchronous modality (classroom lectures, webinars, labs), but all of it was also available in asynchronous recorded version.

The questionnaire and procedure

The questionnaire was set up starting from the issues arising in the above mentioned research fields (difficulties in lifelong learning, features of the learning resources and effects on attention). It poses questions on the reasons of the initial motivation, information on study collocation (when, where, how long students are able to study), the preferred formats of presentation (see Figure 1). It was asked if, overall, in-presence resources were preferable to those available at a distance, and to explain why. Further, it was asked if distraction occurred with the various forms of materials and to evaluate the adequacy of the time length of the materials. Students were also asked how often they got distracted and by which causes, either external (phone ringing, texting from friends, job call, family call) or internal (worries about work or family). At the end of the course (lasting from March to May 2014), prior to the final exams, the students were invited to fill in the online questionnaire. The invitation was sent by e-mail twice and posted on the Moodle page of the course.

Results

Here we shall report on the motivation issue, on the problem of available time for study, and we shall discuss how long and when students study and wish to study and which are the causes of disturbance.

Study motivation and study time

From the answers to the questionnaire, it turns out that a majority (43 out of 83) of the students attaches very much importance to the course, and other 31 among them care much. Motivation seems to be mostly linked to job needs, to obtain or maintain a position. Cultural interest and refreshing requirements count-less. Among them, 54 feel obliged to do it and 61 believe to put a very high effort in attending it. Further results concern the description of the study context. More precisely: in which place do they study, which periods of time can they devote to study. Since some resources are long, time consuming and consist of complex material, we were concerned with the possibility for the students to achieve adequate concentration and study continuity towards a satisfactory elaboration. From the answers, we obtained that most subjects (60) study at home, a few of them (7) study at home and on the train, or at school (15). Others study wherever they can: in the garden, in the teachers' common room, in the paediatrician waiting room, in a library. Regarding timing, they study in the evening, after dinner, at night, in the weekend, or early in the morning, in the free day, in any spare time or during transfers. They succeed in studying between 30' to 380', with no interruption, the average being 137' and SD 75'. Most of the subjects say they are able to study each day for about 60' to 180'.

What to study – Most preferred and most disliked formats

One section of the questionnaire asked to point out which, among the formats used (lecture, webinar, texts, etc.), were less or most liked. 78 subjects express fully the three preferences, while only 54 of them express three dislikes. In Figure 1 are displayed the preferences of the participants. Among preferred resources, the most interactive emerge: in-presence lectures, live webinars.

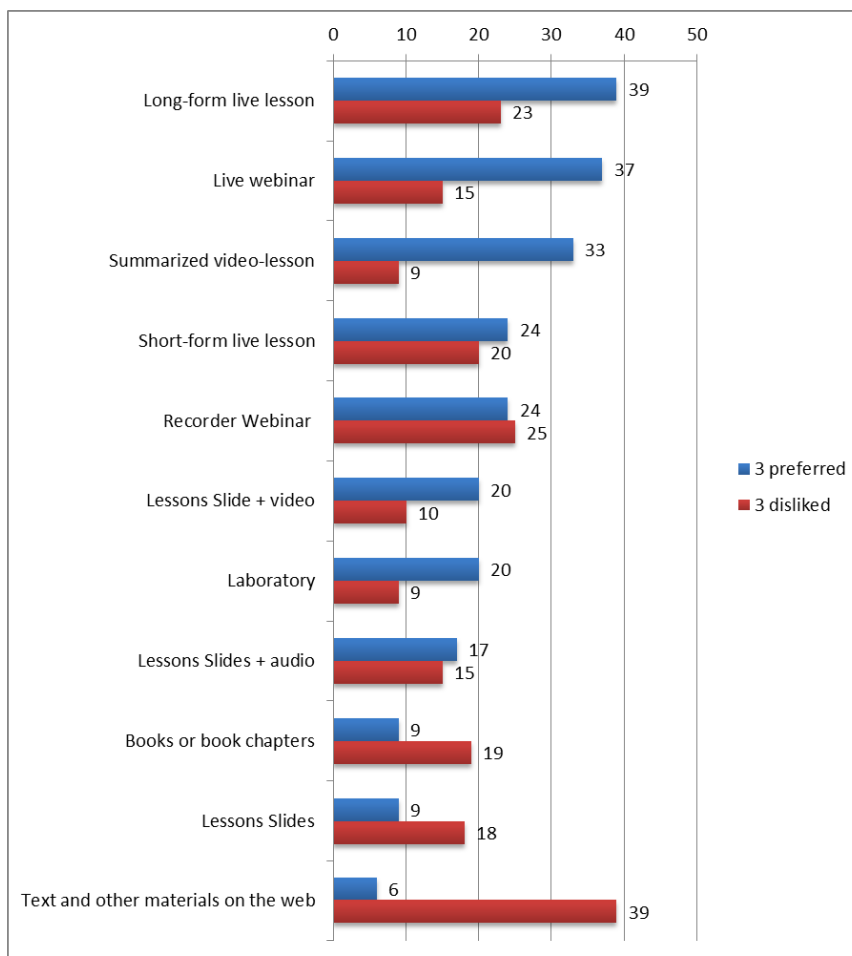


Figure 1. Learning resources: the 3Top preferred learning resources and the 3Top most disliked learning resources

The less liked formats are the material and texts available online, books or books chapters and lecture slides without audio. Such outcomes open the way to further investigation in order to understand in more detail what is not liked. Interviews and focus-groups might be suitable tools for this purpose. A first remark that emerges is that most disliked formats are those that require autonomous elaboration, to be read alone without the organization and planning mediation of the lecturer or the learning designer. Lectures, either in presence or recorded, might be preferred because allow interaction, concentration on the tasks and also because students are helped by a predetermined reading sequencing and by an explicit interpretation, in a narrative format, which does not require to the learner searching and organizing tasks. For the students of this course, who find themselves trapped between the working duties and the study requirements, have a low level of energy and time resources, it can be reasonably inferred that the most preferred materials are those for which the utilization time is predetermined and fixed. This can minimize the extra burden of cognitive resources required for management and organization of working time and the concepts' elaboration. Synchronous usage of resources is markedly preferred: 72 students select at least one synchronous resource among the 3 most preferred, whereas 11 select only material available at a distance. Concerning preference between in-presence and at a distance, 50 participants

prefer in-presence lectures, either short (two academic hours, 90') or long (five academic hours, 300'), 33 prefer those at a distance.

Distraction: External and Internal causes – Do you happen to lose attention?

The majority (44 out of 83) of the subjects states to lose attention often, whereas a significant group (27) gets distracted only sometimes, only 2 subjects claim they never get distracted, 3 always. Distraction occurs independently of the type of resources: it happens while attending to a lecture (especially if recorded), reading texts, attending a webinar, doing lab activities. We asked to evaluate if and how much external and internal causes of distraction provoked loss of concentration in elaboration and study. The proposed distinction, and the examples provided concerned external causes (an event outside of you calls for your attention: the mobile rings, a friend is texting you) and internal causes (something within you drives your attention away: you are worried because you have to prepare a lecture, or to do something for your family). The answers are collected in the following Table 1 and show a complex framework.

Table 11: Internal and External factors of distraction

What are the sources of distractions?						
		Never	Sometimes	Quite often	Often	Always
External factors	Text messages from friends	31	27	14	8	3
	Call from family	10	22	21	20	10
	Call from office/work	14	24	21	13	11
Internal factors	Worries about work	3	8	19	34	19
	Worries about family	3	16	24	27	13

It appears that the only event that hardly leads to loss of concentration is texting from friends, as if it was a regenerating, light escape, profitable for cognitive elaboration. Job and family concerns, either from internal or external stimuli, provoke great loss of concentration. The main trigger to distraction is apprehension rather than environment and social disturbances. It emerges that concern to personal worries is heavily sensed and is the major source of distraction. When asked if external or internal causes of distraction are more frequent, 47 subjects report internal causes, 19 external ones.

Finally we asked about personal feeling occurring when distracted. Tiredness (72 occ.) prevails, often coupled with apprehension (57 occ.). Next come inability to follow the proposed concepts (21 occ.), the feeling of misunderstanding (14 occ.). Boredom is mentioned by 14 students, only 5 refer lack of interest. Also in open text answer the pair apprehension/tiredness turns out as the most frequent.

Conclusion

The purpose of this investigation was to provide a preliminary snapshot of the reactions of adult students to a post-graduate course which made use of various types of resources. The data collected concern the effectiveness of the resources as perceived by the students. We investigated their initial motivation, their study habits and preferences, how these fitted with different study resources and difficulties experienced because of internal and external sources of distraction during attendance and study. The results collected by administering an online questionnaire can be summarized as follows. The course structuring has been well received since the opportunity to choose among various combinations of resources was available and also because interaction and alternating between presence and distance were possible. The transfer burden was reduced by allowing (not forcing) in-presence attendance, which is the format preferred by the majority. The availability of recorded material (either used in synchronous modality or retrievable later on) seems to meet the needs and preferences of students. The difference between ideal duration of resources (as indicated by our subjects) and the one resulting from research on on-line courses, MOOCs especially, may appear surprising. While in the latter attention drops resulted after 6', our students indicated as ideal duration 1-2 hours. Explanations may be various and multi-faced. In-presence lecture, as stated by participants, is more involving, it forces and fosters attention and (at least) external disturbances are avoided. A recorded lecture, and asynchronous, allows repeated review of the material. Differences among resources are clearly acknowledged. When asked about ideal duration, the one for in-presence lectures is more extended than the one for lectures at a distance or for video-lectures.

Regarding concentration, students believe to get distracted rather frequently, with all kind of resources and especially by internal factors. Personal worries, tiredness, low attention/distraction, fatigue are the main perceived obstacles. Less disrupting are considered job and family related calls and texting, being sudden and short. Some limitations of the present investigation are acknowledged and may be ascribed to diverse factors. Some of them are expected to be overcome in subsequent stages of this study. We intend to perform interviews, focus-groups, in order to in-depth explore the reasons of the preferences expressed. We also plan to analyze other data we have collected (final performance, motivation/volition strategies) and the results shall be presented in other papers now in preparation.

References

1. Arrington, C.M. & Logan, G.D. (2004). The cost of a voluntary task switch. In *Psychological Science*, 15, (pp. 610-615).
2. Brasel, S. and Gips, J. (2011). Media multitasking behavior: concurrent television and computer usage. In *Cyberpsychology, Behavior and Social Networking*, 14, (pp. 527-534).
3. Conole, G. (2013). A new classification for MOOCs. In *EFQUEUL MOOC Quality Project blog*, June 4, 2013. Available online at from <http://mooc.efquel.org/a-new-classification-for-moocs-grainne-conole>
4. Downes, S. (2013). The Quality of Massive Open Online Courses. In *Efquel MOOC Quality Project blog*, May 13, 2013. Available online at <http://mooc.efquel.org/week-2-the-quality-of-massive-open-online-courses-by-stephen-downes>
5. Guo P.J.; Kim J. and Rubin, R. (2014). How video production affects student engagement: An empirical study of MOOC videos. In *Proceedings of the first ACM conference on Learning@ scale conference*, (pp. 41-50). New York, NY, USA, 2014, ACM.
6. Kim J.; Guo P.J.; Seaton D.T.; et al., (2014). Understanding in-video dropouts and interaction peaks in online lecture videos. In *Proceedings of the First ACM Conference on Learning @ Scale Conference*, (pp. 31-40). L@S '14, New York, NY, USA, 2014. ACM.
7. Ligorio, B.; Cacciamani, S. and Cesareni, D. (2006). *Blended learning: dalla scuola dell'obbligo alla formazione adulta*. Roma, Carocci.
8. Mayer, R.E. (2005). *The Cambridge Handbook of Multimedia Learning*. Cambridge, University Press.
9. Mayr, U. and Bell, T. (2006). On how to be unpredictable evidence from the voluntary task-switching paradigm. In *Psychological Science*, 17(9), (pp. 774-780).
10. Merrill, M.D. (2002). First principles of instruction. In *Educational Technology Research and Development*, 50(3), (pp. 43-59).
11. Monsell, S. (2003). Task switching. In *Trends in Cognitive Sciences*, 7, (pp. 134-140).
12. Morrison, D. (2013). The Ultimate Student Guide to xMOOCs and cMOOCs. In *MOOC n+r*, blog, April 22, 2013. Available online at <http://moocnewsandreviews.com/ultimate-guide-to-xmoocs-and-cmoocso>
13. Oblinger, D. (2013). *Beyond MOOCs: Is It Creating a New, Connected Age?* EDUCASE SPRINT 2013. July 30–August 1 2013, from <https://net.educause.edu/ir/library/pdf/ESPNT13A.pdf>
14. Paoletti, G. (in press). Social Media and Self-regulation: the need for strategies to achieve high quality learning. In E. Brown, A. Krasteva & M. Ranieri (eds.), *International Advances in E-learning & Social Media: Technology in 21st Century Education*. Information Age Publishing Inc. Charlotte, NC.

15. Park, W.H.; Kim, D.H.; Kim, M.S. et al. (2013). A Study on Trend and Detection Technology for Cyber Threats in Mobile Environment. In *Proceeding of IT Convergence and Security (ICITCS)*, (pp. 1-4). 2013 International Conference, 16-18 Dec. 2013.
16. Pashler, H.; Kang, S.H.K. and Ip, R.Y. (2013). Does Multitasking Impair Studying? Depends on Timing. In *Applied Cognitive Psychology*, 27, (pp. 593–599).
17. Read, T. and Rodrigo, C. (2014). Towards a quality model for UNED MOOCs. In *EMOOCs – European MOOCs Stakeholders Summit 2014*, (pp. 282-287). 10-12 February, Lausanne, Switzerland.
18. Risko, E.; Anderson, N.; Sarwal, A.; et al. (2012). Everyday attention: variation in mind wandering and memory in a lecture. In *Applied Cognitive Psychology*, 26, (pp. 234–242).
19. Rosen, L.; Carrier, L. and Cheever, N. (2013). Facebook and texting made me do it: media induced task-switching while studying. In *Computers in Human Behavior*, 29, (pp. 984-958).
20. Salmon, G. (2014). Learning innovation: a framework for transformation. In *European Journal of Open, Distance and e-Learning*, 17(2), (pp. 219-235).
21. Seaton, D.T.; Bergner, Y. and Pritchard, D.E. (2013). Exploring the relationship between course structure and text usage in blended and open online courses. In *Proceeding of 6th International Conference on Educational Data Mining*, (pp. 350-351). July 6 - 9, 2013, Memphis, Tennessee, USA.
22. Seaton D.T.; Nesterko S.; Reich J. et al. (2014). Characterizing video use in the catalogue of MITx MOOCs. In *eLearning Papers*, 37, (pp. 33-41).