

Beyond Pedagogical Challenges: Addressing the Social Aspects around the Use of Digital Resources in University Education

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Abstract: This article presents the results of a qualitative study in which the challenges of adopting and adapting digital media to the context of higher education were investigated. A workshop attended by university teachers and professional producers of educational video material was organized. The analysis draws attention to issues concerning the quality of digital media, the development of the professional skills required to produce and use them, and the orchestration of learning activities centered on such learning resources. The paper argues that understanding the challenges around the appropriation of digital media in educational settings encompasses the social and contextual aspects of the settings in which technology is to be used, and not merely the pedagogical concerns underlying its usage.

Keywords: Qualitative studies, digital resources, teaching-learning practices

Introduction

This paper draws attention to the challenges inherent in the adoption and appropriation of digital resources in higher educational settings. Whereas previous research within the fields of Computer-Supported and Technology-Enhanced learning has mostly focused on the pedagogical aspects of educational technologies (Zhao & Frank, 2003; Selwyn 2007), this paper discusses the social and contextual aspects related to their adoption and use. We argue that a focus on the social aspects, and on the teachers personal experience of using digital resources and technology is relevant to CSCL research as it fleshes out the conditions that can become the material barriers hindering their actual appropriation into teaching practices.

Technological development has contributed to the emergence of an information society, where economical and cultural aspects are intrinsically changed by the permeation of ICT (Castells, 1996). Education is certainly not an exception to this global trend. Interactive technologies have, in fact, become central actors in contemporary educational practices, and in the current discourse on how national educational systems can be improved by the introduction of digital technologies and platforms. This is also reflected in the large body of research focusing on: i) how technological innovation is reframing our understanding of what technology-mediated educational practices entail (i.e. Dillenbourg et al., 2009; Goodyear & Retails, 2010); ii) the set of methods that can be adopted to teach and learn with technology; iii) the set of skills required to be a learner in modern societies (Oppenheimer, 2007; Kay & Greenhill 2011; Robinson 2011). For instance, a current discourse in the Learning Sciences explores the potential of Massive Open Online Courses (MOOCs) as having the potential to profoundly transform education, and to provide a solution to the economical problems contemporary educational systems are faced with (Pappano, 2012; Friedman 2013). This rhetoric and research inclination are common to most Western countries, including the one in which the study presented was carried out. An initial motivation to carry out this study was, in fact, determined by an intention to critically discuss the recent institutional demand to undergo a *digitization process* of the courses available at our department, and to adapt our teaching practices to the production and introduction of digital resources (i.e. video material). This practical intention has, in turn, been instrumental to the more general aim to problematize the abstract optimism in the effectiveness and potential of technology (i.e. Cuban 1986; Oppenheimer, 2007; Nouri et al., 2014), and to critically consider the causes for their poor integration into teaching practices (Buckingham & Willett, 2006; Coiro et al., 2008; Snyder et al., 2010).

The pervasiveness of the technological infrastructure in contemporary societies contributes to making digital educational recourses (i.e. MOOCs lectures, but also OpenCourseware, YouTube videos, TED Talks, Podcasts, Wikipedia), a free commodity ready to be used in the context of higher education. However, as noted (Fischer, 2014; Eisenberg & Fischer, 2014), the hype around the use of such media lacks a serious pedagogical grounding (Vardi 2012), and is often based on a too narrow focus on the mere individual learning activities favored by this type of education.

This paper seeks to extend this argument. While the aforementioned aspects are indeed essential, we argue that a critical understanding of the use and introduction of digital resources into the context of consolidated teaching-learning activities should also entail other issues – for instance, teachers' expectations,

possible challenges and advantages they might experience, their opinions on how using digital resources might impact their role as a teacher, or the expertise required to be a competent one. Although such aspects are more directly connected to the felt-like experience of using technology (McCarthy et al., 2004), rather than to effective learning outcomes, they are central, as they contribute to a more complete understanding of how interactive technologies are appropriated (Engeström et al., 1999; Dourish, 2003) in pre-existing practices, and what hindrances can emerge when they are introduced into a specific setting. As noted elsewhere (Selwyn, 2010), studies of educational technologies are often merely focused on the educational potential technologies could play in the context of novel teaching approaches (i.e. flipped classrooms, inquiry-based learning, peer-to-peer learning, etc.), and how they should be used in such settings. Furthermore, these investigations are often carried out at the level of the individual teacher and learner, while overlooking organizational aspects inherent in educational institutions, or issues connected to personal, social, political or economic values of the context in which they are to be used (Zhao & Frank, 2003; Selwyn 2007). Against this background, this work discusses the challenges entailed in the adoption of digital technology in a university setting. Rather than merely focusing on the pedagogical aspects, this paper highlights the entanglement of the various challenges that various stakeholders experience with respect to the use of digital resources in higher education. More specifically, we draw on the personal experience of teachers, researchers in the field of Technology-Enhanced and Computer-Supported Learning, professional producers of educational video material, and of university staff covering managerial positions. The research presented is instrumental to a discussion on the implications that the broad availability of digital resources has for higher education against the backdrop of a global scenario in which universities are expected to quickly adjust the development of the “learning society” and ICT use (Bridges et al., 2007).

The empirical data stems from a one-day workshop conducted in October 2013. The goal of the workshop was to unpack and discuss the main limitations and advantages, hindrances and possibilities of using digital media (particularly video material) in the context of university courses, both campus- and online-based. The data analysis draws attention to the challenges related to: i) assessing the quality of the digital resources available online; ii) acquiring the skills needed to create and edit such resources, and iii) the concern to orchestrate meaningful and engaging learning activities around their use. In concluding this article, we relate our findings to three points, namely: i) the attempt to modernize pedagogy and teaching practices in an educational context that still privileges and reproduces traditional teaching modalities (i.e. teacher-centered lectures); ii) the expectations that teachers should also be producers of digital contents; iii) a reconsideration of the role of university from producers to providers of knowledge. These issues relate to the social character of the university department studied, which is regarded as a work context reflecting specific assumptions on the social organization of the teaching practices supported by technology.

Methodology

The data discussed stem from a workshop organized and held at the department the authors of this paper are affiliated with. A total of *twenty people* volunteered to participate in the workshop. All participants worked in the field of higher education, although in different roles including researchers, teachers and department managers. Five of the participants were professional producers of educational video material who worked for Sweden Educational Radio (Utbildningsradio AB), a public television broadcasting company operating at a national level. All workshop participants had previous experience with the use of digital technology to support teaching or learning practices. The workshop lasted for 3 hours and was conducted in the fall 2013.

The goal of the workshop was to collect examples regarding the use of digital resources in current teaching practices, as well as to unpack the main benefits and problems the different participants had experienced while concretely using the digital media and the interactive technologies discussed. The scope of this workshop was in line with the tradition of informing the design and development of interactive technologies by drawing on an understanding of the actual context in which such technologies are to be deployed (Huges, Randall & Shapiro, 1992; Randall, Harper & Rouncefield, 2007). The study was, therefore, instrumental to the ultimate objective to explore possible improvements to an educational system currently required by governmental policies to undergo a number of changes also with respect to technology use (David Bridges et al., 2014). Our specific focus was to investigate *how digital media, especially video material, can be a resource in the development of pedagogical quality in teaching and education*.

The workshop entailed two phases. During the first two hours, the participants were divided into two separate groups; the discussion was then facilitated by the first two authors, each one responsible for one of the groups. This round of discussion revolved around the following themes: i) how current digital media can be a resource, or a hindrance in current teaching practices; ii) the participants' expectations about education, students, colleagues, and the use of digital media, particularly video; iii) the participants' needs and concerns in

envisioning possible future use of digital resources. During the last hour of the workshop, the two groups gathered again for a common round of discussion, and to compare and exchange opinions about the main topics previously emerged. The entire workshop was video-recorded and documented by means of note-taking. All the conversational data were transcribed, and thematic analysis (Bryman, 2012) was used for the analysis. Thematic analysis is a qualitative method based on the search for themes that become prominent in the description of a certain phenomenon, or of the way people talk about it. Themes are usually identified through a recursive reading of the data collected. As themes are specified, (re)defined and grouped together, they become emerging categories of analysis.

In our case, going through the transcribed material for a first round of analysis allowed us to identify a number of themes regarding the participants' overall experience of using ICT in their teaching practices. During this phase, we fleshed out themes addressing various challenges related to the use of educational platforms, such as: respecting copyright and availability issues when providing access to digital materials, the teachers' concern to continuously develop their personal skills, and their concern to be able to share with other colleagues both best practices and recurrent problems. During a second, more in-depth analysis, we sought to triangulate the data collected within the two discussion groups in order to identify possible contradictory or overlapping issues. During this phase, we focused more explicitly on the teachers' perception of the skills that are required to produce digital resources, particularly video material, the learning activities that can be implemented around the use of such resources, and the problems related to assessing their quality.

As we will illustrate in the following sections, these themes are not solely pedagogical in nature. In fact, the pedagogical character is intertwined with, and inseparable from, a number of social and contextual aspects of the setting studied (i.e. providing teachers with the resources needed to develop their own digital literacy). Furthermore it is interwoven with the teachers' personal experience of using digital technology and media (i.e. strategies for assessing the quality of digital resources) at the very specific workplace where the teaching practices discussed were situated and enacted.

Findings

All the workshop participants involved in teaching had a positive inclination towards the adoption and use of digital media (i.e. YouTube videos, video lectures created and given at other universities, scientific articles and books, training simulations, etc.) in their teaching practices, both including on-campus teaching and distance education. Because of the inter-disciplinary nature of the department in which the study was carried out and, therefore, of the different backgrounds of the teachers present, a variety of courses was discussed during the workshop. They included topics such as Human-Computer Interaction, Digital Prototyping, Programming, Social and Behavioral Sciences, Project Management, Health Informatics, etc. Despite almost all participants had encountered problems when using digital resources (i.e. assessing the quality of digital materials, having the right skills to create and produce them, making sure they are accessible over a period of time, etc.), there was a shared consensus that they should be further deployed in the context of higher education; this was regardless of the subject area being thought.

As the workshop discussion highlighted, a broad variety of digital resources is currently available online and used for different purposes. For instance, video material available on Youtube is sometimes used as inspirational material to prepare a lecture, or to provide students with additional resources to learn about a certain topic. One of the teachers mentioned, for instance, the possibility to access and use original sources, such as Skinner's lecture on behaviorism; another one referred, instead, to the use of a set of instructional videos that had been created at the department to give students practical guidance to manage the process of writing bachelor theses. As it was discussed, accessing this large body of digital contents does not constitute a serious problem, either for the teachers or the students. The various challenges the teachers pointed out were, instead, related to the actual use of such resources – for instance, being able to actually develop and create digital materials, how to design meaningful teaching-learning activities around them, as well as more societal questions on how their usage could possibly redefine the role of university at large.

The following analysis has been organized around three themes that further specify these main challenges, namely: assessing the quality of digital resources, developing the new set of skills needed to produce them, and orchestrating learning activities around their use.

Assessing the quality of digital resources

One of the challenges emerged during the analysis concerns the quality of digital resources. The nexus of this point is that the large availability and accessibility of digital media makes it challenging to search for and select the ones that are considered as suitable to a specific topic. As a number of participants pointed out, it can be problematic to assess the quality of a resource such as a video, or a short clip. This aspect of selecting

educational resources was experienced as considerably more straightforward with more traditional published media, such as books or scientific articles. This was especially true when such references are key readings within a certain scientific area, or have been written by authors who are central within a certain field. Thus, as knowledge becomes a commodity scattered across the main information infrastructure that is the Internet, it becomes time consuming to look for it, and challenging to assess how suitable it is for certain educational purposes, unless it is thoroughly scrutinized and assessed.

Another problematic aspect related to the quality of digital resources concerns the possibility to adapt the contents to different knowledge and expertise levels, especially when such resources have been created for very specific educational purposes and subject-areas. For instance, one of the participants, who had a long teaching experience in the field of health informatics, considered simulation software for training medicine students inflexible. As it was explained, such systems have been developed in order to convey specific set of contents and to develop specific skills, which can make it problematic to adapt them to the context of a specific course. This, in turn, constitutes a serious hindrance if such resources do not completely match a teacher's perspective on a certain topic, or if their quality is not entirely suitable for the level of a course. This challenge was discussed by both groups of participants, also with respect to different type of courses. For instance, a teacher working with an online course on Project Management explained that while planning one of his courses, he had found a large body of YouTube videos providing good guidelines on managing projects. Nevertheless, the contents entailed so much more than what they wanted the students to work with that, eventually, they had to create their own instructional video material which was eventually distributed to the students on YouTube.

This issue of quality was also a practical concern for the professionals working at the broadcasting company, who usually seek to account for the quality of the material they produce by explicitly presenting the reasons for choosing certain speakers, and how representative they are of a certain topic.

Acquiring and developing a new set of skills

A second main concern emerging from the workshop discussion relates to the novel set of skills that the participants, especially the teachers, felt were required in order to self-produce educational digital resources. In fact, differently from the more traditional situation of choosing printed literature for a course, most of the participants perceived as an organizational demand the fact that they would have to become more directly involved in the actual creation of digital resources, particularly video material. As several of them emphasized, being able to produce digital materials requires the development and acquisition of an expertise, which the participants felt they were not trained for.

The discussion around such a competence embodies two main issues that were tackled during the workshop. On the one hand, this competence entails the technical expertise of being able to create and edit digital materials. As one of the participants complained, this expertise is seldom used, and most of the on-campus lectures currently video-recorded are just uploaded to the university video-player platform without further editing. Moreover, in most cases, they reflect the interaction modalities of a "traditional" lecture in which the teacher plays the central active role of creating contents and delivering them. On the other hand, this discussion connects to other concerns, such as the need to re-think pedagogical approaches (see the following section), and to *support teachers in the development of narrative skills* that are more suitable for video-mediated lectures rather than face-to-face ones. As one of the participants put it:

"One of the concerns I have is that I think I should change my way to prepare a lecture when I'm thinking to include a video. [the thing] is that I have to tell a story to the students, not only to go through the contents as I used to. And the structure is a bit different. Including a video then I have to try to be consistent with the video and transform the lecture into telling them a story". (Livia).

As the quote indicates, including a video into certain teaching practices requires a different structure and a type of narrative that is more suitable to the way a video-mediated story is told. As this participant further explained, acquiring these skills encompasses a transition phase needed in order to change practices. This point raised an intense discussion during the workshop, as personal concerns relating to pedagogical approaches and professional expertise became intertwined with the organizational concern of managing resources at the department. For instance, the participant who also worked in a managerial position explained that there is no economical possibility to allocate the resources (i.e. time) teachers would need to acquire the skills required to become different types of storytellers. This types of competences constitutes instead a job for a different professional role altogether. As he put it:

“I can stand in front of a camera and talk and probably say something reasonable, but I could never produce it, I could never edit it, [I could never] work with the sound cause I don’t know how to do it. This is a job for a person each” (Jamie).

Orchestrating learning activities centered on the use of digital materials

The discussion around the quality and relevance of video material was interwoven with a reflection on the teaching-learning activities that can be designed around the use of digital resources. As most of the participants emphasized, considering the use of digital resources for teaching entails also a reflection on the active role that teachers play in providing a context and a structure for those resources. This point was extensively discussed, probably because the presence of both the teachers and the professional content producers contributed to a dialogue where two different points of view complemented each other. This central concern to focus on teaching activities mediated by the use of digital resources evolved alongside two main issues.

On the one hand, the participants drew attention to aspects of students’ motivation, and to some research studies arguing that the current organization of university courses is a source of a very low motivation level for students (Jim Eales et al., 2002; Schoor & Bannert 2011). As one of the participants strongly believed, a way to overcome motivational problems would be to invest in the production of digital resources, and then to use them in the context of well-structured courses and assignments providing the students with a clear and explicit idea of what is expected from them. As he put it:

“Teachers’ competence is about giving a structure, to create order in this media storm” (Jamie).

This point also sparked an intense discussion on more societal issues, such as the future of higher education. The availability and permeation of digital media in the context of higher education (the “media storm” mentioned in the quote above) is changing the vision and the expectations on the role of university in contemporary western societies. Since a growing number of content providers and universities are extensively investing in MOOCs, it is plausible that the teachers’ role in the future could be limited to being examiners, and to making sure that certain learning goals have been achieved. This is of course a controversial argument one could either agree or disagree with. Nevertheless, it is interesting to note that it resonates with the body of technology-centered literature characterizing the current discourse on MOOCs and the positive expectations they are invested with (see Vardi, 2012; Fischer, 2014 for a critical view on this point).

On the other hand, the discussion on using digital resources in the context of teaching practices evolved around the pedagogical approaches that were considered more adequate. One suggestion was, for instance, to more extensively adopt flipped classrooms approaches in order to be able to actually discuss the contents delivered and shared. Educational psychologists like Bruner (1996) have contended the importance to present learners with contradictions in order to stimulate critical thinking and reflection. Likewise, during the workshop it was emphasized that one of the most interesting aspects of teaching is to be able to establish a discussion around the learning material used. Finding good questions triggering relevant discussions was considered central to reflect on the different perspectives that might exist around a certain topic, even when they are not completely in accordance with a teacher’s opinion.

This discussion also raised a number of other concerns more related to the department seen as a complex and social workplace. When discussing the actual use of digital media, such issues become entangled with the pedagogical challenges inherent in orchestrating learning activities based on the digital resources in question. One such concern was, for instance, managing teaching resources in the context of large courses. As it was noted, the flipped classrooms approach is based on the idea of discussing and using (pre)acquired knowledge in a classroom context under the tuition of a more expert teacher; as such, this approach is already underlying a number of classroom activities (i.e. seminars) in which students are first required to read, and then to play an active role in engaging with knowledge and working with it. As experience shows, this is more easily achieved in small courses, rather than the ones attended by three-hundred students, a case which is quite common at the department where the study presented was carried out.

Discussion

The goal of the study presented was to unpack the challenges that teachers and other professionals involved in the field of university education experience as connected to the adoption and use of digital resources. The themes chosen have drawn attention to the teachers’ concerns regarding: i) the quality of digital media, and how to assess it; ii) the importance to acquire and develop narrative skills that differ from the ones needed to prepare and deliver traditional face-to-face lectures; iii) the lack of economical resources to be devoted to this type of

training; iv) how the extensive availability of digital resources, created by heterogeneous content providers, is eventually connected to the societal role of universities, from creating knowledge to merely delivering it. Considered together, these themes reflect a number of pedagogical issues emerging from the use of digital resources, but also the individual, the social and organizational concerns (i.e. allocation of economical resources) that can become material barriers to the introduction of digital technologies. These aspects, we argue, come to the fore when the broader social setting in which digital resources and technologies are to be used is accounted for (Barkhuus and Lecusay R., 2012; Huge, Randall & Shapiro, 1992; Selwyn, 2007 and 2010). In what follows we further elaborate on the findings presented while discussing them with respect to the current discourse on the use of digital resources in higher education.

Firstly, the analysis reveals a tension between a concern to change and “modernize” current pedagogy, and the consolidated organizational practices that are reproduced in the way education is managed at a department level, and instantiated in the single courses. Scholars have noted (Dillenbourg, 2009; Andersen & Ponti, 2014; Fischer, 2014) that research in the Learning Science and technology-mediated learning have emphasized the importance: i) of self-directed learning, peer-to-peer learning, flipped classroom approaches, etc; ii) and to explore how these novel pedagogical approaches can capitalize on the use of interactive and digital technologies. Nevertheless, academic teaching is still based on the traditional idea of teacher-based teaching (Fischer, 2014), and this was also reflected on the expectations that many workshop participants had with respect to the integration of digital media into their teaching practices. In other words, this seems to be *an attempt to change pedagogy, and teaching-learning activities in an organizational framework that reproduces and encourages traditional classroom lectures*. Administrative and teaching routines, as well as support structures (allocation of time and other resources) are, in fact, based on the assumption that a single teacher is responsible for managing a course, giving lectures, and designing examination modalities. During the workshop, for instance, one of the employees from the broadcasting company – and therefore somebody external to the department context – pointed out the absence of any internal collaboration between teachers to share best practices and examples of using digital media at the department.

Secondly, *the workshop revealed an implicit expectation that teachers should also be producers of digital contents and materials*. Certainly, one could argue that teachers are always producing new teaching material (i.e. lectures, course compendia, exercises, tutorials, etc.). Nevertheless, in this case there seemed to be a shared assumption that whether a book can just be used, a digital resource must be created anew or edited in order to be used effectively within a certain course. One reason explaining this could be that for some teachers it is important to feel empowered and competent by producing their own material (i.e. lectures), rather than using what is already available (i.e. a video lecture). However, we argue that on a more general level this reflects aspects of how people enact and reproduce social and cultural phenomena by means of technology, particularly the values and meanings that can emerge when people use certain interactive artifacts (Friedman, 1997). In the case addressed, this entails various expertise and competences that the teachers thought they should have. As we have seen in the analysis, this includes the pedagogical and technical skills needed to be able to create meaningful digital materials and to edit them. Ultimately, we argue, this reflects on the perception of what constitutes a central expertise to be a skilled teacher.

Finally, a related issue stemming from the analysis concerns a *reconsideration of the role of universities in western societies*, more focused on delivering and communicating knowledge rather than producing it. Technologies are never neutral, and they profoundly modify the activities and the context in which they are used (Haas 1996; Engeström, 1999). On an obvious level, this becomes materialized, for instance, as the social impact of technology effecting both the individual and the collaborative practices enacted in a certain setting (i.e. the way a certain activity unfolds). However, these changes become also manifest at the level of the political and societal expectations and beliefs concerning the transition that is foreseen and promoted for higher education. Phenomena like MOOCs, and the debate connected to the extensive availability of digital resources can all be framed in the broader context of globalization, knowledge economy (Smith, 2007; David Bridges et al. 2007), and of how economical and cultural aspects of society are redefined by the pervasiveness of ICT (Castells, 1996). All these aspects become entangled in the discussion on how interactive technology and digital media can and should be used in higher education. This, in turn, contributes to the emergence of new possibilities for the production and circulation of knowledge where, as noted (Etzkowitz & Viale, 2010), the university transition into the 21st century is driven by a concern to make knowledge available across various contexts.

Conclusions and implications

In this paper we have introduced the findings stemming from a one-day workshop that was organized in order to discuss the use of digital media in higher education, and how they can be experienced either as hindrance or as

an opportunity for current teaching-learning activities. A total of twenty people participated in the workshop, and they included teachers, researchers in the field of Technology-Enhanced Learning, professional producers of video material for educational purposes, as well as department staff in managerial positions.

The data analysis has illustrated the pedagogical aspects entailed in orchestrating engaging learning activities centered on the use of digital resources. Furthermore, it has shed light on the social and material aspects connected to the use of digital resources in a university context. More specifically, the teachers' experience of how the adoption of such resources relates to the expertise required to use such resources and, thus, the redefinition of what it means to be a competent teacher.

The analysis presented is relevant as it is instrumental to a more general discussion on the implications that the extensive availability of digital resources, and the transformation of knowledge into a commodity has for higher education. With this regard, we have tackled three main issues, namely: i) the attempt to modernize pedagogy and teaching practices in an educational context that still privileges and reproduces traditional teaching modalities (i.e. teacher-centered lectures); ii) the expectations that teachers should also be producers of digital contents; iii) a reconsideration of the role of university from producers to providers of knowledge.

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