Digital and Media Literacy in Teacher Education: Findings and Recommendations from the European Project e-MEL

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La competenza mediale e digitale nella formazione universitaria degli insegnanti: risultati e raccomandazioni dal progetto europeo e-MEL

Media and digital literacy skills are now seen as crucial for 21st century teachers, but teachers' initial training is still far from coping this emerging need. This paper investigates how media education can be integrated into the academic context through the presentation and discussion of the results of an experimentation of learning scenarios, implemented in three universities within the European project e-Media Education Lab. From the experimentation it emerges how both analytical skills and media production skills are important; that the teaching of media literacy should be more explicit; that the university organization presents rigidity that risks hindering the typical processes of media and digital literacy education.

Keywords: Digital & Media Literacy; Media Education; Teacher Education; Blended Learning; Media analysis & production; University

Le competenze mediali e digitali sono oggi considerate come cruciali per gli insegnanti del 21° secolo, ma la formazione iniziale è ancora distante dal soddisfare questa esigenza emergente. Questo lavoro indaga in che modo l'educazione ai media possa essere integrata in contesto accademico attraverso la presentazione e discussione dei risultati di una sperimentazione di percorsi didattici, condotta in tre università nell'ambito del progetto europeo e-Media Education Lab. Dalla sperimentazione emerge come siano importanti sia le competenze di analisi che quelle di produzione mediale; che la didattica della media literacy debba essere maggiormente esplicitata; che l'organizzazione universitaria presenta rigidità che rischiano di ostacolare i processi tipici della media e digital literacy education.

Parole chiave: Competenze mediali e digitali; Media Education; Formazione degli insegnanti; Blended Learning; Analisi e produzione mediale; Università

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Introduction

In the last years, there has been a growing consensus on the importance of digital and media literacy for twenty-first century teachers. Digital competence has been included in the new framework of key competences by the European Parliament and Council (2006), and recently a *Proposal for a European Framework for the Digital Competence of Educators* (Redecker & Punie, 2017) has been released by the European Union addressing six areas of competences ranging from the capacities to identify and use digital resources and tools for professional development to digital teaching and facilitating students' digital literacy skills. However, research in the field is still at the beginning (Borthwick & Hansen, 2017; Koponen & Kotilainen, 2017; Krumsvik, 2014; Meehan, Ray, Walker, Wells & Schwarz, 2015; Tømte, Enochsson, Buskqvist & Karstein, 2015) and it shows that even the new generation of teachers is substantially unprepared to form the digital and media skills of their students. Till now they have received inadequate or even no training about media and digital literacy education either in their initial or in-service education (Fernández-Cruz & Fernández-Díaz, 2016; Lund, Furberg, Bakken & Engelien, 2014; Prendes, Castañeda & Gutiérrez, 2010; Scull & Kupersmidt, 2011). Therefore, there is a total mismatch between the digital challenges that new teachers have to face in their profession and the preparation they receive during their academic training (Gudmundsdottir, Loftsgarden & Ottestad, 2014; Lund, Furberg, Bakken & Engelien, 2014). Moreover, focusing on the training of future teachers, there are several issues which deserve consideration such as: How should be designed a curriculum on digital and media literacy in Teacher Education? What type of contents it should include and which pedagogical approaches should be adopted for teachers' effective initial training?

This paper investigates how digital and media literacy education can be integrated into teacher education. To this purpose, it will present and discuss the results of e-Media Education Lab (e-MEL, http://e-mediaeducationlab.eu, 2014-17), a European project funded by the Erasmus Plus program and involving six countries (Belgium, Finland, France, England, Italy and Portugal) in the design and testing of educational resources for pre- and in-service teacher training in the area of Media Literacy Education. In this paper, we focus on five training scenarios (TS) implemented in three different academic contexts and on their results to elaborate some recommendation on effective conditions for the integration of digital and media literacy for future teachers at university level. In the following, we first provide a snapshot of current literature on the topic, then we introduce the context and the methodology adopted. Finally, we discuss the results and draw some conclusions for future developments.

1. Literature review

The interest in developing future teachers' knowledge and skills in the field of digital and media literacy goes back to the first decade of the New Millennium, in parallel to the growing penetration of digital media and technology in society and everyday life. Looking in particular to media literacy, Flores-Koulish (2006, p. 239) well highlighted the basic issues that it entails: "Pre-service teachers (PSTs) has to face two challenges: they themselves must become critical and, at the same time, they need to learn how to deepen their future students' criticality amid the accountability dynasty". While training in this field has to cope with different demands, university courses for future teachers rarely include media and digital literacy (Meehan et al., 2015; Salomaa, Palsa & Malinen, 2017). Several reasons brought to this situation among which the little space or even no place for new literacies in the K-12 national curricula or the redundancy of conceptual frameworks for media and digital literacy which engendered disorientation, etc. Given the low number of experiences, literature in the field is still limited (Gewerc & Montero, 2015; Korhonen & Rantala, 2007; Meehan et al., 2015; Prendes, Castañeda & Gutiérrez, 2010; Rossi & Falcinelli, 2015; Tømte et al., 2015). Some studies concentrated on the assessment of media and digital literacy skills and concluded that teachers' university preparation on these skills is insufficient, especially on online collaboration and multimedia content editing (Prendes, Castañeda & Gutiérrez, 2010). Other studies explored the conceptual views of digital and media literacy skills which underpin university programs. Specifically, Gewerc & Montero (2015) compared a number of curricula and observed that in these programmes an instrumental view of digital and media literacy prevails together with the emphasis on information literacy. Further research analysed the pedagogical approaches that characterise pre-service teachers' programs on the topic. For instance, Tømte & colleagues (2015) explored how university teachers practice their digital literacy skills in their online courses for future teachers and whether they encouraged their students to develop digital competences for professional contexts. They found that university teachers underestimated the need for teaching student (i.e. a future teacher) about how to teach, they tended to think of media or technologies just in terms of instruments, while adopting teacher-centered instructional approaches. Only a few teachers were aware of the importance of their role as modelling their students' digital competence practices.

Rossi & Falcinelli (2015) carried out a comparative analysis of the curricula of the Laboratory of Educational Technology in Teacher Education programs for Primary School in Italy and found a variety of very different contents including coding, media and digital literacy or teaching with ICT. In Finland, Korhonen & Rantala (2007) focused on visibility of media education in Teacher Education programs, analysing the discourses and the position of media education in the curricula. They found out that from the point of view of pre-service teachers media education is thin and biased in the curricula. It is not clearly visible and pervasive. They asked whether pre-service teachers could identify and engage with media education, if it is fragmented in the curricula. Teacher students and media education report (Salomaa, Palsa & Malinen, 2017) revealed that most pre-service teachers, who participated in the survey in Finland, believed that their studies included too little or much too little media education. Moreover, according to the results of the survey, the emphasis of media education in pre-service teacher's studies was more on the educational use of technology than on critical media literacies and sociocultural approaches to the media.

Finally, other studies documented episodic experiences of media literacy courses included in the traditional curriculum of undergraduate teachers' courses. In this re-

spect, Meehan and colleagues (2015), after their analysis of current practices in a medium-sized private university in the US, concluded that, even though the introduction of a full course on media literacy in the university programmes is not doable, media and digital literacy could be spread into traditional mandatory coursework for pre-service teachers, thus positioning it as "an instructional or pedagogical strategy for teaching and learning across subject areas, not as a separate subject" (p. 86).

2. e-MEL: a training programme for future teachers

2.1. Context and aims

The e-MEL project aimed at designing, delivering and experimenting training resources to be released as open educational resources (OER) for teachers' preparation on digital and media literacy. The project relied on the large and relevant experience of the consortium in the field of Media Literacy Education[1] and was organised in three main phases, which are:

First Phase – Theoretical framework: the framework comprehensively represents all media literacy education competences, based on the distinction between media literacy (i.e., knowledge and skills about the media) and media education (i.e. the process of teaching about the media). As for media literacy, analysis and production competences were considered and organized in three main categories (Tab.1): 1. Informational Axis, referring to critical understanding of contents, analysis of languages and representation; 2. Technical Axis, which refers to technical aspects such as techniques and interfaces; 3. Social Axis, as the capacity to understand the role of media in society. The framework was used as the starting point to design the evaluation tools of national training experiences.

Media Education competences	Analysing competences	Didactic axis	*e.g. Understand advantages and constraints of ICT in the educational process and its transformative potential on how to learn*
	Producing competences	Didactic axis	*e.g. Conduct media production projects in classrooms*
Media Literacy competences	Analysing competences	Informational axis	*e.g. Produce critical analysis and interpretation of the media content*
		Technical axis	*e.g. Choose techniques and materials most appropriate to a particular objective*
		Social axis	*e.g. Understand how important the notion of audience is and identify the different audiences of a media and characterize them (social, cultural and economic issues)*
	Producing competences	Informational axis	*e.g. Write different genres of media messages*
		Technical axis	*e.g. Master technical processes (production, edition, publishing processes, etc.)*
		Social axis	*e.g. Take care of the ethical and legal aspects, the rights and the duties of the freedom of expression (image, rights, copyrights, insults, defamation) in one's own media production*

Tab.1: Key competences framework of the e-MEL project (Verniers & Tilleul, 2014)

1 The consortium was made up of six European organizations highly engaged on media and digital literacy: Brussels School of Journalism & Communication (IHECS), Belgium; Media Animation (MA), Belgium; University of Tampere (UTA), Finland; University of Florence (UNIFI), Italy; University of Minho (UMinho), Portugal; Center for Media Education and Information Literacy (CLEMI), France; University College London - Institute of Education (UCL-IOE), England.

Second Phase – Experimentation of training scenarios (TS): based on common guidelines and template, 20 training scenarios were designed, of which 10 were implemented in the online platform called eLAB, based on Moodle, and experimented with pre- and in-service teachers. Data on trainings were gathered by each partner and analysed.

Third Phase – eLAB as open educational resource (OER): the online platform was rearranged as a resource centre for teacher trainers, providing the theoretical framework, training scenario description and activities, evaluation tools: all documents were revised and improved in order to become open educational resources.

This paper focuses on Phase 2, providing insights on the results of the experimentation carried out involving future teachers coming from Italy, Belgium and Finland: recommendations about sustainable and effective models of media and digital literacy training courses are formulated and discussed.

2.2. The training scenarios

The training scenarios were experimented in different higher education contexts ranging from large-size universities to smaller institutions, from Teacher Education programme with mandatory courses on education, media and technology to Master degree programme in communication and media education. Specifically the institutions involved were the University of Florence (Italy)[2], the University of Tampere (Finland) and IHECS – Institut des Hautes Études des Communications Sociales (Belgium).

They varied in terms of theme, duration and modality, but they shared the common reference to the key concepts of media education including audiences, production, language and representation (Buckingham, 2003). Participants were involved in media analysis and production activities, working in pairs or groups. The training scenario delivered in Belgium tackled the issue of semiotic analysis of images, while the two Italian courses were respectively on digital storytelling and audio languages. Both Finland programmes provided an introduction to media uses: at the Faculty of Education a training scenario about advertisement was tested, while at the Faculty of Communication Sciences the topic was approached from a transcultural perspective which accompanied the process of video news.

The training scenarios were delivered through an online platform (specifically Moodle) and the activities were implemented in a blended mode mixing face-to-face moments with online training.

2.3. Participants

A total of 279 students attended the five training scenarios and participated to the study (Tab.2): 246 were involved in teacher education programs (UTA-EDU and UNIFI), while 33 were attending master programs in media literacy and education (UTA-COM and IHECS). These latter were included in the study since some of

2 Fore more details on the Italian TS and experimentation see also Ranieri & Bruni (2018).

them were educators, potential future teachers or worked as teachers before starting the Master degree programme. Therefore, in this article, we will focus on the perspective of Teacher Education and use the term as a comprehensive concept.

As we may expect, most trainees were female (92%) and quite young (20 and 24 years old), with a few exceptions (only 16 people were over 30 and 4 are over 40). As for the level of education, there were differences between trainees of bachelor courses, with only a high school degree, and master students.

Concerning the online experiences, students varied according to the national context and the level of education: the Finnish bachelor students had a wider experience, when compared to their counterparts in Italy and Belgium. In addition, most trainees believed having a good level of media and digital competences, although in Italy and Belgium 1/3 of the students declared having a low level of media literacy.

Trainees Groups	Num.	Age	Gender	Education	Prev. online learning experience	ML competences
IHECS	16	14→ 20-24 1→ 25-29 1→ 40	13→ F 3→ M	15→ Bachelor 1→ Master	3→ Yes 13→ No	5→ Low 9→ Good 2→ Very Good
UTA EDU	78*	6→ <20 36→ 20-24 12→ 25-29 8→ 30-34 4→ 35-39 2→ 40-44	66 -> F 12 -> M	56 -> High school degree 17-> Bachelor 5 -> Master	60 -> Yes 17 ->No	2 -> Low 72->Good 4->Very Good
UTA COM	17**	2→ 20-24 6→ 25-29 3→ 30-34 4→ 35-39 2→ 40-44	13 -> F 4 -> M	11-> Bachelor 6 -> Master	7→ Yes 10→ No	11->Good 6->Very Good
UNIFI TS 1	95***	90 → 20-24 4 → 25 - 29 1 → 34	95 → F	91 → High school degree 2 → Bachelor 2 → Master	31 → Yes 64 → No	1 → Very Low 33 → Low 59 → Good 2 → Very Good
UNIFI TS 2	73****	67 → 20-24 2 → 25-29 3 → 30-34 1 → 40-44	71→ F 2 → M	65 → High school degree 2 → Bachelor 6 → Master	36 → Yes 37 → No	2 → Very Low 31 → Low 38 → Good 2 → Very Good
TOTAL	279					

* 85 students joined the training scenario, but only 78 filled in the pre-survey
**18 students joined the training scenario, but only 17 filled in the pre-survey
*** 110 students joined the training scenario, but only 95 filled in the pre-survey
**** 87 students joined the training scenario, but only 73 filled in the pre-survey

Tab.2: Number of trainees and their characteristics

3. Research questions

With the aim of investigating the issue of future teacher training on media and digital literacy in the higher education context, this study addressed the following research questions:

1) What are the main successful and/or challenging aspects of delivering courses on media and digital literacy in teacher education?
2) Is a blended modality of delivery of training courses on media and digital literacy education sustainable in teacher education?

4. Methods

This study is based on the comparison and the synthesis of the national accounts of the experimentation carried out in Belgium, Finland and Italy. At national level a mixed approach to data collection was adopted including the administration of a survey and the implementation of a logbook. Specifically, before the testing a pre-survey was administered in order to gather background information about participants, such as demographics, previous experiences and expectations. At the end, participants filled a post-survey on course satisfaction and provided suggestions for future implementations. During the process, trainers annotated their impressions in a logbook, underlining significant learning situations, difficulties and possible improvements. The use of these tools led to the collection of multiple data which were analysed and triangulated to increase reliability (Lincoln & Guba 1985). Each partner then reported data in a national report providing the ground for the subsequent analysis. In fact, all national reports were analysed to identify highlights and lowlights according to the main target (i.e. future teachers). Although there were differences among the different contexts, including the sample size, the use of a pre-defined grid as well as skype meetings with trainers from each organization helped sharing a common understanding of the findings. Also a member checking session (Cohen, Manion, & Morrison, 2011) was realised during a transnational meeting to further improve the reliability of data. This recursive procedure allowed to identify a grid of synthesis about four main dimensions: *Didactics*, referring to TS effectiveness, quality of methods and activities, transferability of resources; *Modality* meaning the balance between online and offline activities and sustainability; *Technology* concerning the usability of the platform; and finally *Participation* related to teachers' involvement in the activities and satisfaction. A final report was developed, presenting strengthens and weakness of the implementation of training scenarios for future teachers.

5. Results

5.1. What are the main successful and/or challenging aspects of delivering courses on media and digital literacy in teacher education?

Successful aspects
Overall, trainees' expectations towards media analysis and production were quite balanced, but with some differences. In Italy trainees expected developing both competences, with a preference for media production, while in Finland EDU they declared their preferences for media analysis competences similarly to trainees from Belgium.

	Technical skills	Media Analysis competences	Media production competences	Pedagogical competences
IHECS	10/16	15/16	7/16	10/16
UTA-EDU	17/78	75/78	19/78	60/78
UTA-COMS	3/17	10/17	10/17	8/17
UNIFI-TS1	38/95	48/95	64/95	57/95
UNIFI-TS2	36/73	22/73	37/73	37/73

Tab.3: What competences do you expect to develop through this activity?

However, when coming to the activities that trainees found most interesting, in almost all cases both media analysis and production were mentioned (Tab.4). With the exception of Belgium, where trainees highly appreciated online lectures, exploration and search for resources, in the other cases decoding media representations and creating the media were perceived as more significant. To some extent, exercises associated to media production were found even more relevant and interesting. As reported by UNIFI, in the open answers about possible improvements, most students declared they would not modify any activity because they "are already well structured, organized and useful", while some students suggested focusing the course only on media production (Ranieri & Bruni, 2016a, p. 11). This is consistent with what emerged in Finland: as a trainer in Finland observed, "The most significant to the trainees seem to have been those parts of TS in which they experienced themselves: 1) media life study and its reflection in a group and 2) production of news based on the media life studies in a group. Together these two enhanced a critical awareness of the Role of the media in a society of their origin and a kind of braveness to use Media Production as a pedagogical method in their lesson plans mostly" (Kotilainen, 2016, pp. 9-10).

	IHECS	UTA-EDU	UTA-COMS	UNIFI-TS1	UNIFI-TS2
Face-to-face meeting	7/13	13/78	7/17	26/95	20/73
Online lecture	13/13	0/78	0/17	21/95	16/73
Exploration of resources	11/13	9/78	1/17	21/95	9/73
Search for and editing of resources	11/13	10/78	1/17	25/95	21/73
Media analysis exercises	1/13	48/78	6/17	31/95	17/73
Media production exercises	5/13	48/78	9/17	34/95	34/73
Group work	10/13	50/78	6/17	41/95	30/73
Discussion in web forum	13/13	0/78	2/17	6/95	6/73
Collaborative writing (wiki)	12/13	1/78	1/17	7/95	6/73
Other	0/13	0/78	2/17	1/95	0/73

Tab. 4 : What were the most interesting activities?

Looking at Table 4, we can observe that group work was found by all trainees, with the exception of Belgium, one of the most interesting activities. In some cases, for example UTA-EDU, trainees also suggested an improvement of the activity with flipped learning to increase the level of interaction and discussion among participants: as reported by the trainer, "the group work was seen beneficial by the pre-service teachers, which encourage to develop it more and integrate assignments to online environments. Possible area of improvement is also flipped learning where the group work during the face-to-face meetings are focused more on discussion and not hands-on working" (Kupiainen, 2016, p. 11).

Most participants declared that their participation in the e-MEL activities was high, particularly in the group work. As reported in Finland EDU, "practically all trainees reported in the post-survey that they actively interacted with each other and worked in the groups" (Kupiainen, 2016, p. 10). Similarly, the Belgian trainer reported: "most of trainees agree or strongly agree with the ideas that they actively interacted with other trainees during the course, that their participation in group work was high […]" (Campion & Verniers, 2016, p. 6). Even in Italy, trainees evaluated their participation in the group work as high (Ranieri & Bruni, 2016a, p. 10; Ranieri & Bruni, 2016b, p. 10).

Issues and challenges

Going back to Table 3, in all countries it emerged a strong expectation by trainees towards the development of pedagogical competences in the field of media education. This is relatively obvious, since they were pre-service teachers with a low level or no experience: they expected to develop these competences in their preparatory training. However, from this point of view it seems that the training scenarios did not provide trainees with adequate resources: "the context of pre-service teacher education and e-MEL TS didn't meet very well. The emphasis should be explicitly more on pedagogy of media education, now the pedagogy was tried to integrate to assignments in way that was not transparent to trainees" (Kupiainen, 2016, p. 7). This aspect was largely discussed during the member check session: trainers agreed that all training scenarios did not include any specific contents on pedagogical and methodological aspects, which are particularly relevant for trainees who did not have yet experience in school. The initial idea was that by teaching media literacy trainers would have thought media education as well like in a modelling process. But things were perceived differently and trainees asked for a more explicit approach to the didactic dimensions of media education. As discussed during the meeting, a transversal pedagogical module including exercises/activities to design a lesson plan can be added in order to cope with this significant need. In addition, adopting a flipped learning approach (see also above) could allow to dedicate face-to-face meetings for discussions about pedagogical approaches to media education.

Another issue emerged during the experimentation concerns the need of providing more feedback on participants' performances over the course. Indeed, given the high number of trainees in the Italian context, providing individual feedback on each exercise proved to be very demanding. And yet, as commented by Italian trainers, "the importance of a constant presence of the trainer emerged clearly, especially to provide feedback on activities" (Ranieri & Bruni, 2016a, p. 11; Ranieri & Bruni, 2016b, p. 11). They also suggested a strategy to face this challenge: "In order to make a constant guidance sustainable even with a larger number of participants, it is essential to rethink the feedback process in terms of self-evaluation, providing worked examples and tests to check unit by unit the acquired knowledges" (Ranieri & Bruni, 2016a, p. 11; Ranieri & Bruni, 2016b, p. 11). The issue of feedback was also discussed during the member check session and peer-to-peer work was indicated as a crucial mean to reduce the gap between the single experience and the collective feedback, especially in pre-service teachers' training.

In terms of sustainability, the problem of time management emerged both in Belgium and Italy: trainees asked for more time to complete their tasks or finalize media production. As observed in IHECS, "time management is also a dimension for the trainer who had to conciliate the coherence of the learning process, the experimentation itself and the constraints related to the academic programme where the experiment took place, which did not allow to exceed the planned experimentation period" (Campion & Verniers, 2016, p. 11).

This introduces another common issue concerning the adaptation of the training scenarios to the university context: media education in higher education is a relatively new topic which would require changes of the academic curriculum to make it sustainable. For example, media production requires different spaces and time compared to traditional academic teaching, therefore carrying on this type of educational activities in higher education become very challenging to conciliate times and needs.

5.2. *Is a blended modality of delivery of training courses on media and digital literacy education sustainable in teacher education?*

All training scenarios were blended courses combining face-to-face meetings and online activities. This modality was almost completely new for many trainees, who showed different attitudes towards it. In Finland EDU, the balance between face-to-face and online activities was perceived as adequate as well as the overall workload, though some trainees declared that discussions would have requested more time (Kupiainen, 2016, p. 8). In Italy, trainees underlined that "they would have preferred a larger number of lessons in the presence": through open comments, some students suggested additional meetings to introduce technical aspects and replace webinars with face-to-face "in order to facilitate immediate questions and clarifications regarding the subject" (Ranieri & Bruni, 2016a, p. 7). Similarly, the trainer suggested that focal points of the course should be addressed during face-to-face sessions, while webinars can be useful to summarize contents after a first explanation (Ranieri & Bruni, 2016b, p. 8). In conclusion, Italian trainers stated that "trainer and trainees agreed on considering the lesson modality significant in terms of deepening the topics and giving/receiving an effective and timely feedback" (Ranieri & Bruni, 2016a, p. 7) and suggested to increase the number of meetings, especially at the beginning and at the end to support technological familiarization and to provide a final feedback.

On the other hand, the online activities and the use of the e-lab platform were not always perceived as relevant. For example, a trainer from Belgium reports that "participation and interaction through the e-lab is quite problematic to assess" (Campion & Verniers, 2016, p. 10) since trainees self-evaluated positively their online participation, but at the same time they expressed several critical comments related to technical problems: not understanding the need to use the project platform, they preferred using other tools. Some open comments suggest "that some of the trainees perceived the online participation as an excessive/unnecessary complication for tasks that could be accomplished in face-to-face" (Campion & Verniers, 2016, p. 10).

In the case of Belgium, trainees 'escaped' the e-MEL platform (e.g., the trainer talked about a kind of "e-lab avoidance strategies" by trainees, see Campion & Verniers, 2016, p. 11) and similarly did trainees from UTA COM "e-Mel Moodle did not work with this TS in a proper way during the implementation and we were forced to move the teaching from Moodle to a Facebook Group soon after starting the TS" (Kotilainen, 2016, p. 3).

Trainees from UNIFI TS1 and TS2 did not declare any specific difficulties with the use of the platform, probably because they were used to use it since Moodle is the platform adopted on an institutional level by the University of Florence. However, even in these cases trainees did not take advantages of the collaborative features of the online learning environment. As observed by the trainer, online interaction mostly happened through email: "the forum has been poorly used and only for help or clarification requests addressed to the teacher: no thread among trainees was recorded […] interactions between students took place mostly out of the platform" (Ranieri & Bruni, 2016a, p. 10). A totally different situation characterizes the Finnish experience at UTA EDU, where the trainer integrated in the Moodle platform other media tools: as he explained in the national report, "Padlet and ThingLink platforms were part of the e-MEL Hub Lab" (Kupiainen, 2016, p. 7). The approach adopted by UTA EDU was appreciated by the students who had the opportunities to face with different tools and environment. During the mem-

ber check session, trainers agreed that this could be a solution to limit the "e-lab avoidance strategies", while overcoming the narrow boundaries of traditional platforms such as Moodle.

6. Discussion

e-Media Education Lab was designed to develop pedagogy and tools for media and digital literacy education within teacher education. This study focused especially on what worked and what challenges were faced when media education was integrated to teacher education and how training scenarios were received in different study programmes. Media education was implemented to the programmes both as learning and teaching *about* the media (content of TS´s) and *with* the media (pedagogy of TS's). Trainees found media analysis and media production as the most interesting activities in learning media education. We believe that in our study trainees find critical analysis and literacy important due to the current public discourse of fake news, misinformation and other biases of the media. This discussion has been quite common in mass media and social networks for several years and especially after US presidential election 2016. At the same time, media production was found crucial, especially in certain contexts (e.g. Italy), in so far as it allowed trainees to put knowledge into practice according to an approach to academic teaching which is rarely implemented in the university context.

In our study trainees indicated the technique of group work as the most beneficial teaching method for their learning. From this perspective media and digital literacy education does not differ from other studies in teacher education. For example in Finland the TS on media education was part of multi-didactic studies which are basic studies in specialist school subjects. These studies use traditionally group work as a learning method. But group work in TS's were not organized in a way that trainees could understand their pedagogical meaning. Most common classroom strategies and pedagogies in the field of media education are textual analysis, case studies, translations, simulation and production (Buckingham, 2003; Kupiainen, 2015). In our scenarios media analysis and production were at the same time practices to develop media literacy and pedagogical models, but that was not clear for the trainees.

Media education is also an issue that is difficult to integrate into academic time-structures. Especially media production, if it is done during classes, takes time, needs organisation of space, technologies and co-operation with groups of people. Like higher education, also schools have their own place-time structures that traditionally prefer pedagogies which gather students around common texture and temporally organized lessons and activities at classrooms (Leander, 2007). Media education needs sometimes out of classroom activities, especially when it comes to media production (Kupiainen, 2013). Media education pedagogy includes skills for organizing proper circumstances, technology and learning environment for different activities. That is also why we preferred group works face-to-face with other students. Our study indicates that face-to-face meetings were important for trainees in order to support the use of the technology and have an understanding of the basic ideas of media education. Online learning environments can support learning but digital platforms are not an end in and of itself (Hoechsmann & Poyntz, 2012). Trainees experiences of e-MEL platform indicates also that used technology should be experienced as "real-world" technology, not something unfamiliar given from up to down (Selwyn, 2011). Due to the technical

problems and everyday experiences of other digital tools they were used to use, trainees seemed to avoid more or less the e-MEL learning platform. Virtual learning environments are not necessarily attractive for students who were used to use mobile and highly visual social media platforms. There is also a growing criticism against the use of virtual technologies in education. For example, Selwyn (2014) has collected arguments, which indicate that virtual learning environments have seem to be ineffective in supporting learning and they implicitly reinforce the organization of education along individualized neo-liberal lines. Our study support pedagogy that enhance peer-to-peer communication and group work as well as possibilities to collect set of technologies that could scaffold learning in a best possible way and not centralize learning to one virtual learning environment.

7. Recommendation

Starting from the evidence gathered through the analysis of national reports, in this section we draw some recommendations for the implementation of training programmes on media and digital literacy for future teachers. Recommendations concern four different aspects related to didactic, blended modality, technology and participation.

7.1. Didactics

Media analysis and production activities are important. Group work is relevant
Media analysis and production activities proved to be effective and enjoyable for trainees. In particular, production activities were often conducted adopting a group work methodology, which was found by trainees as one of the most interesting activities. In the university context, having the possibility to work actively and collaboratively is perceived as an exception to traditional teaching and it is much appreciated because students can experience themselves. These instructional choices were consistent with trainees' expectations and proved to be relevant in terms of perceived level of learning and satisfaction.

Add a transversal module focused on Media Education competences
Future teachers have a strong expectation towards the development of pedagogical competences in the field of media education. However, training scenarios were designed with the idea that by teaching media literacy trainees would have thought media education as well like in a modelling process, but this "implicit approach" resulted to be not enough in the context of teacher education: students are not able to make independently a meta-reflection on their activities. The didactic dimension of media education should be addressed in a more explicit way: a possible solution would be adding a specific module on pedagogical aspects with exercises and activities on how to design a lesson plan.

7.2. Modality

Need of a minimum number of face-to-face meetings
Trainees seem to consider face-to-face lessons more significant in terms of learning, especially for deepening the topics and giving/receiving an effective and timely

feedback. On the other side, trainers reported face-to-face sessions as essential moments of interaction. We suggest to plan at least two face-to-face meetings, one at the beginning and one at the end of the course, which are essential to present easily the training scenario and to give a qualitative feedback at the end of the course.

Flipped approach
Another possible improvement related to the mode of delivery was suggested by trainees, who proposed to adopt a flipped-approach for the group work: groups can organize themselves to meet and work, and then reflect on their experiences with trainers during face-to-face meetings. Trainees believe that flipped learning could be useful to increase the level of interaction and discussion among participants.

7.3. Technology

e-MEL platform as a hub of online resources
During the experimentation, it emerged constantly that participation and interaction through the e-MEL platform was quite problematic, because trainees showed some resistances: when they did not understand the need for using the provided platform, they adopted a kind of "e-MEL platform avoidance strategy" and preferred other tools, like common online services that they were already using in everyday life. Trainees showed a sort of ecological approach towards technology, leading them to accept to work online only once the added value of the platform was clear. It would be preferable to avoid "forcing" participants to follow the planned activities, using the platform as a HUB of other specific online services.

7.4. Participation

Adaptation of the TS to university context
A common issue of training scenarios involving pre-service teachers was the need of their adaptation to the university context, which imposes constraints in terms of time and workload management, especially for media production activities. Media education in higher education is a relatively new topic which would require changes of the academic curriculum in order to make it sustainable.

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