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**The practices of learning digital technologies in later life:
What are they made up?**



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The practices of learning digital technologies in later life: What are they made up?

1 Introduction

Since the popularization of the internet and information and communication technologies (ICTs), the access of older people to the digital society was limited and their engagement grew slowly. However, recently there has been an increase in access to these technologies, fostered by the popularity of mobile devices (smartphones and tablets) and their widespread adoption by older adults (DiDuca et al., 2007; Fernández-Ardèvol and Prieto, 2012; Madden, 2010; Tsai et al., 2015). In this context, it is necessary to ask again how older adults use and learn to use these technologies in their everyday life moving away from conventional forms of understanding learning as a cognitive and instructional practice. Rather than simply describing the difficulties that learning how to use technologies and engaging with the digital society brings to older people, this paper offers lively experiences about how the practices are co-constituted and defined by people, technologies and places.

In this article we show, through vignettes, how learning happens in later life through describing several learning practices that are different from each other. However, what these learning practices have in common is that all of them are relational and affective. The research on which this paper draws is an ethnographic study of everyday life practices in social media of a group of older adults. With this, we intend to make visible the particular micro-dynamics of everyday learning from an interactional perspective. We focus on (1) the social relationships assembled as a highly imbricated element in the learning processes; (2) the role and meaning of the technological objects - as the different artefacts that are created with the use devices and software - and; (3) the actions/relations about the learning practices that these assemblages of people and technologies enact. Relationships, objects and actions, in turn, promulgate discourses about age and old age in relation to the digital. The vignettes reveal some important insights into how people use and learn social media technologies.

We begin with a brief discussion bringing together literatures on learning digital technologies and later life. Second, we present the practice-based and socio-material theoretical framework that this working paper is based on. We then offer a brief description of the study and the methodology used. This is followed by a detailed analysis of the learning practices that happen in determined context and entangled with social relations. We then discuss how these insights could be applied in policy contexts and help to rethink how to teach technologies to older adults.

To sum up, the article describes a wide range of learning encounters around social media and digital technologies. The aim of paper is to re-examine learning concepts and their links to subjectivities around age and technology. Eventually, the re-examination of learning concepts will allow us to draw possible policy implications.

2 Background

Studies on internet usage among these population tend to adopt instrumental and instructional positions. Some depart from an overly triumphant approach which focuses on the benefits of use. This body of research, within social gerontology, has addressed how older people learn to use these technologies (i.e. Campbell, 2004; Russell, 2012) and the positive effects they can have on well-being (i.e. Blit-Cohen and Litwin, 2005; Kania-Lundholm and Torres, 2015). There is a general assumption of the idea that the use of the internet and ICTs is essential for the creation of fair and egalitarian societies (such in "Policies for Aging Well with ICT," 2010; Timmers, 2008). However, these policies have received criticisms as well (Lassen and Moreira, 2014) due to the normative ideas of old age that they enact. There are a few studies that focus on how older people make sense of internet use which are not necessarily celebratory in their take (e.g. Kania-Lundholm and Torres, 2018; Selwyn, 2004). To date, studies examining the use and learning of these technologies by older adults have been carried out from adoption perspectives, addressing aspects of motivation, barriers and perceptions of utility (e.g. Selwyn, 2004, Selwyn et al., 2003), or accessibility and learning (Jaeger and Xie, 2009; Leist, 2013), but focusing on the problems or difficulties that this social group has to fully and significantly interact with them. This trend falls into the assumption that older people have problems that hinder their full engagement with ICTs and struggle to learn. As described by Boulton-Lewis: "a large amount of research on learning among older adults is, unfortunately, dominated by the identification of obstacles and the decrease in the process (of learning) caused by a physical and mental deterioration" (2010: 217). In both cases, celebratory or difficulties' approach, previous research has been limited to analyse how older adults learn ICTs based on concrete learning experiences. In turn, these learning experiences are instructional and defined according to parameters that have been established by others, not by them.

There are few studies that analyse in detail and depth how older people use and learn social media in non-formal, relational and quotidian contexts. Previous studies have been limited to study how older people learn based on determined learning experiences and focused on the acquisition of competencies and development of skills according to parameters (or scripts) established by 'others', rather than themselves. This is what Sørensen conceptualizes as "representational knowledge" (2009). It refers to the learning based on the acquisition of standard knowledge which is already there, in the text books or in the educational curriculums, and it is generally instrumental and with a determined goal -such as acquisition of knowledge that is useful in the work place. Moreover, this kind of learning is usually obtained in schools, universities or training centres rather than in everyday life or quotidian places. Similarly, the tendency is to use cognitive approaches.

Drawing away from these perspectives, there is a body of work devoted to the study of the situation ("situatedness"), learning context, circumstances and their interrelations (such as Aberton, 2012; Fenwick and Landri, 2012; Mathisen and Nerland, 2012; Sørensen, 2009). These studies focus on situated, relational and affective learning in other social groups but the research is scarce regarding older people. They propose to shift the focus of research from the individual subject to the learning process, in an attempt to evade the supremacy of representational conceptions. This position instigates an exploration of the various forms in which learning and knowledge are rooted in quotidian practices, including the ongoing action that produces the objects and the subjectivities that constitute our way of seeing and being in the world. It also includes the study of the dimensions that constitute the practices of learning: time, space, bodies and things.

3 Theoretical framework

Thus, we place our work within a growing and diverse set of overlapping approaches referred as practice-based (Gherardi, 2012) and socio-material (Fenwick et al., 2015) perspectives of learning. We use socio-material learning theories to analyse how older adults learn digital technologies in their everyday life. The socio-material approach used follows a contemporary trend in other areas of learning research that challenges the traditional notions of knowledge acquisition and transfer (Fenwick et al., 2015). Within this theoretical framework, learning is understood as a practice and a process. It follows Sørensen's definition (2009), who claims that learning is a growth in knowledge, the ability to connect with other entities and "to be" as a continuous process that occurs through crosses and assemblies of materials-discursive and interactions of people, places, bodies, texts, technologies, artefacts and architectures. This approach also defies the conventional assumption that learning is primarily an individual achievement.

The theoretical positioning of this article regarding age and the digital is rooted in critical gerontechnology (Gilleard, 2017; Joyce and Mamo, 2006; Rees Jones and Hyde, 2008) and attempts to capture how older people evolve and co-shape the practices of technology use (Loe, 2010; Peine et al., 2015). We follow the recent call that reclaims older people as knowledgeable technological users, instead of unskilled dupes of technology and design. But we also aim to cover a gap by looking at how older people use and co-shape technologies in practice, particularly mainstream technologies –such as PowerPoint, WhatsApp, email or Facebook–, instead of analysing gerontechnologies, –defined as innovations designed for older people (Peine et al., 2015). Consequently, we operate closely with the idea of “grey-ing the cyborg” (Joyce and Mamo, 2006) or the understandings of technology and users as mutual constructions (Oudshoorn and Pinch, 2003) in everyday life contexts. This framing calls attention to the ways old people approach everyday life technologies in creative ways.

4 Methodology

This working paper is based on data generated for an ethnographic research project that examines the use of social media in the daily lives of older adults. In terms of its methodological orientation, a digital team ethnography was carried out (Beneito-Montagut et al., 2017) following the classic approach of Erickson and Stull (1998), which considers team ethnography a valid model due to its configuration as a deliberative process.

The study followed a multi-situated and user-centred approach focused on everyday life practices and on the situated micro-dynamics within learning encounters.

Between 2014 and 2016, we met, interviewed and interact online with 20 older adults, half of them living in an urban area of Barcelona (Spain) and the other half living in a semi-rural area close to the city. All the key informants were social media and computer users. The sample was diverse in terms of gender (11 men and 9 women), marital status and who they live with, and age (ranging from 65 to 80). On the other hand, it was similar and quite homogeneous in terms of their social-class (middle-class), non-migrant background and all of them were ageing in place and living independently.

The research was based on a multi-methods approach -digital and face-to-face-, which included participant observations in four socio-cultural (community) centres for older people, entry and exit interviews, and online participant observations in several social network sites

and internet applications (Beneito-Montagut, 2011). In some occasions, we also visited key informants in their homes, or met with them in public spaces, such as cafes. We collected digital data as well and recorded their public interactions on social network sites. All the data generated and collected were included in a computer program for the analysis of qualitative data for subsequent coding and analysis by the researchers. All of this in order to get a thick description of their use and learning of ICTs in their everyday life.

For grounding our methodological framework, it is also necessary to introduce the idea of *practice* as the unit of analysis. Then, advance the idea of digital practices. Borrowing the concept of the “practice turn” (Schatzki, 2012), practices are collective and situated in a context (or contexts) where “knowing-in-practice” emerges (Gherardi, 2012) -embodied, relational, socially located and evolving- and they are constituted by people and artefacts (Reich et al., 2017). A practice-based approach to research emphasizes relationships and provides a way of understanding the construction of “knowledge” as something other than a cognitive process. Hence, for us, the notion of *practice* refers not only to what happens in social media platforms, but also to what happens outside the digital realm, yet in relation to it. Practice can be further conceptualized as networks that include human actors (such as peers, family, friends, teachers), their activities, uses and social interactions, and any kind of resources (such as tools, artefacts, models, standards or social objectives).

Finally, a symbolic interactionist framework was used, focusing on how individuals actively participate in their environments (being these ones physical or digital) and create social realities and meaning through their interactions with people, things and spaces.

Hence, the vignettes (Miles and Huberman, 1994) presented below describe technological learning practices in different situations and represent different lively stories about social relationships and age. In practical terms, we understand a vignette as a description of a series of events chosen to be representative, typical or emblematic of the technological learning practices of older adults who participated in the research. Each vignette is structured as a short story that is limited in time, to one or a few key actors, and is situated in a determined space. They aim to present vivid stories of learning practices practices (Erickson, 1985).

5 Results: The invisibility of learning social media and ICTs

This section of the working paper aims to show empirical accounts of older adults as actors who creatively negotiate their learning in particular contexts. They take ownership of the practises and co-shape them. In doing so, we also illustrate the meaning making processes that take place in relation to the use of technology and age.

The email is the top social media that older people rely on, followed very closely by WhatsApp, but people use a broad array of technologies to learn and stay in touch with others. Facebook use, and adoption was low at the beginning of the fieldwork, but it took up quickly and became quite popular among the key informants. Regarding the digital devices, the fieldwork also started at the same time that older adults were broadly adopting smartphones.

Shaping practice through crafting PowerPoints and social connection

What follows is a vignette from fieldnotes and interview data to illustrate how older adults shape practice together or together “shape practice”. It also illustrates how they can be active agents in defining their practices and how social media technologies can be used by them to keep themselves in contact with others.

The social media lessons take place in the ‘casals’, a sort of neighbourhood/community socio-cultural centres for older people. “Casal” is a popular entity which is quite specific from Catalonia. Its ambitions could be social, cultural, political, communitarian, religious and educative, depending on different ‘casals’. The centres we spent time in, are not only about teaching and learning ICTs, they also provide a social space to hangout and offer a broad array of activities -more or less organized- such as Tai-Chi, knitting, board games, fitness and so on. They also function as hubs for social connectedness within communities and neighbourhoods. As for most of the centres we visited, the particular *casal* we based this vignette is equipped with an IT room that is opened for everybody to use beyond the classes. Regarding the sort of technologies used, this particular community centre offers lessons of *Computing for beginners*, *New technologies*, *Social Networking Sites*, *Everyday Social Networking Sites*, *Digital I* (Word and Excel) and *Digital II* (Power Point). All these courses were offered by a policy programme by a Foundation aiming at bridging the so-called digital divide.

There is a large group of people, around 20, using the IT installations and attending the classes. *Eva is one of them*. She regularly attends the ‘Casal la Pedrera’ and engages in learning technologies. She is a 72-years-old woman who lives in Barcelona. She is retired -was an administrator- and lives with her husband. Eva spends much of the day in the *casal* and is the coordinator of the IT area. She is very involved in the everyday life of the *casal* and is a relevant member of the community around it. She’s got a very active social life, and much of her activity is linked to this centre and to digital technologies. She also participates in many of the courses offered, not only in those related to technologies. As she says, “you know that I am very busy, that I am here in the *casal*, and I have loads of work”. When she gets home at night, after dinner, she usually goes online for three hours too, until bed time.

She owns two mobile phones. One is not a smartphone and the other one is. She shares the smartphone with her husband as they cannot afford one for each. At home, they also have a desktop computer, a laptop and a tablet. She uses email and Facebook. Although her Facebook profile is rather quiet and there is not much activity. However, Eva is in charge of updating the Facebook page of the *casal*, and in that Facebook group she is quite active and dynamic. She publishes the news of the centre, the programme of activities, photos and information of interest for the community. She acts as a kind of “community manager” for the *casal* social media presence.

She has tried a large number of different apps, such as *WhatsApp*, *Twitter* and even created her own blog. But after a while she stops using them. She is the kind of person who likes to try everything that falls into their hands, and then drops off what does not end up integrated into her daily routines. Her usual digital practices are articulated mainly around the e-mail and the *Facebook* group page of the *casal*. Eva uses the group page as if it was her personal Facebook page.

Fragments of a conversation with her, helps to further understand her relationship with digital technologies:

Eva: No, You know why I'm telling you that, right? I download many YouTube stuff, huh? Because I download them in MP3, and then I change them from MP3 to WAV, because for using them in a PowerPoint it has to be WAV music, because normally if it is MP3, if you send it, depending on how you send it, you cannot hear the music, and with WAV the music always

works, and then I transform it.

E: You are, you are ... an expert, huh? Really...

Eva: Why?

E: Well, all what you are explaining to me about video formats and music... and ...

Eva: Well, we do courses. I enrol in courses all the time. I actually attend to workshops about PowerPoint, and video, and Photoshop too.

The first point that we want to make here is that she shaped and gave a particular meaning to both, learning how to make and the making of a PowerPoint itself. That is, in part, to be shared with others by email. We observed in Eva, and in several other participants, that there is a fascination for the visual and multimedia practices that acts as a driver for learning how to edit PowerPoints which are very visual but also appeal to other senses -as we can see in the relevance of the sound for the final artefact. The ultimate goal of designing these PowerPoints is to share them by email or other social media platforms -which they also need to incorporate in their everyday life. They usually share their creations via email chains, although some informants also shared on Facebook or YouTube. Being able to share them online is very important to them, as we observed in the fragment of the conversation with Eva. Again, in Eva's words, "we did a PowerPoint, and well, when we finished it, we sent it to everybody [referring to the group of people that attends the course]." This fact, in addition to reinforcing the idea of learning through practice and being tech-savvy, also points us towards the relevance of the relational elements. The technological artefacts that they made, became objects of symbolic exchange and of social connectedness. Social connectedness emerges as a key element in the practices of learning, creating digital artefacts and sharing. We have only presented Eva's practices, but although these are unique to her, we observed in other key informants the relevance of making and sharing as a way of social connectedness.

The previous vignette also shows how the learning practices, the interests and uses of technologies are partly articulated around a physical space, a community and a set of personal relationships which are established around the 'casal'. Hence, learning occurs at the intersection of social connectedness, the social centre as a physical place, the social web as an online space and the interest around technology as the stuff that glues the elements.

Defying existing stereotypes and defining the practices

The idea presented in the previous vignette adds to the existing evidence about defying persisting stereotypes of unskilled and vulnerable technology users that are excluded due to problems of access to the technology and digital literacy (Brittain et al., 2010; Joyce and Loe, 2010; Östlund and Lindén, 2011). They are considered passive recipients too. Eva, through her technological practices presented in the previous section, defies prevalent conceptions around inept, naive or non-expert technology users.

Furthering on this idea, the following vignette introduces Pere's practices.

Pere, 70 years old, owns two computers. One laptop and one desktop. He is another person who is extremely fascinated by digital technologies and engaged in the making of *PowerPoints*. He is usually connected two or three hours per day and is very skilled in *Facebook* and other digital technologies. He assists regularly to computer courses in a socio-cultural centre, *Casal Guell*, in his neighbourhood, where he has become one of the most admired people for his

knowledge and skills in digital technologies. Moreover, he shares his expertise with others one day a week, in which the computer room is open for all users, as Pere acts as a volunteer helping other with their use of technologies. One morning in the ‘casal’, between consultation and consultation, he also makes a *PowerPoint* with photographs of FC Barcelona players. To do this, he carefully searches and downloads photographs from different web pages, edits them with *Photoshop* to change their colour, and includes animations. He searches patiently and tirelessly for web pages to download the Barcelona anthem, that he wants to include in the presentation. Once he finds it, he explains “for this, you will have to do a song format conversion, which I do with a software that I have also downloaded from the Internet.” The preparation of the presentation is slow and laborious and is done in front of the attentive look and enthusiasm of the other users of the computing room, who also make suggestions to improve it. Once the presentation is finished, he is very proud of it, and sends it to his friends by mail and by the private *Facebook* chat.

Again, this vignette is representative of the digital practice of making a *PowerPoint* and the meaning of this action is revealed through the careful attention to the tasks and through the ownership signalling. A common practice of the key informants was to protect the *PowerPoint* creations with passwords, to avoid anybody plagiarising and appropriating them. Some informants even signed their creations by writing their initial in the last slide. *PowerPoint* is a well-known presentation program that is come very widely used in many communication situations, in academia, teaching, business and beyond. But for our key informants, the *PowerPoint* is not used to create presentations, it is mainly used to create digital artefacts to be shared through email. They are more closely understood as memes. They are digital artefacts which contain and transmit an idea, story or memento that spreads from person to person within a culture—often with the aim of conveying a particular phenomenon, theme, or meaning.

These digital practices (the making, sharing and protecting ownership) also work as illustrations of what is valid knowledge and relevant skills for people using and learning digital technologies. The older adults progressively assemble the general idea of what constitutes the practice itself and give meaning -as described- to the making and sharing of *PowerPoints*. In turn, these are enactments of relevant quotidian practices and signal significant questions about how the value of learning (specific skills and knowledge) and technologies is determined (Fenwick and Landri, 2012) and who determines it.

Digital technologies and practices can also be seen as doing age. While these social media and digital technologies have been taught in an instructional context, the lessons organised by the Foundation, the context and meanings surrounding their use are much broader and linked to social connectedness as seen through the vignettes. Technologies like *PowerPoint* and social media, that will be discussed in more detail in the next section, can also be grasped as social connectedness in later life, as accessories to enable older people to stay connected, take ownership and co-organize their learning.

Staying in touch, learning and feeling socially connected

The courses and workshops organized to learn and acquire digital skills work act as physical spaces for social connection too, as we have already observed through Pere’s vignette on his role as helper and tutor of technologies. In the vignettes presented before, people attended to regular training workshops on ICTs and during one of these open workshops they gathered around Pere to observe his work.

We can further develop the idea of the centres as spaces of social connectedness to the digital social networks. Eva, for instance, simultaneously learns and teaches. She attends to the workshops and regularly responds via the Facebook page of the ‘casal’ and via emails to technological questions from other attendants of the centre. This opens up additional possibilities of relationality and social connectedness. As Eva explains,

“... we also attend workshops about ... social networks, ‘Everyday social networks’, and then the people who sign up, all register on Facebook and befriend. Immediately, I receive lots of requests for friendship and of course, as they are people from here, I accept all of them.”

The quote illustrates the kind of social connectedness that constantly happened during field-work in the socio-cultural centres. Following on Eva’s arguments:

“ well, the fact is that we are all connected here, most of us are connected to the Internet, eh? ... stuff about ... computing with what’s going on here, here. We come [to the casal] and most people spend many hours in here.”

Thus, there is a strong relationship between physical social connectedness in the casal - which is focused on ICTs- and digital social connectedness. However, when we pay attention to the relationship between the use of social media and the increase in personal relationships, we do not believe there is a clear association between their use and an increase in social connectedness. In any case, social media function as another element or another layer in the complexity of personal relationships. Perhaps there is an intensification of personal relationships and a more frequent contact with people who already know each other, and with whom some type of link has already been developed physically, outside of social media. In this sense, technologies are another element (digital and material) of and for socialization. This, in turn, reinforces the understanding of learning (as a practice), the ‘casal’ (as a place) and the social relations (as social connectedness) as entangled elements in doing age with social media and digital technologies. Social media technologies open up possibilities to stay in touch with others and learning digital technologies give them the purpose to interact with others.

Technological entanglements and intimate connections

The following vignette expands on the entanglement of learning practices, digital technologies (social media) and relationships, but this time the focus is on affective and emotional interactions.

Teresa, another key informant, manages very well social media and has high command of several computer programmes.

Teresa is 69 years old, she is a widow and also lives in Barcelona. She has 3 children and 4 grandchildren. Teresa lives alone. She owns and uses different kind of technological devices: a desktop computer, a laptop, a tablet and a smartphone. When we talk to her about her daily digital practices she tells us that after being widowed, she went through a harsh period. She describes it as a time when was trying to find herself. She felt blocked and paralyzed by the feeling of loss. It was on the socio-cultural centre, ‘casal la Solana’, near her home that she found something that she was keen to engage with and put her interest on: the computing workshops. Thus, Teresa began 10 years ago to participate in the training courses related to digital technology and computing. From the beginning, Teresa’s digital practices had strong relational, affective and emotional elements. She explained to us:

“And then, as a result of that, at that time [around 10 years ago], *La Caixa* website had

a chat. A chat. But only to write, because at that point it was only writing, we did not use Skype and all these things that we saw in the workshop and allow video-chats. And in this chat, I made two or three friends, and afterwards we ... well, we kept in touch through the chat. They were retired people, too. One was a widow man here [in Barcelona], another one from there, one of there, I do not know.... Then after a while, among us and fostered by one of them... "Hey, why don't you install Skype, so we'll see each other, we'll know each other, I do not know what". And we installed Skype and Messenger, which also had videoconferencing. And then look ... this one passed me software all the time."

It was Teresa's interest in computer technologies and learning to use them that worked as causal agent to establish social relationships. In the narration about the online relationships she has got with these men, and specially with one of them, there is a bit of blush, which suggests that there is some level of affect and intimacy in the relationship. She joined to the centre because she was interested in technology, and that worked as a practice which evolved in the formation of a group of people interested in technology. From there, affective and meaningful social relationships to her emerged. Probably, the linearity in the narration here does not mimetically reflect how the story unfolded. This happened several years ago.

One day we observed how Teresa helps a friend with social media in the 'casal'. Teresa brought her own laptop and started posting something on Facebook with her friend. Paca, the friend, got stuck herself and said, "I don't get it, I don't get it", and "I do not know how to do it". She seemed worried and cautious about what to do on Facebook, because she was not certain about what to do and she insisted "I do not think I'll know how to do it", "Please, give me the notes!", making reference to the notes she took during the social media workshop they had in the 'casal'. Teresa, after this scene with the friend told us that Paca, "usually gets blocked a lot, she gets stressed, she takes so many notes that she cannot make sense of them afterwards. Well, sometimes I'm with her on the phone for an hour, with the computer open: 'go, go here, click there'".

This illustrates that is not always easy, that sometimes learning how to use social media and computers is a struggle for some people -but, is this particularly related with age? We challenge that idea. Despite these tensions and struggles, Paca also likes the Internet a lot and enjoys the social relationships she has through the Internet and around the learning of technologies. Teresa and Paca met in the ICT workshops at the casal. Since then, they have become very good friends and have a strong relationship inside and outside the casal. Paca takes the opportunity to talk again about a mutual friend [he is the same man Teresa talked about before] of the two who lives in the Canary Islands who is a *cracker* [in their own words] and passes them unlicensed software. Teresa again explains to us:

"And ... of course, he always talks to me about the problems he has [referring to personal health problems]" And how do you do [referring to a technological process]? How did you find this? You know? We have ... that, that kind of thing."

Teresa and Paca, with these narratives about their personal relationships, social media and software use, illustrate in an exemplary way how learning technologies gets entangled with social relationships and generates affection and intimacy. What started as a relationship around a mutual interest, turned up into something also devoted to more affective aims. It reveals the circumstances in which practices become a place to visualize the crucial role of emotions and affects in learning processes. These examples were not unique. During the ethnographic work we found recurrent instances of these learning encounters, that have an emotional character and imply feelings of closeness and intimacy.

Connecting to something bigger

There were self-organized IT sessions and open workshops that a group of older adults led. During the fieldwork we observed that there is a group of people, Teresa is part of them, which is known among other users of ‘casals’ in Barcelona for being the group of “experts” in computing and digital technologies. For this reason, several people -who does not live in the neighborhood- attend to workshops with them, and the ‘Casal la Solana’ became a reference for older people interested in technology from Barcelona.

Teresa learned, and continues to learn, as part of a group of peers who share interests and relate both in the social centre and through social networks sites, and this has also given her the confidence and experience to teach others. The same is true for Eva and Pere.

Next, we present a vignette that describes the contribution that emerges from the digital practices of older people. It happens within the communities they put together around the practices in the ‘casal’. It illustrates how a group of older adults shifted from being learners to teach others. The difference between the following vignette and the previous ones where Teresa, Eva and Pere supported peers, is that the subjective identifier of expertise is restated when the knowledge is placed in another context outside the socio-cultural centres of the different neighbourhoods. Yet, a distinct form of being socially connected arises that we further develop below.

In one of the socio-cultural centres, the ‘Casal la Solana’, some participants, who are also part of the recognized group of experts among Barcelona ‘casals’, have gradually moved from the role of apprentices to the role of teachers. As we have seen, the learners progressively assemble the general idea of what constitutes the practice itself -for instance, around their particular way and goals for creating and sharing Power Points. Eva has gone from being an apprentice of digital technologies to being herself the one who teaches others, just like Teresa and Pere. However, we find a group of participants whose practices go further and even teach others in a more organized way. This group, which began in a socio-cultural centre and from the interest in computer topics, imparts and participates in what they have called self-training workshops. One day per week, they are the ones who teach and lead on the technological workshops according to the expertise of each person and concurring to the demand. That is, the person who is good at editing images with Photoshop, teaches others in a session about Photoshop editing in the ‘casal’. And so, successively with various practices that range from photo and video editing to managing particular social media platforms.

José is 80 years old and lives with his wife. He owns a desktop computer, a tablet and a smartphone. He is very active on the internet and on various social networks. He is very skilled in the use of visual editing software (such as Photoshop, Power Point and video editing) and volunteers to teach courses on technology and social media both in the socio-cultural centre he usually attends, in a centre for social integration for homeless women and in a prison in Barcelona. In addition, he also helps in a consumer association. As he explains to us:

" I have been learning about internet in short courses and workshops but asking to colleagues and friends too. We teach each other, we share what we know, we teach ourselves, with colleagues who are also volunteers from the Foundation. And we teach ourselves one day a week. And then, it is ... The knowledge I have is what I transmit to other people who come to the workshops. I give them computer and IT classes for beginners [referring to the women of the social integration centre], as they do not know how to open an email or do anything, I've taught them how to open an email, some bits about Power Point, things like that, how to take pictures from the Internet, insert them in the Power Point, and so on".

This final vignette reveals how technologies can not only be used, co-defined and co-shaped by older people but also adds to the evidence on how older people can be agents of their learning and practices. It also shows that we need to think differently in order to see how technology might help them to remain (in)dependent and connected to the inside and outside world. Older people can be technology experts and they can lead on teaching others too. They need to become part of a social project which has a digital dimension.

6 Conclusions

The analysis presented here is novel in applying a theoretical perspective—socio-material learning—that has been little employed in social research on older adults learning digital technologies with a vignette-based method.

What the detailed analysis of situated practices of learning shows is that older people are not passive consumers of their learning, neither of social media technologies and other kinds of software and devices. Technologies, digital artefacts, spaces, social relations and older people assemble together to generate agential abilities, relational and affective connections. These agencies, relations and affects are key elements of the lived experience of older people learning technologies, and it would be impossible to understand how they learn and what for without considering these dimensions.

Their active use of everyday technologies works (sometimes) well to create meaningful socially connected lives and maintain personal relationships for this group of older adults. Specifically, older people use and negotiate social media technologies in the context of learning technology to achieve goals such as connectedness. Eventually, the learning that happens in these circumstances has a relational and social connectedness effect -in other words, foster social connectedness.

The findings of this research project studying how older people learn and use digital technologies in their everyday life have several policy implications:

- It shows that there is the need to involve older adults in the co-design (Jarke, 2019) of their technological learning -considering and understanding that their learning is not instructional.
- Policies to increase technology use in older people should focus as well on the network of affective relationships and social connectedness which will sustain the long-term learning. In other words, when designing policies for bridging the digital divide, these need to carefully consider what is important for this social group, instead of assuming what they need the technologies for.
- There is the need to develop interagency policies, which include training the teachers for this task -as they are important- but as well designing the context for communities and affective relationships to happen beyond the technological frame.
- Both policies and technology design need to avoid ageism and prevalent stereotypes that depict older adults as un-skilled, un-interested in technology and dope. As shown before through the vignettes, older people can be active agents of their learning and also of the teaching of others.
- Consider the responsibility that some (policy makers, technology developers and society in general) need to assume in order for people to be able to keep up with society. This

also means a detailed study of what technologies are embedded in their everyday practices, which sometimes are defying normative uses of these technologies (as shown in the case of the use of Power Point).

Eventually, we argue that health and wellbeing for older people includes being able to maintain social relationships, intellectual growth and participation in broader societal issues, and much of this could be accomplished with social media technologies, as they are part of everybody's everyday lives. However, an excessively technological approach obscures the relational and affective dimensions that are assembled behind the screens and are more relevant to being human and to making sense of the technology.

7 References

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