

Digital literacies

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Digital Literacies

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What is meant by 'digital literacies'

Few would argue with the assertion that digital technology is a 'game changer' as far as language learning is concerned. This is not just because computers and the internet have introduced all kinds of new opportunities for language teachers to engage their students in creative learning activities, but also because, now more than ever, language learners have opportunities to use whatever language they are learning in authentic ways outside of the classroom. The most important way digital technologies have changed language learning, however, and the main reason researchers of language acquisition cannot ignore it, is that it has dramatically changed the way people *use* language in their daily lives, introducing all sorts of new 'literacy practices' which did not exist before (Lankshear & Knobel, 2006). These literacy practices involve new forms of social interaction, new kinds of texts, and new understandings of authorship and agency (Gee & Hayes, 2011; Thorn et al. 2009; Warshauer & Grimes, 2007). The study of 'digital literacies' is the study of the everyday, 'vernacular' literacy practices people engage in using digital technology and the ways these practices affect language learning and language use (Jones & Hafner, 2012; Lankshear and Knobel, 2008).

It is important at the outset to clearly distinguish the study of digital literacies from the model of 'computer assisted language learning' (CALL) which has dominated applied linguistics for the past twenty years. These two approaches to the relationship between language learning and technology involve very different assumptions about what technology is, what learning is, and even what language is. In the CALL paradigm, the primary question is: 'What is the relationship between a theoretically and empirically based understanding of the language learning process and the design and implementation of technology-based materials?' (Garrett, 1991: 74). Computers, and the internet in this conceptualisation, are chiefly seen as delivery mechanisms for language learning 'materials', facilitators of language learning 'activities' or, in some cases, as 'language teachers' in their own right (Crook. 1996). The computer user is positioned first and foremost as a 'learner', whose engagement with technology is examined in terms of (usually cognitive) processes of learning. And what is learned — 'language' — is understood as a discrete and purely linguistic system of meaning making which can be clearly labeled as, for example, 'English' or 'French'. Although computer assisted language learning has the potential to take learners beyond the walls of the classroom, it usually promotes the same kind of 'container' metaphor associated with other forms of classroom instruction: learning is 'contained' within particular (physical or virtual) spaces, times, and domains of activity.

The primary question asked by scholars of digital literacies is rather different. It is: What do people do with language and other semiotic resources using technology, and what impact do these practices have on their ability to become competent members of different communities? Computers and the internet are seen as constituting *environments* in which people interact, engage in various social practice, and form alliances of various kinds (Gee & Hayes, 2011; Lam & Kramsch, 2003; Sockett, 2014). Rather than 'learners', computer users are positioned as social actors who engage in practices that have practical consequences for their social lives and social relationships, and rather than learning, they are seen as *participating* in social groups in ways that afford gradually fuller opportunities to engage in these groups (Lave & Wenger, 1991). 'Language' is not seen as the thing being 'learned'. Rather, it is seen as one resource, among many, that social actors *use* to show themselves to be competent members of their communities. And

language itself, as conceived of in this model, often defies traditional labels like 'English' or 'French': the 'language' people use in digital literacy practices usually involves unstable hybrids or 'remixes' of codes, modes, and 'voices' deployed in inventive and strategic ways (Jones, 2013; Knobel, 2008; New London Group, 1996). Finally, work in digital literacies tends to look outside the classroom walls and the contexts of formal instruction, trying to understand how people use language in their everyday lives. Rather than the 'container' metaphor that dominates most classroom instruction, work in digital literacies is often associated with metaphors of connectivity (Black, 2005; Leander, 2008), mobility (Leander, et al., 2010), and transversals (Lemke, 1998). That is not to say that 'language learning' (as traditionally conceived) or 'language classrooms' (as places of learning) are of little interest to scholars of digital literacies. On the contrary, a primary preoccupation of such scholars is how language learning occurs in the context of situated social practice and the role it plays in social identity and membership in communities. And rather than ignoring classrooms, they are seen as key sites into which social actors import their everyday literacy practices, sometimes in ways commensurate with traditional classroom practices, and sometimes in ways that conflict with or contest them (Jones, 2010).

Orienting digital literacies research

Research in digital literacies is based chiefly on work in a number of different theoretical perspectives, including 'new literacies studies' (Gee, 2011; Lankshear & Knobel, 2006; New London Group, 1996; Street, 1984), sociocultural approaches to language learning (Lantolf, 2000; Lantolf and Thorne, 2006), ecological approaches to language learning (Kramsch, 2003; van Lier, 2004), and mediated discourse analysis (Jones & Hafner, 2012; Norris & Jones, 2005; Scollon, 2001). Taken together, these perspectives orient researchers of language learning and technology to focus on five interrelated dimensions of literacy and learning: *practice*, *mediation*, *interaction*, *identity* and *agency*.

Practice

The foundational idea of digital literacies studies is that language learning is not a matter of mastering an abstract code or set of decontextualised skills, but of becoming competent in particular social practices (such as Facebooking, Instagraming, memeing, tweeting, and gaming of various kinds). It goes beyond the insistence of adherents of communicative language teaching (Brown, 1987; Canale, 1983) that language is learned more effectively when learned within the context of social practices to insist that language cannot be separated from the social practice in which it is used. As van Lier (2004: 20) puts it, 'if you take the context away, there is no language to be studied...it's context all the way down.'

Digital literacies studies, therefore, takes as the object of its study not 'language learning', but *literacies*, defined as participation in concrete social practices in ways that allow social actors to show themselves to be competent members of communities. Participating in a social practice always involves more than just making meaning: it also involves *doing* things, *relating* to others, *being* a certain kind of person, and developing certain ways of *thinking*, *acting* and *believing* (Gee, 2011; Jones & Hafner, 2012).

Mediation

The dimension of mediation orients us to the fact that all social practices are mediated through 'technologies' (Lantolf, 2000; Vygotsky, 1981; Wertsch, 1991). What is meant here by 'technologies' includes not just things like computers, digital networks and software programmes, but any cultural tool that mediates between actors and the social worlds they inhabit. Practices like reading a book, listening to a lecture, or having a cup of coffee in Starbucks (Scollon, 2001) are all 'technologically mediated'. The important thing about technologies is that they allow us to do certain things that we would not be able to do without them, and they prevent us from doing other things. In other words, all technologies involve *affordances* and *constraints* on the social practices we can engage in with them (Gibson, 1986; Norris & Jones, 2005).

Vygotsky (1981, see also Jones, in press) distinguishes between material technologies such as screwdrivers, hammers and computers, and 'psychological' (or, as I call them, *semiotic*) technologies, which include 'languages, various systems for counting; mnemonic techniques; algebraic symbol systems; works of art; writing; schemes, diagrams, maps, and mechanical drawings (and) all sorts of conventional signs' (Vygotsky 1981:137). In other words, from the perspective of a focus on mediation, 'language' is seen not as an end in itself (something to be learned), but as a 'mediational means' (Scollon, 2001), a 'technology' which social actors deploy, along with other 'technologies' like computers and mobile phones, in order to participate in concrete social practices. What is interesting about social practices involving digital technologies is the way the affordances and constraints of different tools *interact*, the way digital technologies affect the ways we can use language, and the way language (and other semiotic tools) affect the way we can use digital technologies. One obvious example of this, of course, is the way digital technologies allow users to creatively mix together different modes and different codes, and how, because of this, knowing how and when to combine languages and modes or to shift from one language or mode to another is much more important in digitally mediated communication than in many other contexts (such as traditional, school based literacy practices) (Benson, 2013; Kress,).

Interaction

Social practices (and the 'technologies' which mediate them) can only be mastered through *interaction* with others in social groups. The way scholars of digital literacies understand interaction, however, is different from the way it is understood in interactional approaches to language acquisition (Long, 1996), or even interactional perspectives on discourse analysis such as conversation analysis (Sacks, Schegloff & Jefferson, 1974) or interactional sociolinguistics (Gumperz, 1982), where the focus is on the cognitive (SLA) or communicative (discourse analysis) dimensions of (usually) dyadic interaction. For scholars of digital literacies, interactions always take place in the context of social groups (or 'communities'). All social interactions, in fact, depend on participants' ability to claim membership in some social group or another. Moreover, it is through interactions that we *become* members of different social groups, and that social groups themselves come into being. Lave and Wenger (1991) refer to such groups as 'communities of practice' and describe how, through doing things together, novice members of such communities learn from expert members. Literacy scholars, however, have also suggested other frameworks for understanding learning in groups, including 'affinity spaces' (Gee, 2004), 'learning networks' (Cummins et al, 2006), and 'nexus of practice' (Scollon, 2001).

The questions for scholars of digital literacies around the dimension of interaction, then include not just questions about the different forms of social interaction that digital technologies facilitate (such as the 'one to many' form of communication made possible by blogs, or the 'networked' forms of communication made possible by social network sites), but also, what sorts of social groupings are made possible. Because of the ways digital technologies disrupt boundaries of time and space, they also disrupt social boundaries, making possible all sorts of new social affiliations and ways of organising social relationships (boyd, 2007). From the perspective of digital literacies studies, this is a crucial point, since social practices are seen as both contingent upon and constitutive of social relationships and social identities.

One important aspect of social interactions and social groupings that arise in online environments that is directly related to language learning is that they are often *translocal*, involving participants from a variety of cultures and language backgrounds often communicating using a *lingua franca* language (Leppänen et al, 2009). Such forms of globalised social engagement not only provide learners with more realistic contexts in which to use their L2, but also create the conditions in which participants can experiment with sharing and combining a range of different linguistic and cultural resources.

Identity

Over the past two decades there has been considerable attention to the role of identity in language learning (see for example Norton, 2000). For digital literacies scholars, the notion of identity is inseparable from the notion of interaction in social groups discussed above. Literacy practices are

always a matter of showing oneself to be a particular kind of person (Gee, 2011), and being a particular kind of person necessarily involves claiming membership in one or more social groups. Digital technologies, however, have made the whole business of claiming social identities much more complicated. One reason for this is that, to a certain extent, the kinds of identities we are able to enact in online environments are less constrained by our physical and social circumstances. In some contexts, such as online gaming, participants are free to experiment with all sorts of different kinds of identities. At the same time, some online environments, like Facebook, demand that users make explicit connections between their online identities and their offline selves. In both cases, the relationship between identity and communicative competence is made particularly salient.

The questions around identity that scholars of digital literacies focus on have to do not just with the relationship between identity and learning, but how different technologies and the social situations they facilitate create opportunities for learners to *design* identities that facilitate language learning (Lam 2000). Among the important things about digital practices is that, in the context of such practices, participants rarely orient towards identities as 'language learners'. Although language learning is often taking place, they are more likely to orient towards identities or roles associated with the particular social practice they are engaging in. The good thing about this is that many of these roles and identities allow learners to assume positions of 'expertise', that are often denied to them in formal language learning situations (Black, 2005; Jones, 2008).

Agency

Perhaps the most important question that lies beneath all of this attention to social practices, technological mediation, interaction, community and identity is the question of *agency*, to what degree and in what ways do digital technologies increase people's ability to 'act' in the world with purpose, freedom and autonomy. It is axiomatic that agency is a necessary condition for the development of the kinds of habits of lifelong learning necessary for mastering a language. Agency, however, is a complex issue, involving a range of social and cognitive processes including control, motivation, feelings of self efficacy, investment, social power and status, 'speaking rights', and access to different kinds of resources (McKay and Wong, 1996; Norton, 1995). Digital technologies potentially impact all of these different aspects of agency: they provide tools with which people can control the kinds of interactions they wish to have with whom and when; they provide opportunities for them to engage in practices which they find personally motivating and to enact social identities in which they wish to 'invest' (Norton, 1995); and they provide chances for them to assume positions of power and expertise of the kind not normally available to them in offline contexts. At the same time, however, it is important to acknowledge the multiple ways digital technologies can impose *constraints* on agency; online social practices, communities and affinity spaces can be just as hierarchal and rigid as offline practices, communities and spaces; technology can just as easily be used to reinforce dominant discourses and relationships of power as it can be used to challenge them; and many people still have very limited access not just to digital technologies but also to the economic and political conditions in which debates about language learning and agency are even relevant.

A key aspect of agency in many discussions of language learning and technology is what has been referred to as 'autonomy', a term made popular during the flurry of interest in 'self-access language learning' of the 1990s (Little, 1990). According to Benson, digital technologies have changed language learning researchers' understanding of autonomy in two ways: first, they have dramatically increased learners' ability to access important resources (texts, people, media) outside of institutional settings; and second, they have shifted the 'locus of control' from self-access centres and programmatic materials to learners themselves, who are more and more likely to initiate opportunities for learning themselves based on social goals that have nothing to do with teachers or schools.

The most important contribution a digital literacies approach has to make to the discussion of agency in language learning is its view of agency not as an individual capacity of learners, but as

something that is *distributed* among individuals, mediational means, social groups, and the various contingencies governing the social practices that they engage in together (Emirbayer & Mische, 1998; S. Scollon, 2005). The advantage of such a view is that it shifts our attention away from individualistic notions of 'autonomy' and 'motivation' to more a more holistic perspective on how individuals, environments, communities, and practices combine to create conditions in which learning can take place.

Digital practices and language learning

As outlined above, digital literacies studies typically begin by considering literacies as social practices, and proceed by examining the different technologies or 'mediational means' that are used to engage in these practices, including the affordances and constraints these technologies introduce, of the kinds of social interactions these practices involve, and the kinds of social formations ('communities', 'social networks', 'affinity groups') that they make possible. In this section I will review a number of practice based studies in digital literacies to illustrate how this framework has been applied by researchers.

Social Networking

Social networking is the practice of sharing news, photos, 'updates' and other semiotic artefacts with one's 'friends' or 'followers' over sites like Facebook and Twitter. Such sites allow users to make their networks publicly visible and to manage them in various ways, and to project different kinds of identities to different audiences. Although social networks themselves are hardly new, social networking viewed as a social practice in its own right separate from other social goals is. The purpose of participating in online social networks is, more often than not, to maintain (or grow) one's network and to increase one's status in it rather than to accomplish some instrumental task. Social networking often takes on a game-like quality, with users strategising to build alliances and to gain attention from other users (in the form of 'likes'). What is useful about social networking when it comes to language learning is that it encourages participants to focus on aspects of identity construction and social affiliation that, as I argued above, are so central to learning. The practice of social networking, is essentially the practice of 'writing oneself into being' (Mills, 2011). While some decry what they see as the shallow and narcissistic communication that takes place over online social networks, successful social networking involves a range of sophisticated literacy skills including being able to direct the right kinds of messages to the right kinds of audiences, being able to combine different modes and media into concise and effective messages, being able to create and interpret implicature, and being able to assume 'subject positions' in relation to other users through one's choice and deployment of different symbolic resources (Kramsch, 2009). At the same time, the primarily 'phatic' nature of social networking (Jones & Hafner, 2012) is also what makes it so difficult to integrate into language classrooms, where well-meaning teachers often attempt to impose instrumental goals into these relatively free flowing, spontaneous and affinity driven environments.

Early research on the impact of online social networking on language learning took place before social networking sites like Facebook were even invented. Perhaps the most famous among these studies is Lam's (2000) case study of how a Chinese immigrant student in the United States used discussion boards, fan communities and the instant messaging programme ICQ to build multilingual networks of friends and gain confidence as a user of English. Lam's study is important not just because it represents one of the pioneering works in digital literacies studies, but also because it identifies many of the unique aspects of learning in online social networks that have been taken up in later studies, including 'how learners' identities are created through ...ritual(s) of role play and dramatic acts,' and how participants 'use...textual and other semiotic tools to create communal affiliations and construct social roles and narrative representations of self' (477).

More recent work on social networking and language learning 'in the wild' include Pasfield-Neofitou's 2011 study of the way Japanese learners in Australia and English learners in Japan construct different identities for themselves on different kinds of social network sites (namely Facebook and a Japanese site called 'Mixi'). Pasfield-Neofitou recruited participants who already

had Japanese or Australian friends in their online social networks and observed how they managed their social relationships around topics like gaming and fashion through their choice of different languages. This study demonstrates how, through social networking, learners encounter natural opportunities to experiment with different linguistic resources and to reflect on the kinds of identities available to them as users of a foreign language. Another notable study is Chen's 2013 two year longitudinal study of two Chinese users of Facebook. What is interesting about Chen's study is not just how the learners she observed changed their literacy practices over time, learning to better exploit the multimodal affordances of Facebook, but also how they were able to develop and negotiate multiple identities with diverse audiences across their social networks. Finally there is Schreiber's 2015 study of the multilingual identity and 'translanguaging' (Canagarajah, 2013) practices of a Serbian university student and hip-hop artist. A key focus of Schreiber's study is how social networking often involves acts of linking to or 'curating' (Snyder, in press) content from other sites. In the case to Aleksandar, the subject of this study, this primarily involves posting music videos and 'captioning' them in various ways, a practice Schreiber argues enables him to position himself as a member of a global hip-hop community. This observation points to two important aspects of digital literacies that are relevant to scholars interested in language learning. The first is that fact that, in many online environments (and in many off-line environments as well) a key communication skill is the ability to appropriate texts and other semiotic objects from other sources and recontextualize (Bauman & Briggs, 1990) them into new situations, often 're-mixing' them with other texts and semiotic objects (Hafner, Chik & Jones, 2015; Knobel & Lankshear, 2008), a skill that is often ignored (and sometimes even discouraged) in many traditional learning contexts. The second is the fact that language learners, especially in global multilingual environments, do not necessarily see themselves as having different identities tied to different languages, but instead often engage in practices of translanguaging to enact membership in communities that do not obey traditional national and linguistic boundaries. As Schneider points out, such practices present new pedagogical challenges to teachers who are accustomed to seeing languages as discrete, bounded entities.

Prosuming

Another widespread practice that has come under the scrutiny of scholars of digital literacies studies is that of *prosuming*, the practice of ordinary internet users creating and broadcasting different kinds of digital content, such as YouTube videos (Lange, 2014), 'machinima' and 'fanvids' (Marsh, 2015), 'memes' (Knobel & Lankshear, 2005) and 'fan fiction' (Black, 2005, 2008, 2009). The term was coined by the futurist Alvin Toffler, who, in his 1980 book *The Third Wave*, presciently imagined a time when the power to produce and customise products, including cultural products, would devolve to consumers. The explosion of user created content online in the past decade is the result of two major technological advances: the development of easy to use software programs that allow amateurs to do things — such as edit video and 'photoshop' images — which before required specialist knowledge and expensive equipment, and the development of what is known as Web 2.0 or the 'read-write web', a series of web-based platforms which allow users to easily upload content to servers, to edit it, and to comment on or redistribute other users' content. This latter development has dramatically destabilised the traditional relationship between readers and writers, giving readers the chance to 'talk-back' to the texts they read and to become 'authors' themselves. The advantages of these new technical affordances for language learners include the boosts in motivation learners can get from having an audience for their words, the chance to showcase their creativity, and the ability to get almost immediate feedback on their work from a range of different kinds of people.

Perhaps the most well known body of work on the benefits of prosumption for language learners is Black's work on 'fanfiction' written by adolescent language learners. Fanfiction is a genre in which authors write their own stories featuring characters from popular television shows or movies. These stories are posted online on sites like fanfiction.net where they are read, rated, commented upon and critiqued by readers who, more often than not, are also writers of fanfiction themselves. Like social networking sites, fanfiction sites also include areas where writers can create profiles of themselves as well as display their relationships with other writers. Black (2005) sees the benefits of this practice for language learning in terms of *access* and *affiliation*. First, she argues, it gives

users access to a range of opportunities to produce and consume language in the context of a genre in which they are heavily invested, as well as ample opportunities to engage in *metalanguage* (talk *about* language in which they reflect upon matters of structure, organisation, grammar, style and vocabulary) which is purposeful and motivated by a genuine desire to improve their texts rather than the abstract goal of 'language learning'. Second, it provides users the opportunity to be part of a community of writers in which their writing and talk about writing serves the purpose of forging relationships and enacting different kinds of identities. These two dimensions of access and affiliation interact with and support each other as writers refer to one another's stories in their work and use the peer-review process not just to comment upon the quality of each other's work but to maintain and strengthen community relationships. Fanfiction is also the focus of the work of Leppänen (2007), who has explored the online authoring practices of Finnish young people. Like Schreiber's work described above, Leppänen focuses not just on how authors use this practice to improve their English, but also how they strategically alternate between English and Finnish in their texts in order to adapt US cultural products to their local contexts and construct translocal identities for themselves.

Other scholars have explored other forms of *prosuming*. Lange (2014) for example, focuses on how young people engage in practices of 'peer teaching' through the production of YouTube videos on such topics as fashion, makeup, and computer skills. Although it does not deal explicitly with language learning, Lange's work dramatically demonstrates how the development of literacy skills among young people can be enhanced when they are given opportunities to assume 'identities of expertise', identities that are not always available to them in traditional learning situations.

Gaming

One of the most cognitively and socially complex online literacy practices language learners can engage in is playing massively multiplayer online games (MMOGs), in which they assume the characters of avatars and collaborate with others in increasingly challenging, goal-oriented tasks in virtual worlds. Such games require players to use language to master the intricacies of game-play and to communicate with other players in multimodal and multilingual environments. In addition, players also regularly engage in other literacy practices associated with the games they play including participating in online discussion forums and posting videos in which they describe and comment upon their own and other's performance in the game.

Online gaming has been a preoccupation of a number of scholars of digital literacies, the most prominent being James Paul Gee, who, in his 2003 book *What video games have to teach us about learning and literacy* argues that good video games are designed in ways that naturally create the conditions for learning and literacy development. Among other things, games involve situated, experiential learning in which what players do, say or write has immediate and concrete consequences on their ability to get things done; players learn through exerting agency and taking an active role in co-creating the conditions of the game world with other players and with the game designers. Moreover, learning in video games tends to be staged, with tasks becoming increasingly difficult and information being provided 'just in time' when it is needed to solve problems.

Researchers who have explored the potential for video games to specifically aid second or foreign language learning include Steinkuehler (2004, 2006), who observes not just how games require players to master complex sets of communicative practices, but to become participants in 'Discourses' (Gee, 2011), ways of talking, acting, relating and being that extend into online and offline spaces beyond the game, and Thorne (2008), who provides a case study of a multilingual interaction in the game *World of Warcraft* that occurred between a speaker of English living in the United States and a speaker of Russian living in Ukraine, noting how the game environment provides natural opportunities for peers to share linguistic and cultural knowledge. Of particular interest is the work of Chik, (2011, 2014), who examines how second language learners intentionally *create* opportunities for language learning in the context of online games. In her participatory study of bilingual online gamers in Hong Kong, for example, she observes how players sometimes choose particular games and align themselves with particular kinds of players in order to maximise the possibilities for language learning, and, in her analysis of game themed

discussion boards and forums she observes conversations in which participants engage in peer-teaching, helping other players understand foreign language vocabulary items in the games they are playing.

Re-orienting digital literacies research

While much has been learned from documenting and analysing the online vernacular literacy practices of language learners through the digital literacies framework outlined above, recent advances in technology compel us to re-examine this framework and to re-orient it to accommodate a new set of issues associated with new technologies and the kinds of social practices, social relationships and social identities associated with them. Among the most important issues scholars of digital literacies must contend with in future research are convergence, mobility, digicity, and surveillance.

Convergence

One limitation of the practice based orientation described above is that it encourages researchers to see practices as discrete and relatively bounded, with insufficient attention to or appreciation of how these practices often overlap and intersect. One of the most conspicuous phenomena of the digital age, however, is the increased convergence (Jenkins, 2006) of different technologies: mobile phones are also cameras and web browsers, gaming platforms and geo-positioning devices, and social networking sites are increasingly incorporating functions like instant messaging and gaming. Increased convergence naturally leads to increased 'multitasking' and increased interactions between different kinds of social practices and different kinds of social actors. With only a few exceptions (see for example Jones, 2009, 2010), digital literacies scholars have paid little attention to how different literacy practices intersect, how participants distribute their social and cognitive resources across these multiple practices, and the kinds of relationships this creates among different social groups and different social identities. Rather than thinking in terms of social practices, then, future research in digital literacies should focus on how learning and literacy events take place at the 'nexus' of overlapping and interacting social practices (Scollon, 2001), and on mapping the different mediational means, social identities and social relationships that cycle through these moments.

Mobility

Another important feature of contemporary digital literacy practices is that they are less and less tied to particular physical spaces; all the practices described above, for example, are nowadays as likely to take place in shopping malls, on public transport, or (often surreptitiously) in classrooms as they are in learners' homes. Ling and Campbell (2011:1) have argued, that 'the proliferation of wireless and mobile communication technologies' has given rise not just to changes in how people communicate and interact, but also 'important changes in how people experience space and time.' Although there has been a recent raft of work on the use of mobile phones in language learning (see for example Pegrum, 2014), there has so far been insufficient attention in the field of digital literacies to the issue of *mobility* itself, the way literacy practices 'travel', coming into contact with different physical spaces. What mobile technologies engender is a situation in which different learning environments (home, school, shopping mall) are seen not as bounded 'containers', but as nodes in complex trajectories or 'geographies' of learning that individuals transverse over the course of their everyday lives (Jones, 2001; Leander et. al, 2010). This situation demands that digital literacies scholars develop methods that help us to understand how people use technologies to connect up different environments, different times, and different communities of practice. Of particular relevance, of course, is the way vernacular literacy practices travel into the spaces of institutional schooling, and how school based practices travel into more vernacular spaces.

Digicity

Related to the above two issues is that fact that the physical world and the virtual world are interacting with each other in increasingly intimate ways, a phenomenon known as 'digicity' (Rigby, 2014). Most mobile devices, for example, include context aware capabilities that allow them to collect information about users' immediate environments (including their physical

location and nearby people and objects) and to offer content and communication opportunities tailored to those environments. These new capabilities provide unprecedented opportunities for language learners to seek out and take advantage of learning opportunities, including locating conversational partners, in public spaces like restaurants, shopping centres, and museums. Moreover, the 'internet of things', which has the capacity to allow people to search and annotate their physical environments in the same way they are able to search and annotate the web, promises to allow language learners to experience the world as a 'pervasive learning environment' (Laine et al. 2009). The possibilities and practices associated with these new technologies are only beginning to be imagined, but there is no doubt that they will constitute a major focus of research in digital literacies in the future.

Surveillance

One thing that is absent from much work on digital literacies is the acknowledgment of the fact that perhaps the most important impact of digital technologies on our everyday lives is the way they have opened people up to almost constant surveillance by private companies and advertisers, governments and law enforcement agencies and friends and family members (Jones, 2015). Whenever people engage in any of the practices discussed above, whether they are communicating over social networks, reading and writing fanfiction, or playing World of Warcraft, their words and actions are being recorded and used to make decisions about the kinds of online texts (including advertisements) that they will be exposed to in the future. Although this might not seem to be a central issue when it comes to language learning and literacies, the ways people manage their privacy online, the way they negotiate what information they make available to other people and can access from them, and the way they regulate how things that they post online are shared and recontextualised, all involve sophisticated language and communication skills. Nowadays, users of digital technology must not just understand how to avoid unwanted surveillance, but also how to compete in an 'attention economy' (Lanham, 2007) which demands that they make themselves objects of surveillance in appropriate and creative ways. The surveillant capabilities of the internet and digital technologies also give teachers opportunities to monitor the out-of-class digital literacy practices of their students, and learners the opportunity to monitor themselves and their peers, and scholars of digital literacies can contribute to understanding how these capabilities can be harnessed to help learners more effectively keep track of and plan their learning. Finally, attention to online surveillance and privacy can sensitise scholars of digital literacies to issues of power, hegemony, and the increasing colonisation of digital spaces by commercial interests which so far have been conspicuously absent from research on digital literacies.

Conclusion

Of course one of the most important questions scholars of digital literacies can help to answer is: how can knowing more about the vernacular uses of digital technologies help teachers design more effective in-class learning activities for their students? Much of the recent work in the CALL paradigm, in fact, has explored, with varying degrees of success, the ways the kinds of practices described above can be imported into the classroom (see for example Blattner & Fiori, 2011; Mills, 2011; Reinders, 2012). What the socio-cultural approach of digital literacies reminds us, however, is that, effective as this may sometimes be, such practices taken out of their natural contexts are no longer the same practices; the kinds of identities learners can enact, the kinds of agency they can exert, the kinds of communities they can align themselves to, and the kinds of social goals that motivate them are totally different. Students using Facebook for a class activity are not social networking; and those playing games in class are not 'gaming', at least not in the same way they are outside of the classroom. Rather than trying to replicate 'real world' digital literacies in the classroom, a digital literacies approach attempts to understand how teachers can build upon out of class learning rather than duplicate it. It acknowledges that learning is 'not composed of isolated or strictly isolatable moments and spaces' (Thorne, 2008: 306), and seeks to understand how technology can help learners create pathways between different moments, different spaces, different identities and different literacies.

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