Students' day-to-day engagements with technologies: rethinking digital literacies

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Introduction

This paper reports on the conceptual development of 'digital literacy'. This is framed in terms of background studies and theory, and then evidence is presented from a study that explores students' textual practices. The paper concludes by identifying implications of this work for research and practice.

Background

Students' learning strategies are believed to be developing, responding to an era in which scholarship itself is increasingly seen as digital (Weller, 2011). In an academic context, such practices are now frequently referred to as 'digital literacies'.

However, the term 'digital literacies' is contested, with differing uses of the term revealing competing and even contradictory theoretical perspectives. The term rests on a conception of 'literacy' that is itself contested, in that it is often used as a proxy for 'capabilities', implying a relatively stable, finite and generic set of capabilities to be mastered. It is often associated with 'graduate employability' or 'graduate attributes'. In this perspective, literacies are positioned as measurable, discrete and ultimately residing in the individual. The student is seen as a 'user' of technologies; suggesting a clear division between the human and machine, action and context, writer/reader and text, and the university and other domains of life. For example, work on 'digital literacies' in school contexts has tended to focus on a range of multimodal online formats such as videos, blogs, virtual worlds and games (e.g. Carrington & Robinson 2009, Steinkuehler 2007). In higher education the term tends to connote the technologies required for assessment, including library catalogue systems, databases, virtual learning environments and so on, with an emphasis on relatively traditional text-based formats such as essays, written through digital media.

Such conceptual confusion often reduces these debates to questions of 'skills'. This is unfortunate, in that it undermines the insights developed in New Literacy Studies that shows how these 'skills' do not exist in a generic, decontextualized form, but are always situated in specific practices (Lea & Street, 1998). The risk in this is that the term 'literacies' becomes 'domesticated', losing its critical edge and rootedness in ethnographic sensibilities and day-to-day practices.

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Within the UK, the JISC has adopted a definition that, initially, appears to adopt this decontextualized position: "*digital literacy defines those capabilities which fit an individual for living, learning and working in a digital society*" (Beetham, 2010). However, the definition is quickly followed up by the following qualification, showing a practical commitment to (if not a theoretical explanation of) a more nuanced, situated model:

All of these capabilities are expressed in specific learning, teaching and research activities, which take their meaning from the subject areas in which they are practised. For the purposes of this programme, 'digital literacy' is not a loose collection of separate skills, but rather their integration in specific educational contexts. In further and higher education at least, digital literacy is not a 'one size fits all' skill set, though there may be elements of common entitlement: rather it is a nuanced and varied set of capabilities, tuned to the requirements of different roles and the practices of different subject areas.
(Beetham, 2010, p. 2-3)

However, while New Literacy Studies moved discussion away from the cognitive and towards the social, it does not emphasise the embodied materiality of textual engagement. This risks losing sight of what students actually do, where they do it and what resources and artefacts they work with.

Educational technology research has taken a far greater interest in technologies themselves – but the accounts it offers have been simplistic and deterministic, as if the presence of technology causes learning or ability (Oliver, 2011). In this work the conceptual pendulum has swung too far away from human agency; what is needed is more nuanced account that can explain both how people act and what resources they are able to act with.

Work that does address this – for example, research that explores New Literacy Studies in relation to technology – uses theoretical perspectives such as Actor Network Theory (Latour, 2005) to explore areas such as e-learning (e.g. Goodfellow & Lea 2007; Hamilton, 2001; Clarke, 2002). Such work has not applied sociomaterial perspectives to the day-to-day textual practices of students as they engaged in their studies using digital devices, however. In this paper, we will outline a position that begins to address this.

Theoretical framework

Actor-Network Theory (ANT) was developed within the field of science and technology studies (e.g. Callon 1986, Law & Hassard 1999, Latour 2005), and has recently begun to be applied to educational contexts (e.g. Fenwick & Edwards 2010, Tummons 2010). It focuses on how society is created rather than on causes, leading to rich explanatory accounts.
Within this tradition of work, there is a strong emphasis on the importance of nonhuman actors (such as objects or animals) as members of networks:

If you can, with a straight face, maintain that hitting a nail with and without a hammer, boiling water with and without a kettle…are exactly the same activities, that the introduction of these mundane implements change 'nothing important' to the realisation of tasks, then you are ready to transmigrate to the Far Land of the Social and disappear from this lowly one.
(Latour 2005, p. 71)

ANT also rejects essentialist categories (e.g. gender), viewing social action as constantly enacted through detailed, networked practices. In this it is related to ethnomethodology (e.g. Garfinkel 1967), emphasising the everyday and 'micro' as the key site of social process. In the context of studying students' learning, this involves consideration of how students organise and undertake their studies. This necessarily involves devices and artefacts, whether these be books, iPads or Learning Management Systems (LMS).

Methodology

A JISC-funded study was undertaken to investigate student engagement with digital technologies (JISC 2012). Firstly, accounts of practices were generated through focus groups with four main groups of students at the institution (teacher education, taught Masters, taught Masters at a distance, doctoral). This was followed by a six-month longitudinal study involving students assembling multimodal journal records of their practices using iPod Touch handheld devices.

This longitudinal work involved three students from each of the groups documenting their day-to-day practices and interactions with texts and technologies in a range of settings, producing images, videos and textual notes. They then assembled and discussed these in a series of 3-4 interviews. (Participants who provided particularly rich data were invited back for a fourth interview.) Participants were encouraged to focus on the 'messy' micro-level day-to-day lived activities, networks and the material / spatial aspects of practice. As highlighted in the preceding theoretical section, this was important in moving beyond neat, decontextualised accounts such as those generated by stand-alone interviews, which rely on self-report and may lead to abstraction (Gourlay 2010).

The study received institutional ethical clearance and followed approved procedures for informed consent, including guarantees of anonymity and confidentiality, and the right to opt out at any point.

Findings

Resource discovery

The four focus groups differed in the ways they discovered and accessed texts. The Teacher Education students used the LMS to access resources their tutors had uploaded. Distance students found the physical library irrelevant; they focused on the LMS and online library database. For them, 'information overload' was a bigger problem than finding where a tutor had placed a specific reading. Masters' students were different again, focusing on the physical library – accessing digital resources was relatively problematic.

Before you get on the internet or on the computer, you have to wait, like, ten minutes before it's starting up.

Doctoral students talked mainly in terms of academic texts, which they found in social or purposeful ways, such as "following people" whom they perceived to be doing particularly relevant work.

The practices of incorporating texts into their own work also differed, depending on whether they were printed, exported from a database via EndNote (or similar) or obtained through electronic searches.

The diversity of these experiences undermining a monolithic, convergent or taxonomic understanding of student learning strategies; these 'digital literacies' are not generic, but reflect the specific ways in which resources were discovered, curated and then used in the production of assessed work.

Centrality, access and convergence

Networked devices were central to all students' accounts of access and text production, although which devices each used differed. Collectively, they used desktop PCs (at home or in the library) and portable devices (including smart phones, iPads and e-readers), from occasional use through to constant dependence. Portability was a particular concern for students such as Yuki (a Masters' student):

For me the most important thing is portability, because I use technologies, ICT, everywhere I go, anywhere I go. For example of course I use some technologies, PCs and laptops and my iPad in the IOE building, and in the IOE building I use PC, I use them in PC room, in library, and for searching some data or journals. In the lecture room I record my, record the lectures and taking memos by that.

Devices and applications were multi-purpose. For some, this allowed them to bring together personal and private spaces or activities in ways they found productive.

Well, in my bedroom, on my bed, it's mainly my mobile and going through my emails, travel information, whether on Facebook, my mobile too. Then, um, and in the study room, that would be my laptop and, um, laptop, that would be Blackboard, research, entertainment.

However, some students struggled to create boundaries to keep spaces and practices separate; for example, by using separate email accounts for study, professional practice and personal purposes. Some students found this unsettling.

The only thing I struggle with […], is the issue of like keeping your private life separate from your work life because I think increasingly the two, you're being forced to kind of mush the two together. [Another Institution] used to have its own email server and it would provide you with an email. Now it's provided by Gmail and it's like everybody knows that Gmail is the nosiest thing in the world and tracks absolutely everything you do. And […] I'm a little bit uncomfortable with the idea that my work email knows what shopping I do and, you know what I mean? I just find the whole thing is starting to get a little bit scary.

Similarly, Juan (another Masters student) worked to prevent study from 'colonising' private space. He showed the temporary and shifting arrangements he made for study at home with the photograph in Figure 1.
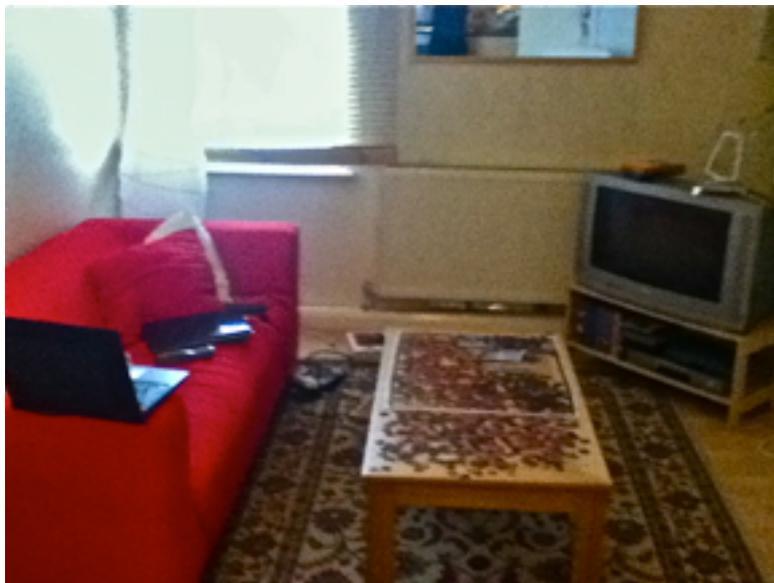

Figure 1: Juan's temporary configuration of devices in his flat

He explained:

This is my very small flat that has a bedroom, bathroom; kitchen's over here. And then this is the TV which is obviously technological but distinct, it's not really connected at all. And there's a laptop here which is on the little table and that's kind of it. There is a sort of a line from which work doesn't, university work doesn't breach really.

He focused on this theme of separation in the 'map' of practice he produced, as can be seen in Figure 2:

Figure 2: Juan's 'map' of practice

Locally-negotiated engagement with texts and devices

Just as there was a complex interplay between spaces, devices and purposes, students also reworked the relationships between texts and devices.

Some students struggled to access or create texts; there were many accounts of spaces, devices or applications being modified, reconfigured or recombined. In this sense, digital literacy became a sociomaterial *achievement*, brought about by a constant reconfiguration of the human, technological and text.

Yuki (a Masters student) used a range of portable and handheld devices, and discussed the very close relationship between her engagements with texts and mobile networked devices. She regularly scans texts into her iPad, reading and annotating them digitally. She also records all her lectures on her iPad in lieu of note-taking. The centrality of devices to her practices is illustrated by Figure 3:
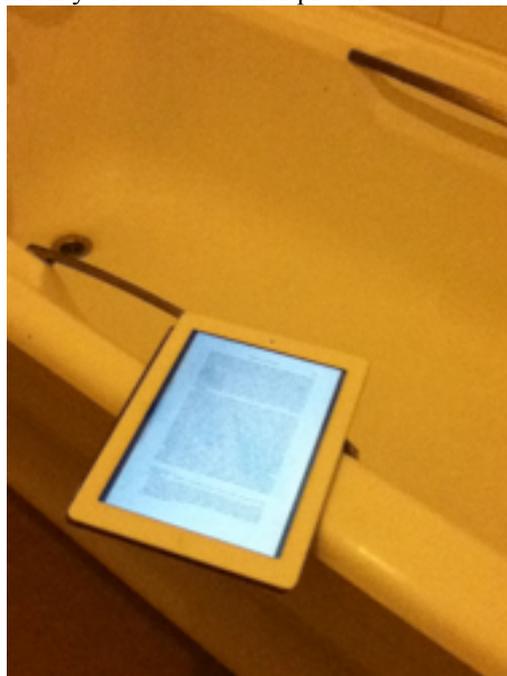

Figure 3: Yuki's image of her iPad on the bath

Yuki puts her iPad in a ziplock bag to allow her to use it in the bath. While reading in the bath is nothing new, this specific textual engagement was innovative in the way it used a networked device, constituted by an amalgam of human, text and machine, and only made possible by the light weight and compact shape of the iPad compared to a laptop.

Yuki's manipulation of texts shows the active assemblage and mediation of texts in conjunction with devices. This made texts (including books, recorded lectures, etc) more portable in terms of space, manipulating texts and sound files of lectures to make them come into being or disappear digitally at any time. Her intensive use of PDF annotating software also allows her to create palimpsest-like texts digitally, written over and reconstituted in any spatial or temporal domain she chooses.

Further examples of this type of reconfiguration and modification of texts were found throughout the data in a range of practices involving spaces, devices and applications such as mobile phone and iPad apps, interactive whiteboards, and referencing software.

Conclusions

This study demonstrates that students' learning strategies are both shaped and are shaped by the spaces, devices and people that are available to them. Conventional accounts of digital literacy ignore this rich interrelationship between people and things, with 'capability' accounts tending to ignore material considerations and educational technology accounts often ignoring peoples' agency. The findings here are best characterised in terms of multiple spaces and domains of engagement, the centrality of networked devices, and the highly contingent, negotiated nature of practices.

This demonstrates how a sociomaterial approach, as framed by concepts from Actor-Network Theory, can recast students' learning strategies and with it our understanding of 'digital literacies' more generally. The fine-grained, situated accounts show how students' practices and networks are generated, modified and maintained. It also demonstrates the limitations of a 'tidy', generic and taxonomic concept of digital literacies. It is inappropriate and unrealistic to assume that students will simply access texts via a LMS or institutional portal; whether they are intended to or not, they will use a range of devices. Institutional strategies and services need to be designed with this diversity in mind.

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