‘Everything is connected’: Exploring the intersections between life, work, play and education through student use of technology in self-directed learning

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How students engage in learning outside the classroom is complex and in part a self-determined activity. Occurring in spaces on and off campus and using technology students themselves bring to their learning or provided for them by the University, self-directed learning has increasingly become a fractured, unsupported and unstructured component of modern higher education. This article draws on the digital stories of 182 students at the London School of Economics and Political Science (UK) to interrogate how students respond and react to the requirements of learning arising from classroom teaching and summative assessment. The stories exposed liminal spaces in which students are constructing learning in unique and some fragile interconnections between life, work, play and learning.

Keywords: Self-directed learning, study, technology, higher education

Introduction

The ways in which university students engage in the activity of learning outside of the ‘classroom’ are part self-determined and part influenced by how curriculum, assessment and teaching (and the teacher) shape the kinds of social learning practices needed by or enforced on students to successfully complete a unit of study or programme (Huda et al., 2017; Lai, Yeung, & Hu, 2016). In the main, most learners are left to their own devices, with their learning not bound by the walls of a lecture theatre or the firewalls of the Learning Management System (Baird & Fisher, 2005; Kolb & Kolb, 2005; Lai, 2015; Merriam, 2001). They select and undertake activities to support their learning that best deliver their desired outcomes and fit with their often complex and compressed lives.

Sometimes referred to in the literature as study or self-directed learning, these learning activities have changed significantly in the modern area of higher education, impacted by pressures of work, transition from other forms of learning, use and availability of technology and social media, financial pressures exerted by high fees and increasing expectations of success connected with employability (Gale & Parker, 2014; Krause & Coates, 2008; McLaughlan & Kirkpatrick, 2014). Modern higher education places significant responsibility on the student to attend and interact with learners and teachers in lectures, tutorials and online as well as engaging in self-directed study in spaces both physical and virtual, where they work through readings, prepare for assessments or get ready for work required for the next face-to-face or online experience (Merriam, Caffarella, & Baumgartner, 2012). As these learning activities can happen off-campus or outside of the physical or virtual learning spaces created by the design of a course, technology is a critical and almost essential tool to facilitate learning (Deepwell & Malik, 2008; Norris, Hossain, & Soloway, 2011; Rashid & Asghar, 2016).

Self-directed learning has further evolved within the socially constructed environment of social media, exposing intersections between learning and the rest of a student’s life and challenging and defining notions of expertise, authority, informality, expediency, immediacy and representation (Dabbagh & Kitsantas, 2012; Ellis & Goodyear, 2016; Greenhow & Lewin, 2016; McLoughlin & Lee, 2008). Learning practices intersect personal, professional and educational lives in complex, inter-connected and personally defined and managed ways affording students the opportunity to make and share identity and to tell the stories of their lives to who they choose (Clark & Rossiter, 2008). Learning inhabits conversations, reflections, casual and fleeting connections, ambitions and expectations that are not always located in the classroom or even on campus (Bryant, 2015, 2017; Fried & Harper, 2017; Hare, 2018). Students make choices about the complex relationships informed by how academic endeavour and activity shapes personal and professional identity within the interconnectedness of life, work, study and play (Lairio, Puukari, & Kouvo, 2013). The use of technology and social media and the practices that emerge from them is at the nexus of these connections, creating personal ecosystems of engagement and relationships, with Fuchs (2017) arguing that the Internet and social media are part of the

'commons of society' and are as fundamental to human sociality as love, care, knowledge and food. Students, when engaging in self-directed learning in response to the requirements inherent in completing assessments successfully (or demonstrating knowledge, skills and competency more broadly), are challenging and reshaping the sources of authentic and credible knowledge. This is both as creators and makers of knowledge themselves (through social media making and sharing for example) (Hamid, Waycott, Kurnia, & Chang, 2015) and as aggregators of expertise or credibility from within their own peer networks or more fleeting and searchable links to networked knowledge residing on-line (Bridgstock, 2016).

LSE 2020 and the stories of the student

LSE 2020 was the core student engagement project within the overarching 'Teaching, Learning and Technology Futures' strategic initiative at the London School of Economics and Political Science (UK). Critical to this strategic educational change project was an organic and expansive programme of engagement that was intended to break down traditional didactic modes of consultation on change and replace them with cross-functional, authentic and useful conversations, using methodologies such as hacks, debates, narrative and storytelling, problem-solving, crowdsourcing and media making. LSE 2020 was the first iteration of this approach. The objective of the project to develop a better understanding of how students at the LSE used technology for their learning. Further, we wanted to develop a more nuanced and student-informed perspective of how students responded and reacted to the educational strategies that shaped their engagement with courses and programmes. Like any institution, we were awash with terabytes of data on student achievement, student participation, student retention and student satisfaction. Very little of this data informed our understanding of how learning happens and how students choose to enable and facilitate their own learning (Fielding, Dunleavy, & Langan, 2010). From a course design perspective however, developing this understanding on the nature of student learning was critical to ensure programmes and courses were designed *for* learning as opposed to being designed for compliance, assurance or against a historical standard of practice (Viberg & Grönlund, 2017).

Stage one of LSE 2020 consisted of short three-minute conversations with 100 students from the across the LSE community, individually and in groups. They were conducted around the campus and covered students from all undergraduate and postgraduate programmes and the spectrum of social science disciplines. These transcripts of the conversations were analysed and interpreted in 2016 and released as a project report (Liote & Axe, 2016). Stage two of the project (2017) involved a further 82 student conversations, supported by an online survey which attracted 352 student responses. Stage 2 built on the findings of the initial data analysis of stage one and attempted to engage more specifically in using technology and social media as a lens on student learning, asking students about specific platforms and devices and how they utilised them as part of their learning. This stage was also analysed and presented as a series of blog posts (Wilson, 2016a, 2016b). A further iteration was completed in 2018 that centred on the use of technology within face-to-face contact contexts. That stage was not included in this study.

In both stages, conversations were conducted by a recent LSE graduate working as an intern and colleagues *in situ*, finding students in learning spaces, cafes, outside in the sunshine and occupying vacant classrooms. There were no demographic or sampling guidelines, just the intention to let as many students as possible share their stories about learning at the LSE. The conversations were either filmed or audio recorded, capturing students in their learning environments. The way these conversations evolved was critical to the nature of the project. They were not based on a question/response model, with the interviewer and interviewee taking specific active and passive roles. LSE 2020 used students and recently graduates as conversant, initiating and participating in the stories of the students. This afforded the capacity for shared meaning making through the conversations, represented as stories of sometimes shared experience (Maslin-Ostrowski, Drago-Severson, Ferguson, Marsick, & Hallett, 2018). Inherent in a significant majority of these shared experiences was a sense of collaboration, ownership and a desire to give back to the institution. Supporting the University to do education better through bringing their student experience to the qualitative forefront (as a digital story) was a significant motivator for participants. Many of the students involved asked to be kept informed of both the reporting of their stories and how the project was used to enhance the educational experience of other students at the LSE. In that sense, the intention was to create a true dialogue where the complexities of the learning experience could emerge, in part through talking with someone who understood their experiences.

All the conversations were transcribed, and these were added to the free text comments generated from the survey in stage 2, providing a rich data set for analysis. We undertook a mixed-methods approach to the data, drawing out simple statistical inferences and undertaking a broad textual analysis of the free text comments from the survey and the transcripts of the video interviews. Finally, we undertook a more relational constructivist textual analysis looking at key phrases that were used by the respondent in the context of telling

their life stories. Drawing thematically on some of the principles of constructivist grounded theory as posited by Charmaz (2006; 2008), we used the data to inductively explore the stories of our students as slices of narrative that could be used to generate theory, albeit still nascent at this stage. It is critical to note that LSE 2020 was not designed as a research study. It was designed to inform pedagogical change at the School and engage the students as active participants in that change. These students provided information and insights to the project to better inform their own and future colleagues educational experiences. It is through that lens that the data analysis used in this paper drew its conclusions.

The importance of storytelling to understanding the student experience

Central to LSE 2020 was the opportunity for students to tell their story and have that shared with colleagues, academics and the wider community. This form of digital storytelling represents a type of social pedagogy, where interaction, engagement and learning emerge from the telling of asynchronous and sometimes disconnected stories shared widely with participants and the wider community (Benmayor, 2008; Stewart, 2017). Sociality informs how other students locate themselves in the institution, both through the consumption of the stories of other students but more importantly, through the telling of them to others. These videos represented encounters between students that may never have happened without the intervention of the project. Learning in a higher education institution can be a lonely act, with assessment and the pressures of necessitating and promoting performance over the benefits of collective engagement, social interaction and connection-making (McLaughlin & Sillence, 2018). The use of digital stories provided an opportunity to share human insights into learning (Robin, 2016), a concept often blurred by the metrics of satisfaction and outcomes, to support '*…shared understanding, trust building, and healing'* (Stewart & Ivala, 2017). This project created fleeting encounters between students and their stories, which we hoped would provide insights to both themselves and the institution, and in part assist with enhancing learning through socialisation and connection to the community (Christie, Tett, Cree, & McCune, 2016).

LSE students tell their stories of learning

In stage one of LSE 2020, each conversation was started with the same simple question - 'What will learning technology look like in 2020?' The slightly flawed intention of this question was to afford the students an opportunity to see through learning experiences through an abstracted lens, projecting the present into a near enough future. In framing the prompts for the conversations, our initial assumption was that students had been exposed to variable uses of technology through their school and previous higher education experiences and in their wider engagement with personal and professional uses of technology. The intention of this design was to expose the deficits in the use of technology (both in terms of a decision to use technology and the expertise and skills inherent in it use).

Arising from the initial questions, students offered only limited suggestions for where more or different technology could be applied within the School. A significant proportion of the stories told by students critiqued how the School used technology, ranging from bad PowerPoint to dated understanding of social media, that confirmed our anticipated deficits in teaching practices. However poorly they viewed the Virtual Learning Environment (Moodle) or the benefits gained from downloadable slides, the stories exposed a clear value proposition for the students. Despite the digital skills gained from using Moodle, the lecture recording system or Turnitin being relatively non-transferable to other applications or uses outside of the University, these technologies were instrumental to support the pragmatic desire of students to pass and succeed in courses, and to that end the efficacy of their use was relatively unchallenged:

> (in) teaching I guess the lecturers they use PowerPoint slides in order to, emphasise or summarise what they are saying in their lectures and they upload these slides on Moodle platform that you use in order to like facilitate and everybody can go on there. And they also upload their readings and all the information regarding the course on Moodle so everybody is expected to use, Moodle in that capacity. Otherwise, we are not, I think from the lecturer's side otherwise technology I wouldn't say is used in any way. (Stage one student)

The normalisation of technology as a key part of the learning experience, critical to fundamental expected academic practices such as reading articles and texts, taking notes and engaging with other students was especially prevalent in stage one. When asked about the technology they used, many of the students did not mention their smartphone or laptop explicitly, instead describing a pragmatic engagement with technology to make learning easier:

> I think technology is the most important thing which is not just revolutionizing our work but making our life and our research work more easier and in the future I'm thinking of being an academician, so technology will play a very vital role in making my research more productive and it will make me more comfortable to do research. (Stage one student)

When seeking to understand this pragmatism more deeply, we started to interrogate how students used technology to support their learning through probing the story of their learning journey. For the majority of students, technology was inseparable from how they engaged in learning and how they enacted the requirements placed upon them by their courses and academics. Students were unable to produce an assignment without their laptops, nor were they able to seek feedback or support from professors or peers in the absence of email or Moodle, or social media applications. Their essays needed to be submitted through Moodle or an on-line dropbox. Timetables and classes were selected and allocated through a non-intuitive and unreliable web interface. Technology was an embedded, constitutive component of university life itself, in the educational, communicative, and social sense.

> **Interviewer: Cool and then one last question. How do you think you will use technology in your career? Very open.**
> Respondent: Well depends what I will choose to do in my career. But I think whatever I choose to do is going to be major part of it because right now we are connected through these devices. We use them for absolutely everything and I definitely feel that a lot of my – a big part of my job will actually revolve around technology (Stage one student)

In stage two of LSE 2020, we focused more on the students learning journey itself. We define the project in the context of the question 'how do students enable and access solutions to critical learning problems and how do they use the technology and practices they bring themselves?' Prompted by flash cards with different social media platforms, technologies and digital practices, students were asked to tell the story of their learning journey through the lens of the technology and digital practices they had in the hand, their head and their backpack

Most students began by talking about the physical devices they used, predominantly in the form of laptops (and increasingly smartphones), which they used to take notes and conduct online research when on campus and during lectures and seminars. Most of the student's work is uploaded to the cloud, to provide seamless access to documents from any number of devices and locations, which can be shared with others. Students share readings through Moodle but also with each other in annotated form. It is at this stage that the University technology interacts with the student's by providing a hub to authorised resources, curated content and formal communications channels:

> **Interviewer: So, compared to your phone, what would you use on your laptop instead?**
> Respondent: So, I think most of the functions are more or less the same because you just like read articles on both devices or sometimes you communicate in both devices it's just when I'm doing it if I am just like mobile I'm not sitting down I will be just doing everything. I'll be using a smartphone, but if I'm at the library or like I'm sitting down (or) I'm like relaxing in a coffee shop, I'll be opening my MacBook and even like messaging and all of the other functions I did on my smartphone I will just do it on a MacBook. (stage two student)

Hardware and devices are used again, especially mobile phones, to maintain connectivity and foster collaboration with other students when off campus. This way, less formal virtual groups are set up amongst students themselves, facilitating conversations and team decisions. Work can be organised, and group work files simultaneously edited by different group members in real-time, allowing for efficient management of team projects. It is at this stage that the student engages back with the University technology to afford the opportunity to upload completed assignments remotely via Moodle, ready for assessment from anywhere in the world, a sense of borderless inter-connectivity:

> The apps I most use are I must say the Microsoft Office products, they are quite helpful for everything, sharing presentations, thoughts, ideas, projects with my colleagues and my family, the One Drive is very helpful as a Cloud. I think most of the things I use in my personal life in terms of applications I use also for the university, because everything is connected and so the fact that, and also in our, it's not like we get to an office and we open our email, refresh our emails, nowadays our professional, our office is with us all the time in our cell phone so our personal and more professional and academic life are very connected. (Stage two student)

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> For my studies I use my smartphone. For the majority of it it's my laptop. I look at readings on my laptop. I take notes on my laptop. Sometimes side by side I'll have the readings, the pages I'm taking notes on concurrently so I can switch back and forth very easily. If I want supplemental information, I can very easily Google up certain things I might have questions about or articles I might immediately relate to any theoretical concepts that I am studying or practical studies that I'm looking at. I also use Facebook when I see a particularly interesting concept that either makes me mad, is quite controversial or I really agree with or something that I'm trying to puzzle out. So, I will reach out to social media and ask my friends, okay what do you think about this? Do you agree with this? Where do you think this might be wrong or where do you think it's strengths are or how controversial the statements are, how they are wrong in all the wrong ways. (stage one student)

This response from an undergraduate student explored the complexities of her life, work and study and how they were shaped and conducted through and with technology. She challenges the authenticity of knowledge, the primacy of the voice and opinion of the academic, the criticality of the experience of 'being there' at the lecture and the importance of her network. Her story is one of connectivity, not in the boxes and wires sense, but the connected world that affords her immediacy and access to information. She is connected to knowledge and expertise, both inside and outside the academy. The student makes the case for technology as connecting tissue, representing the critical importance of her capability to make actions happen in concert with knowledge, skills and understanding to act in a complex, co-ordinated fashion. Technology as the location for personal and professional intersectionality was an experience shared by a significant majority of students. They described, to varying degrees of individual and collective reflective criticality, the efficacy, ethics or societal impacts of using technology or social media for learning and living.

Discovering and describing their own capability and advocacy for the benefits of technology was positioned as contrary to the deficit of technology capability the students observed within their institutions. In stage one, when asked about technology and learning, students almost exclusively described the technology and platforms the University gave them. Underpinning this criticism was a clear and pragmatic belief that despite the idiosyncrasies of the technology and the relatively unsophisticated nature of their use, the technology provided to them was critical to them, primarily to ensure they passed. These tensions exposed stark differences between how students used their own technology and their way they used the technology that was provided for them. In part, the students use of technology and social media for their learning was a choice they made, in response to a learning or educational requirement. A learning task was set by the academics and students were told to respond or engage with the requirements of that task to pass. The students decided whether Google offered the answers, or whether they needed to engage with lecture recordings, the VLE or more widely with their network of peers, both inside and outside the University. The students determined how much credibility was afforded to these sources.

In the survey conducted in parallel with the stage 2 conversations, the majority of students identified sources of help outside the academy, with students on average 2.7 times more likely to consult Google over a friend or peer, as 2.8 times more likely to use Google over Moodle or the teacher as a source of reliable, immediate clarification or information. This reliance on different sources of perceived authentic knowledge was also present in the conversations in stage 2. This interaction between two students in the same conversation is indicative of how technology has facilitated a distributed form of expertise, where authentic knowledge is constructed through less explicit frames than positional authority or intellectual stature or reputation:

> Student 1: If I just want some sort answers really quickly I might just like, I don't know, go online, students that are not necessarily from the course but they maybe from I don't know, other universities, but then it I want more in depth understanding of something I would definitely to the professors.
> Student 2: I think I tend to rely more on like my friends and then like if my friends don't understand either or something like that I go to my lecturer like for my professor, tutors. (stage two students)

In the context of learning at the LSE, this debate about authentic knowledge was an especially interesting finding. The LSE's motto is *Rerum cognoscere causas* which translates from Latin as 'to know the causes of things'. Understanding, interrogation and questioning are at the heart of what an LSE education stands for and what the institution hopes its graduates will take out into the world. What this study identified is that in a modern, digital society, students are drawing on multiple, connected forms of knowledge and understanding residing in both strongly and weakly formed networks to better their capacity to know the causes of things. Whilst institutional technology offered students a single source of truth for requirement gathering, minimum

frames of knowledge (such as readings or assessment) and a formalised pathway to assessment, students used their own technology to fill in the gaps using skills and capabilities often gained through personal and professional uses of technology and social media. Fellow students were not colleagues or group members, they were friends. They were part of their Whatsapp groups, they shared pictures on Instagram and they friended each other on Facebook. Figure 1 shows the relational word cloud, generated in the first instance by word frequency, and then using an algorithm within the software, identified words closely related to the most frequent word counts (i.e. words that were used with the keywords in a sentence).

Figure 1: Sample of the word cloud analysis

The most dominant interrelationship extant in both stages was between technology and critical activity to support and facilitate learning. For example, the word 'think' was most commonly used within the context of aligning 'think' to a wider frame than simply education. The word think was used commonly with words such as 'life', 'play', 'hard', 'work' and then the word 'class'. Learning to think and thinking to learn were both concepts that suggested to these students that their education was not a bounded space, where completing an assessment an arbitrary task that progressively contributed to the completion of a degree. LSE students used technology as a means of creating time to think, whether to afford a more efficient pathway through the mandatory requirements (watching lectures, accessing slides or handing work in online) or as a way of engaging with others to think or validate. Coming back to the story of the student that started this section, she encapsulated much of the experiences of other students by noting how technology facilitated access to knowledge, but also the capacity to validate, critically evaluate or add to that knowledge through networks and contexts in which the knowledge has been applied, noting;

> Especially the commentary helps me when I'm looking at the lecture in the sense that I have an even greater understanding of the material so that when looking at the lecture I can attach it very immediately to physical… especially if it's side theory I can connect it to physical concurrences in the real world I suppose. Yes, so basically helping me to understand it… the material better. (stage one student)

The uses of technology in the stories shared across both stages to facilitate communication, collaboration and community were multifaceted and often complex. Transcending role and location, social media (for example) afforded students the capability to be part of a discipline-based community that extended past the walls of the institution. They could engage with colleagues, they could maintain links with other students after classes had finished, they could participate in discussions and forums with students across the globe and they could begin the formative steps to being practitioners within that discipline:

> I think in some way if the discussion topics for that week were broken down into mini tasks, and perhaps a visual illustration of this person did this task, this person did this task and when they bring it together technology can be used to bring the pieces of the jigsaw together, so you can see everything. So that way you have done an individual piece of research rather than having to research everything and that you've gone into depth and you can share that with your colleagues and everyone shares what they have done and kind of together, brings it together, that form of technology that allows for collaboration. (stage one student)

Conclusions

The futurist and information scientist John Seely Brown has written extensively about what modern learning looks like in the digital age. He makes the case that learning has changed, that learners through how they use technology to learn have in fact changed the nature of learning itself (or perhaps that it has allowed dormant ways of learning to come to the surface that only the connected and massified modes of communication made possible by technology could afford). He notes that:

> The most profound impact of the Internet, an impact that has yet to be fully realized, is its ability to support and expand the various aspects of social learning. What do we mean by "social learning"? Perhaps the simplest way to explain this concept is to note that social learning is based on the premise that our understanding of content is socially constructed through conversations about that content and through grounded interactions, especially with others, around problems or actions. The focus is not so much on what we are learning but on how we are learning. (Brown & Adler, 2008)

Following his argument to its logical conclusions, we cannot assume that all our students will or need to communicate through Twitter, nor does it mean that crowdsourcing, Google searches and Yelp recommendations will replace academic knowledge. But it is in those very defences against using technology that one of the most fundamental tensions in higher education lies; you are either with us or against us. It is a polarised debate, with no middle ground and a series of entrenched positions backed with rigid institutional structures and policies and with all the risk dumped heavily on the shoulders of students. This can be seen in dozens of articles (both academic and popular) advocating for and against technology in the classroom and assessment (e.g. Holstead, 2015; Luo, Kiewra, Flanigan, & Peteranetz, 2018; Sørensen, 2014). How do students respond to this? Through LSE 2020, many of them told us (the academics and the institution) to use our technology better, and through action work to make the educational experience better. They demanded usable systems that afforded them the opportunity to succeed, to complete the academic requirements expected of them and to supporting them to move onto the next stage of their lives.

The analysis also identified how the intersections of student's life, work, play and learning, defined in part through the practices of using technology and social media substantiate the liminality of the student experience at the School. In these liminal spaces, there is a shared understanding of what binds them together (study, pursuit of knowledge, academic qualifications and certification). There is also a sense of flux and uncertainty arising from the practices of doing, the fear of getting it right and the necessity (real or imagined) for success. There are fragile trusts built up between students, forged in the common pursuit of academic achievement which bleed into relationships, both personal and professional, networks and how they are leveraged and cultivated and the broader, more tacit notion of connection. For the students at LSE who took part in LSE 2020, these liminal spaces exposed some of their fears around social media, their sense of connection (or lack of) to their discipline or profession and asserted the emancipatory power of technology to give them ownership over their own learning. The results of stages one and two challenged the assumptions made by designers and academics as to how students engaged with and submitted the educational tasks set for them. It was clear that they students involved in LSE 2020 had a strongly held and defined intention to do something with their education and to be a part of something bigger than a participant in a course or unit of study. They were also clearly committed to sharing their experiences in order to identify improvements for the next cohort of students, to play their part in making the educational experience better. That said, whilst bound by these intentions and motivations, they still exhibited much of the characteristics of liminal beings, they were unsettled, between states and sometimes in spaces that were troubling, transitory and fluid, all of which can be triggers for or results of learning (Simpson, Sturges, & Weight, 2010).

Returning to the student quoted at the top of this section, she was asked '*If you can give me one word that would describe what you would want out of technology, what would it be?'* Her response encapsulates an aspirational desire to use the learning coming from her education at the LSE, with technology providing a magnifying capacity to make that happen by saying '*Access. I would like access to things that I need to further my understanding of the world.'*

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