

## Using a Student-Staff Partnership to Map, Understand, and Develop the Digital Curriculum

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Digital literacy is increasingly central to the experience of learning and teaching in higher education. This paper details the design, implementation, and results of a student-staff partnership project that utilized a mixed method research strategy to “map” the digital curriculum within a sociology program, measure the digital capacity of students across the degree ( $n=104$ ), and explore their experience of that curriculum ( $n=12$ ). The findings reveal that digital capabilities of undergraduates did develop over the course of their degree. However, not only is the development of digital curricula often without signposts, the results suggest that we should not assume that all students are “digital natives.” Indeed, many struggle to adapt to the technological demands upon entering higher education while others fail to connect educational uses of digital technology to their everyday lives. In detailing the tools that were developed as part of the project, the paper goes on to outline the value of student partnerships in the context of information and digital literacy, as well as higher education more generally.

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The purpose of this paper is threefold. Firstly, it builds on the work of Joint Information Systems, or JISC (2014); Killen and Chatterton (2015); and Simpson and Clark (2018), to provide a concrete account of how student partnerships can be used to assess and develop the “digital curriculum” within degree level programs, in this case in the Department of Sociological Studies (SCS) at the University of Sheffield (TUoS). In using the term “digital curriculum” we are referring to those interrelated aspects of a degree program that are directed toward introducing, developing, and enhancing skills associated with information and digital literacy. Secondly, in taking a research-led approach, it demonstrates some of the nuances associated with embedding the skills associated with information and digital literacy within higher education programs. Finally, the paper also offers some reflection on the value of student partnerships in developing digital literacy. The paper will be of use to those looking to mobilize conceptual frameworks of digital literacy into the practice of learning and teaching at modular and program levels, as well as those looking to gain an insight into how digital literacy is experienced by undergraduate students.

### Digital Literacy, Employability, and Student-Staff Partnerships

While the term remains contested, “digital literacy” broadly refers to the ability to understand and use digitized information, as well as the various tools and platforms associated with it (Gilster, 1997). However, more specific definitions, as well as what it might mean in practice, have proved difficult to maintain given the

continued developments in technological capability (Belshaw, 2012). Moving on from initial concerns with both access and ICT skills, information and digital literacies are now considered to encompass a wide range of abilities, skills, and competencies (Ng, 2012). JISC (2014), sponsors of the UK Developing Digital Literacies Programme, for example identify seven key elements of digital literacy: digital scholarship, information literacy, media literacy, communications and collaboration, career and identity management, ICT literacy, and learning skills.

Many commentators have also made the distinction between more concrete skills associated with technological skill and the ideas, capacities, and audiences that construct digital environments (Lankshear & Knobel, 2008). Rather than focusing on a substantive typology, Sharpe and Beetham (2010) also provide a hierarchical framework of digital literacy that imagines learners as progressing through the arenas of access, skills, practices, and, at the very top of the framework, attributes. This is where learners fully realize their digital capacity by being able to make informed choices about how to use technologies. Students at this level are engaged, connected, confident, adaptable, intentional, and self-aware, and they can respond to the technological needs of their environments and their own potential (see also Sefton-Green, Nixon, & Erstad, 2009).

The importance of developing digital literacy is also increasingly being recognized in government policy. According to a recent estimate by the UK Government, there are now over 1.4 million jobs in the digital sector, a figure which is predicted to rise by another one million by 2023 (DCMS, 2016). Another recent report produced by the House of Commons, entitled, “The Digital Skills Crisis,” also highlighted that 90% of new jobs will require digital skills and that 72% of employers would be unwilling to even

interview candidates who did not have basic digital capability (HoC, 2016).

To this end, the UK Government has long recognized the need to address digital skills in the early stages of education (HoC/STC, 2016). Information, communication, and technology (ICT) has actually been a compulsory requirement for all pupils aged between 5 and 16 since the Education Reform Act of 1988. However, implementation proved problematic across the sector, and it was often poorly received and not universally applied to the same standard (Buckingham, 2013). After further consultation in 2013, the UK's Department of Education launched a new "computing curriculum" (DoE, 2013). Alongside Mathematics, Science, English, and Physical Education, this is now a requirement at all four "Key Stages" of the national curriculum.

However, the higher education sector has been somewhat slower to respond to both of the needs of the increasingly digitized workplace (Flavin, 2017). Drawing on survey data taken from over 8,000 HE students, a recent report by Newman and Beetham (2017) variously highlights that while students are broadly receptive to using digital technology in their studies, only 50% agreed that their course prepares them for the digital workplace. Similarly, a House of Lords committee report, entitled "Make or Break: The UK's Digital Future," also recently highlighted that the sector 'had not responded to the urgent need for reskilling' and re-emphasized the need for higher education institutions (HEIs) to provide programs that develop digital capabilities (HoL, 2015).

The reasons why digital development has been slow are inevitably complex (see Flavin, 2017). However, a number of commentators have highlighted how teaching practitioners play a key role in delivering programs that embed practices associated with digital literacy (CLEX, 2009; Friesen, Gourlay, & Oliver, 2014; Goodfellow & Lea, 2013). Evidently, the capacity of any practitioner to build responsive digital curricula is also constrained by the capabilities of the HEI in question (Flavin & Quintero, 2018; Lea & Jones, 2011). Regardless, there is a growing interest in the role of student-staff partnerships in developing digital literacy (Kileen & Chatterton, 2015). While instrumental, and uncritical, uses of the term "student partnership" conceive students as little more than administratively expedient consultants, more considered approaches to partnership emphasize consultation, involvement, and participation (HEA/NUS, 2011). According to one influential review, student-staff partnerships variously emphasize authenticity, inclusivity, reciprocity, empowerment, trust, challenge, community, and responsibility (Healey, Flint, & Harrington, 2014). This means that partnership working between staff and students is about the nature

of relationships and engagements, just as much as they are an outcome or product of the process. It is "an ethos rather than an activity" (NUS, 2012, p 8).

There are some very specific reasons why student partnerships are useful in the context of digital literacy, particularly where change is a desired outcome (Flint, 2015). Indeed, it is exactly for this reason that Killen and Chatterton (2015) argue that student-staff partnerships are particularly effective in developing digital literacy within degree-level programs. While the idea of a divide between digital migrants and "digital natives" is overdrawn—there is diversity both within and between each group (Bennet, Maton, & Kervin, 2008; Henderson, Selwyn, & Aston 2015; Jones & Binhui, 2011)—the distinction does emphasize that there are key differences between staff and students with respect to the design, delivery, and experience of HE-level programs. For example, while teaching practitioners can operate the levers of change within a program, as outsiders they are unable to routinely access the insider knowledge and experiences of the student body. This includes how students make use of rapidly evolving digital technology for the purposes of learning, but also what they would like to see developed or constrained. Similarly, students and staff have different networks, and they have different digital competencies, too. Partnership working allows at least some of this diverse expertise to be a part of the process of learning and teaching.

With these issues of digital literacy, employability, and the benefits of student-staff partnership in mind, this paper details the implementation of a mixed-method research strategy that used a model of student-staff partnership to accomplish the following: map the digital curriculum within an undergraduate sociology degree program, in this case, based within the Department of Sociological Studies (SCS) at the University of Sheffield (TUoS); measure the perceived digital capacity of students with respect to program development; and explore their experiences and expectations of digital literacy as they move through their program. More specifically, the project aimed to accomplish the following:

1. Map the digital curriculum within a sociology program using JISC's model of digital literacy (2014): digital scholarship, information literacy, media literacy, communications and collaboration, career and identity management, ICT literacy, and learning skills
2. Design and deliver a "self-efficacy" questionnaire based on the JISC model assessing perceived digital capacity amongst current students at the end of each year of study (n=112)
3. Conduct focus groups/interviews with students to explore expectations and experiences of digital literacy within SCS with each cohort.

In detailing both the process and results of each stage, the paper provides a means to map, assess, and explore aspects of the digital curriculum. Following a description of both the nature of the partnership and the program structure, each element of the project will be presented in turn. We would expect that each component of the study can be adapted for replication at other institutions and programs other than sociology. Similarly, while we direct our attention to undergraduate programs, the tools we have developed can be applied to graduate level courses.

## Background Context

This project was funded by the University of Sheffield's "Inside Knowledge" scheme. The broad purpose of the initiative was to create student-staff partnerships that could affect significant change in a specific aspect of learning provision within the institution. In doing so, it would aim to 'foster the academic community in departments, with the purpose of making the experience of education better for staff and students alike' (McKay & Bailey, 2017). During the second semester of the 2016-2017 session, the scheme provided modest funding for three partnerships that were designed to effect significant change, and one of these was this project. The funding was directed toward the costs incurred by the department for both staff and student time. Once funding was secured through a competitive tendering process in December 2016, the student partnership position was advertised in January and appointed according to university employment guidance. Bringing a nominated member of the staff and a student together as co-researchers and advocates, the partnership specifically aimed to provide evidence-informed change with respect to digital curricula (see Simpson and Clark, 2018, for further discussion).

The project was completed within the Department of Sociological Studies (SCS) and directed toward the digital curriculum embedded within its undergraduate provision. SCS currently offers two core undergraduate programs: BA (Honors) in Sociology and BA (Honors) in Social Policy and Sociology. These programs typically have around 80 to 100 students per year. The courses are designed to explore the key issues and debates within sociology and social policy, and they are aimed toward the application of sociological insight to social problems and policy solutions. Learning and teaching within SCS is both research-led and inquiry-based in nature, and there is also an increasing emphasis on both employability and personal and professional development.

The degrees are earned over a period of three years, with each year requiring the completion of 120 credits. These come in the form of a number of core and optional modules that are worth 10 or 20 credits. During year one there are 100 credits of core material, and only 20 credits

are optional. There is a further 60 core credits and 60 optional credits during year two, with the 40 credit "dissertation module" being the core requirement of year three. During the 2016-2017 session a total of thirteen 10-credit modules were offered during year one, twelve 20-credit modules in year two, and twenty 20-credit modules during year three.

Modules are typically delivered through a mix of lecture and seminars and/or workshops. These are variously supported by a Blackboard-style virtual learning environment (VLE). While coursework essays are common in optional modules, research reports, research posters, websites, reflective tasks, research reports, and policy briefings all feature within the core assessment portfolio. Electronic submissions are expected with electronic marking and associated plagiarism checking software also the default requirement across the programs. As part of their registration agreement, all students have access to a range of software. This includes Google Apps for Education and various Microsoft Windows packages, including Office.

## Design, Implementation, and Results

### Curriculum Mapping

A number of HEIs have sought to establish institution-wide frameworks of digital literacy (see Halfpenny & Brown, 2016; Evangelinos, Holley, & Kerrigan, 2016; and, Killen, Beetham, and Knight, 2017). However, there remains a paucity of pedagogical tools explicitly devoted to mapping the sequence and content of digital curricula within HE level programs. As a result, we chose to both take inspiration from the "Building Digital Capability" checklist and adapt Jisc's (2014) seven area framework of digital literacy to create a tool that could be used to map digital curricula. More specifically, this meant assessing modules with respect to digital scholarship, information literacy, media literacy, collaborations and communications, career and identity management, ICT literacy, and learning skills.

Indeed, given that many programs are entirely constituted by modular content, we chose to assess these areas at modular level with the idea that this would then enable us to identify those points that introduce, develop, and enhance digital literacy across the entire program. With this in mind, we took a holistic approach to the mapping exercise in terms of examining module content, associated tasks, and assessment. This enabled us to consider not only the formal requirements of the module in terms of aims, learning objectives, and assessments, but also the often diverse range of tasks and activities that can contribute toward these requirements.

Table 1  
*Module Mapping Tool Used to Assess Digital Literacy Within Modules*

Domain	Red	Yellow	Green
Digital Scholarship: To participate in emerging academic, professional and research practices that depend on digital systems	No material relating to the study of ‘the digital society’	Some indirect material relating to aspects of ‘the digital society’	Module is explicitly concerned with ‘the digital society’
Information literacy: To find, interpret, evaluate, manage and share information	Skills associated with information literacy not required by the module	Module tacitly requires information literacy but is not specifically reflected upon	The module has elements that are explicitly associated with information literacy
Media literacy: Critically read and creatively produce academic and professional communications in a range of media	No requirement to engage with forms of media beyond baseline expectations necessary to answer exams/produce essays	Requirement to critically engage with different forms of media as part of the module	Module explicitly requires media/digital production activity
Communications and collaborations: To participate in digital networks for learning and teaching	Collaboration not required as a part of the module	Group work features within the module, but not explicitly associated with digital networks (although these might be used)	Group work via digital networks required by the learning outcomes
Career and identity management: To manage digital reputation and online identity	No material relating to digital identities and reputation	Module covers material relating to digital identities and reputation	Explicit instruction about the production and management digital identities and reputation
IIC literacy: Adopt, adapt and use digital devices, applications and services	No engagement with digital platforms are required by the module	Module requires engagement with digital platforms	Learning outcomes are explicitly directed to digital platforms
Learning skills: Study and learn effectively in technology-rich environments, formal and informal	No engagement with technology-rich environments for the purposes of learning	Informal engagement required with technology-rich environments	Immersive technological environments required to achieve learning outcomes

To assess a module, we deployed a nominal level of measurement that was analogous to a “traffic light” system. This allowed us to chart the curriculum against a pre-specified criterion that broadly alluded to “not present” (red), “implicitly present” (yellow), and “explicitly present” (green). For example, in terms of ‘collaboration and communications’, there is difference between having to do group work that engages with digital systems as a formal part requirement of the module (green), group-facilitated individual work that might involve digital systems (yellow), and much more effervescent group work that occurs within a particular learning context, such as a seminar (red). To this end, we specifically codified the mapping tool to provide some internal reliability to the process. This is presented in Table 1.

Given the nature of the partnership and our relative expertise and experiences of the program, we initially assessed all the modules within the program

independently using both module material and our respective knowledge/experience of the program. We then compared and contrasted our findings. The purpose of this dialogue was not an exercise in inter-rater reliability, although we were pleasantly surprised about how much agreement it produced. Instead, it was a collaborative exercise to use our relative positions to identify points of discussion that would then enable us to clarify what we understood by both the measurement and our interpretation of it. In some cases, points of discussion emerged due to one of us missing something in the module documents and in others because we were not aware of some module activity.

While these discussions are too lengthy to rehearse here, to provide an illustrative example we will again take the example of collaboration and communication. There is a difference between collaborative work that is specifically and directly facilitated by digital platforms

Table 2  
*Results of Module Mapping Exercise*

Domain	Year One			Year Two			Year Three		
	Red	Yellow	Green	Red	Yellow	Green	Red	Yellow	Green
Digital Scholarship	5	8	0	6	4	2	13	4	3
Information Literacy	0	7	8	0	6	6	0	5	15
Media Literacy	11	2	0	6	4	2	4	13	3
Communication and Collaboration	12	1	0	8	3	1	10	9	1
Career & Identity Management	10	3	0	8	2	2	15	3	2
ICT	0	9	4	0	8	4	0	17	3
Learning Skills	0	12	1	0	11	1	0	18	2

and those where the nature of the group work is more serendipitous. Google platforms, for example, have extensive collaborative functions, but these are unlikely to be utilized in ‘within seminar’ tasks (red). However, upon discussing the issue, we quickly realized that group work “between seminars” could result in collaboration that was digitally facilitated (yellow), and all formally assessed group work necessarily utilized communicative digital tools as a requirement of the submission process. A presentation with accompanying slides, for example, requires students to engage with digital platforms, whereas other tasks, such as completing an online ethics form for a research project, similarly require collaborative processes of communication.

Recording the results on a color-coded spreadsheet, we completed this process for all modules on the UG program in 2016-2017: 13 in year one, 12 in year two, and 20 in year three. Table 2 provides a summary of our findings.

A number of key points can be made from the results of the module mapping exercise. Firstly, and perhaps most importantly, there is clearly something of a digital curriculum in place, and the level of content appears progressive as students move through the degree program. All modules had at least two elements of digital literacy embedded within them. Further, while students will not take all modules that are offered, opportunities to engage with aspects of information and digital literacy do increase across the program. There is a clear increase in complexity, for example, in the areas of information literacy and media literacy that would be difficult to “miss” regardless of module choice. The requirement to demonstrate ICT literacy is also high and remains consistent throughout the program. On the other hand, while engagement with communications and collaborations looks to be low across the first two years, tasks around “group working” are actually

embedded across a series of four core modules so that by year three group working is normalized and implicitly embedded within a much larger range of modules. Elsewhere, while engagement with digital scholarship does decrease between year one and two, opportunities to explicitly engage with the topic also increases. That said, engagement with issues around career and identity management are much more limited within the program. While there is some increase in complexity at year three, an inspection of the modules also revealed that these do not take place in the core curriculum and would easily be missed. It is also quite apparent that the enhanced use of technology to enable students to “study and learn effectively in technology-rich environments, formal and informal” was limited. While there were examples of good practice in this respect, these came from just two members of staff. The relatively high number of modules judged to be yellow was simply a result of university-level provision. Indeed, the exercise revealed that much more could be done to enrich the virtual learning environments associated with the program.

### Measuring Digital Capacity

Having identified that there was a digital curriculum to speak of, we then attempted to measure perceived digital capacity amongst students. That is, we made some assessment of how the curriculum impacts student development. At which point it is worth making conceptual distinction between ability and capacity. Whereas digital ability is a series of specific technological skills, digital capacity is concerned with perceived confidence to adapt to change, and in this particular context, changes in technology are inevitable. Calvani, Cartelli, Fini, and Ranieri (2008), for example, argue that digital competence is not just the result of

mastering a particular technological tool or the application of instrumental knowledge. Instead, building digital capacity involves adapting pre-existing knowledge to unknown technologies. Therefore, it seemed more desirable to make an assessment of perceived confidence in adapting present skills to future demands rather than measuring specific abilities now. Indeed, the mapping exercise had already provided a concrete description of the skills and abilities associated with digital literacy across the programs. The aim of the survey, therefore, was to assess students' confidence in their ability to adapt these skills in novel contexts.

To accomplish this, we developed a survey of digital capacity in relation to the key arenas of the JISC model that was informed by Bandura's self-efficacy questionnaires (Bandura, 1997). This approach aims to measure perceived confidence in a given area and attempts to capture someone's general belief in their capabilities to produce given attainments. According to Bandura (2006), perceived efficacy not only affects behavior directly, but also has impact on goals and aspirations, affective dispositions, and the perception of barriers and opportunities in the social environment. Conceptually and empirically distinguishable from intention, self-esteem, locus of control, and outcome expectancy, self-efficacy constructs emphasize "can do" rather than "will do." The purpose of an efficacy scale is not to assess a global trait and is instead to examine a differentiated set of self-beliefs that are linked to distinct realms of functioning. While these sub-domains may covary, multiple measures are employed to reveal the extent of someone's perceived capacity to function within those realms (Bandura, 2006).

To this end, self-efficacy scales were designed to measure perceived capabilities in the seven sub-domains within the JISC (2014) model. Each sub-domain was considered to be multidimensional in nature. That is to say that there are distinct capacities that constitute capability within each of the JISC domains. For example, information literacy variously requires the capacity to locate, evaluate, and reference research. Although inter-related, these are three distinct activities. In the interests of usability, each sub-domain was constituted by three items on the questionnaire. Participants were asked to rate the perceived strength of their capacity achieve a stated task 'on a regular basis' using a scale ranging from "cannot do at all" (0) through "moderately can do" (50) to "highly certain can do" (100).

Digital scholarship was measured by three scales that included being able to: understand emerging discussions relating to "the digital society," apply scholarly insight to everyday digital practice, and appraise emerging literature relating to developments in digital technology. ICT was measured through the perceived capacity to adopt new devices, updates, and applications; use digital skills to help solve problems or

make decisions; and manage data responsibility. Media literacy was assessed through the capacity to creatively produce academic communications, use different media to present ideas, and design digital media for accessibility and usability. Measures for "communications and collaborations" included being able to participate in digital networks for learning, use digital platforms for effective for team working, and use digital applications to communicate. Measures for "career and identity management" included the capacity to manage privacy settings in social media, keep personal and professional identities separate, and update online profiles. Learning skills included being able to listen to podcasts or watch online videos relating to areas of interest, engage with different software to enhance learning experiences, and access material relating to learning interests. Finally, the measures for "information literacy" included having the capacity to run advanced searches using a range of tools (e.g. using filters, advanced search tools etc.), having a range of strategies for judging the credibility of digital sources, and respecting copyright by referencing sources correctly.

Students were opportunity sampled within the context of core lectures, seminars, and workshops during the latter half of semester two ( $n_{\text{total}}=104$ ). While this strategy proved relatively successful for years two and three ( $n_2=42$ , and  $n_3=45$ ), attendance in year one core lectures was poor ( $n_1=17$ ), hence, the relatively low number of respondents, representing approximately one fifth of the first-year cohort. Scores for each item were combined to produce an index score for each subdomain. The summary statistics for each of the sub-domains are presented in Table 3.

Reflecting the general findings of the mapping exercise, descriptive analysis of Table 3 demonstrates a growth in perceived capacity of each sub-domain between year one and year three. That is to say, those students who were approaching the end of their degree program had a greater confidence in their digital capacity than those at the end of their first year. At the end of year one, levels of literacy are highest for information literacy, career and identity management, and learning skills, with scores being comparatively lower for digital scholarship and media literacy.

The steepest learning curve, so to speak, can be seen between year one and year two students, with confidence rising in all areas. However, while this growth continues into year three in the subdomains of ICT literacy, communications and collaborations, information literacy and learning skills, there are slight reductions in digital scholarship, and career and information management between year two and year three. There is also a large, and negative, difference in capacity in media literacy. Indeed, media literacy records the lowest level of perceived capacity in each year across the sub-domains.

Table 3  
*Summary Statistics by Domain*

Domain	Year	Mean	Median	SD
Digital Scholarship	Y1	54.2	53.3	14.7
	Y2	65.8	70	15.7
	Y3	65.1	66.7	17.7
Information Literacy	Y1	68.2	63.3	11
	Y2	72.1	73.3	11.9
	Y3	74.3	76.7	16
Media Literacy	Y1	54	53.3	17.6
	Y2	65.2	66.7	16.3
	Y3	58.9	60	22.2
Communication and Collaboration	Y1	61.6	63.3	12.9
	Y2	72.4	73.3	12.9
	Y3	77	80	15.7
Career & Identity Management	Y1	68.9	70	14.6
	Y2	75.5	73.3	13.3
	Y3	74.4	76.7	15.8
ICT	Y1	58.7	56.7	13.4
	Y2	66.6	66.7	13.9
	Y3	70.1	73.3	16.8
Learning Skills	Y1	68.2	63.3	18
	Y2	72.1	73.3	14.4
	Y3	74.3	80	16.5

The rise and fall in perceived levels of media literacy is likely to be due to core activity within level two research methods modules that focus heavily, and explicitly, on introducing aspects of media production within assessments. While the module mapping exercise revealed there are a number of opportunities to engage with media literacy at level three, these are often only tacitly present within modules, usually in the form of enhanced coursework assessments such as reports, presentations, policy briefings etc., and it may be the case that these are not being clearly labelled as media literacy activity. It is also worth highlighting that there is a comparatively large amount of variation in the perceived capacity of media literacy at year three. Given the group-based nature of media literacy activity in year two, it may be that while some students are developing capacity, others are able “avoid” this by relying on more enthusiastic members of the group to which they have been assigned. The negative difference between year two and three with respect to career and identity management may also be accounted for by an increasing awareness of the rapidly approaching need for employment.

The largest positive difference in capacity occurs between year one and year three in the area of communications and collaborations. That is to say that third year SCS students are more confident in using digital platforms for communications and team-working than their counterparts in years one and two. This

would appear to reflect that the core activity is dedicated to developing group working skills described within module mapping exercise. Elsewhere, there are also gains at each stage in the sub-domain of learning skills. However, the increase in capacity that might be inferred here was not present within the mapping exercise. Given that very few modules provided an immersive learning experience, these results would suggest that students are not developing their learning skills as a result of the virtual learning environments associated with the program.

### **Expectations and Experiences of the Digital Curriculum**

Finally, we sought to explore how students experienced the digital curriculum, and their digital histories more generally, by conducting two focus groups with year one and year two students and a series of interviews with year three students. The interview schedule focused on five discrete areas of interest: awareness of digital literacy; importance of digital literacy; educational experiences of digital literacy before entering the university; experiences of digital literacy on entering the university, as well as their progression through it; barriers to digital participation; and expectations of the future with respect to digital literacy. Thematic analysis of the data (see Braun & Clarke, 2006) revealed three key themes in the

experiences and expectations of the students. These were the diversity in their respective digital histories, their experience of digital transitions into higher education, and their growing confidence in digital capability. Each is dealt with in turn.

Firstly, the analysis of the data revealed that there was much diversity in their previous experience of “the digital” in respect to education, as well as their use of digital technology in everyday contexts. Indeed, unlike early generational characterizations that homogenized students as “digital natives,” interviewees in this sample not only had diverse orientations towards technology generally, but also, they tended to make tacit distinctions between personal and educational engagements with digital platforms. So while there was a fairly constant, but individually very diverse, background use of digital technology in their personal lives, their specific digital engagements in the context of education were much more sporadic. Interviewees demonstrated a marked tendency to implicitly construct a disassociation between their personal uses of digital technology and more educational ones, with one being largely separate from the other (Hinrichsen & Coombs, 2014). For example, even though one interviewee was clearly well-versed with many social media platforms and software packages, the person went on to suggest, “I just went to school, used books, came home. I never really used digital literacy.” This has not gone unnoticed elsewhere, and there is an emerging body of work that has recognized that the transfer of digital skill sets from personal contexts to educational ones, and vice versa, is problematic and cannot be assured, particularly in the arenas of information management and identity awareness (Judd & Kennedy, 2011; Littlejohn, Beetham, & McGill, 2012).

There was, however, variation in their engagement with digital technology as they moved through the education system more generally. So, while there appeared to be some interesting uses of technology in primary education that did promote digital literacy—there were fond memories of “Easy Keyzy,” “Microsoft Magic,” and “Frog”—direct educational experiences of digital technology tended to dissipate during secondary school. By the time our interviewees reached further education, engagement with digital literacy was, for many, non-existent unless they specifically sought it out. So, whereas one interviewee remembered that he or she had just “three computers in the sixth form block,” another recalled the following:

‘I did A-level ICT anyway, so obviously I did it then. But apart from that, for all my other A-level subjects I didn’t use it...God knows why I went on to do [ICT] at A level because it was the duller subject in the world.’

However, in spite of the formal reliance on “A level textbooks,” some students did use their personal

experiences of technology to augment their learning, particularly as a source of clarification. YouTube, for example, was highlighted as a particularly useful tool during revision: “When I was doing my A-levels YouTube was a massive part of my revision - like going on YouTube and looking on there.”

This was all in contrast to their point of arrival at TUoS where they described their transition into higher education as “a big step up” to the point of “information overload,” which was very “daunting.” Digital literacy was a central point of delivery in terms of information (email), course content (the VLE), and activities associated with being an undergraduate student (accessing resources). One student suggested, “It felt like it was a step up, it was definitely a step up. Going on the reading list and finding a book, I guess it’s more the atmosphere of using it.” Another offered the following:

It was a bit daunting going on to [the library website] and [the VLE] for the first time. I remember going on and seeing that I had 50 notifications and messages in the top corner, and I remember thinking, “I’m going to fail my degree because I’ve not read these messages!”

The overarching feeling was that it was “too much, too soon” and that things “could’ve been a lot simpler.” Some second years reflected that, due to the information overload, key messages were not getting through:

There’s so many things out there that can be used, but I feel like they’re not that well-advertised to us. Like, I have had them, I’ve heard them mentioned and stuff - and you can go on the university website and it says a list of all the different databases and digital tools you can use - but I wouldn’t say I was fully aware of them and I certainly don’t use them all...

There was also some concern, particularly in the level three interviews, that the skills they had learned would not directly benefit them going forward into the workplace:

But there’s things like SPSS that I’ve used at the time, and I’ve never used again. I didn’t understand it at the time, and I’m not sure I’ll ever get my head around it...[S]ome things are very university specific, like [the library system], and I’ll probably never use it again....I think if I did a masters I’d be well equipped. I’d say I am quite computer savvy, but that’s from my own experience more than what the department has provided me. Most of what I’ve done has been self-taught.

A key method of negotiating transition was to simply draw on their previous experiences and



experiment with the technology to see what worked: “I think for the majority of us, we just crack on and get on with it. We know the basics and stuff so when it comes to Uni you just click around and see what works.”

Many interviewees also recognized that as they progressed through their degree, their confidence did appear to grow. These second years, for example, suggested: “I don’t know [what more could be done], because I can’t imagine I’d need much more. I’ve been introduced to many different adaptations over the past year. I think I’ve got a pretty advanced level of digital literacy.” Another noted, ‘Yeah, I can’t imagine the department putting in anything different in third year that we’re going to be like ‘Oh God, I’ve not had to deal with this before.’”

Indeed, some of the more reflective students commented on the changes that they had experienced across the program, and they appeared to recognize the need to adapt to the changing demands of technological development: “Digital literacy is something that develops and changes over time, it’s not just something that you have or don’t have....We’ve got to adapt, like digital chameleons.” So, while the indirect benefits of engaging with digital platforms could be better narrated within the program to better explain the purpose of developing the skills and capacities associated with digital literacy, the results of the qualitative findings generally support the upward trajectories outlined in the quantitative results.

### Discussion

This paper builds on the work of JISC (2014), Killen and Chatterton (2015) and, Simpson and Clark (2018), to explore how a model of student partnership can be used to assess the “digital curriculum” within undergraduate programs. In doing so, it provides a means to map and explore aspects of the digital curriculum, measure digital capacity, and explore digital histories and experiences. In respect to the findings specifically, we are able to make five key points. Firstly, the mapping exercise reveals that there was a digital curriculum within SCS programs. However, and secondly, this was not always well articulated at the modular or program level. Thirdly, this can have the consequence of students feeling overwhelmed at the beginning of their program where the learning curve is at its steepest. Fourthly, in this particular case there is a general increase in capacity across all areas over the course of the program. Finally, while this trajectory does flatten out towards the end of the degree, it does appear that these particular students are moving out of higher education with some increased “digital confidence.”

However, beyond the confines of this case study, it is possible to make a number of broader points about

the nature of “the digital curriculum” and the importance of student-staff partnerships in relation to it. In the first instance, while statistical generalizations cannot be made from the results presented above, the results remain instructive. The technology that is utilized by many higher education institutions both within the UK and elsewhere means that the general experiences of undergraduates are likely to be similar across institutions. The emphasis placed on email communication and social media, the breadth – but perhaps not always depth – of VLEs, the expansion of library provision and associated services, the growth of online administrative requirements, and the gradual development and diversification of assessment and feedback all necessarily require increasing levels of digital competence. Alongside the general emphasis on independent learning, many of the skills and capacities necessary to navigate this terrain will often be tacitly assumed rather than explicitly taught. For those entering higher education, this will often be in direct contrast to their experiences of further education, which is likely to be typified by classroom-led, and textbook-based, approaches that are scaffolded to exhaustion. Similarly, echoing the point of Jones, Johnson, & Gruszczynska (2012) that “students will only acquire digital maturity if we take the time to consider what they need from us,” the modular nature of disciplinary degree programs means that many are unlikely to specifically draw out, connect, and narrate those implicit and explicit elements of digital literacy that exist across the entire bandwidth of a particular degree. All of this plays out against the increasingly diverse array of digital and technological histories and practices that students possess and utilize in their everyday lives.

In part, this is why student-staff partnerships are important in developing both the means to map, understand, and develop “the digital curriculum.” While staff have the technical means to develop modules and programs, students themselves possess the working knowledge of what skills and capacities are necessary to navigate those courses. Not only can they identify points of transition and resistance in terms of their progression, they can also help formulate the questions that are often necessary to further investigate and develop those emergent points of interest. In doing so, partnership working in the arena of the digital curriculum also has the ability to go beyond homogenized stereotypes of the “digital native.” As previously highlighted, generational attitudes and dispositions toward digital technology – and their position within learning and teaching in higher education specifically – are marked by diversity rather than homogeneity. The divergent nature of partnership working has the potential to recognize, understand, and respond to this variety of experiences. This is especially important given the continuing evolution of

applications, software, and platforms that are associated with digital technology. Moreover, in a rapidly developing technological world where enthusiasm can often overtake utility, student-staff partnerships can also reveal where innovations might not be as helpful as initially might be imagined.

But beyond such practical and perhaps instrumental utility, partnership work can also enable more inclusive relationships between students and staff, especially where these relations are characterized by, and through, an open dialogue. In turn, this can help build an environment whereby students feel more able to take ownership of their learning so they can shape their university experience towards their own needs and interests. This is not to say that partnership working is entirely unproblematic (see Simpson & Clark, 2018). However, to return to Healey, Flint, & Harrington (2014), partnership work is concerned with the process of working, just as much as it is the outcome of it. It also offers ways of thinking about “the digital curriculum” that resonates strongly with the collaborative ideals that continue to inform much digital enterprise, and in this particular case, it enabled us to introduce, and demonstrate the value of collaboration, interaction, and partnership within the context of both the department and the wider university.

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