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RESEARCH ARTICLE

Defining a self-evaluation digital literacy framework for secondary educators: the DigiLit Leicester project

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Despite the growing interest in digital literacy within educational policy, guidance for secondary educators in terms of how digital literacy translates into the classroom is lacking. As a result, many teachers feel ill-prepared to support their learners in using technology effectively. The DigiLit Leicester project created an infrastructure for holistic, integrated change, by supporting staff development in the area of digital literacy for secondary school teachers and teaching support staff. The purpose of this article is to demonstrate how the critique of existing digital literacy frameworks enabled a self-evaluation framework for practitioners to be developed. Crucially, this framework enables a co-operative, partnership approach to be taken to pedagogic innovation. Moreover, it enables social and ethical issues to underpin a focus on teacher-agency and radical collegiality inside the domain of digital literacy. Thus, the authors argue that the shared development framework constitutes a new model for implementing digital literacy aimed at transforming the provision of secondary education across a city.

Keywords: digital literacy framework; professionalism; radical collegiality; secondary education; transformation

Introduction: the educational policy context for digital literacy

The concept of digital literacy is increasingly recognised as a critical terrain for 21st century life (Beetham, McGill, and Littlejohn 2009; Ferrari 2012; United Kingdom (UK) Joint Information Systems Committee [JISC] 2012a). As early as 2006, the European Union (EU) Council report (The European Parliament and The Council of the EU 2006) proposed Digital Competence as one of eight Key Competences for Lifelong Learning. The Key Competences agenda catalysed other European studies that focused on digital competence or literacy, and their importance in enabling learners to thrive in modern society (Ferrari 2012; Ryberg and Georgsen 2010; The Network for IT Research and Competence in Education [ITU] 2009).

In England and Wales, this agenda is affecting policy. In January 2012, the Secretary of State for Education, Michael Gove, announced that the existing Information and Communication Technology (ICT) curriculum was to be withdrawn, with a new National Curriculum to be in place in 2014 (Department for Education [DfE] 2012a). In early 2013, the DfE opened a consultation on the reform, with proposals

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including the creation of a new Computing Programme of Study. The draft of this new programme anchored the curriculum in individuated or atomised digital practices: 'A computing education also ensures that pupils become digitally literate – able to use, and express themselves, through information and communication technology – at a level suitable for the future workplace and as active participants in a digital world' (DfE 2013, p. 3).

The inclusion of digital literacy at the interface of policy and practice suggests a growing politicisation of the need to formalise the provision of digital skills and knowledge within compulsory education. However, there have been a number of criticisms of the Computing Programme, which are generalisable to the wider domain of digital literacy. These pivot around the co-option of digital, pedagogical practices to support narratives of economic growth (Hall 2013; Newfield 2010; Osborne 2013), which subsume educational attainment and social justice inside agendas for commodification, marketisation, employability and enclosure.

The criticisms can be summarised as follows:

- The framing of digital literacy in terms of computer science or ICT skills and competencies has produced a very limited definition, which fails to recognise that digital literacy is process based, and is a way of thinking about technologies and their relationships to individual and social practices (Twining 2013; Webb 2013).
- The Programme reflects the policy driver for prescriptive curricula, which are biased towards computer science and programming skills. Thus, a more critical approach to digital skills, practices and knowledge, situated across a range of pedagogical contexts and learning activities risks being marginalised.
- Staff responsible for delivering the new curriculum are not well equipped to teach computer science or digital literacy (Springford 2013; Twining 2013), and this has implications for pedagogic innovation and curriculum management.
- The focus on employability rather than social inclusion risks ossifying existing exclusionary practices in the online and offline worlds (Beetham, McGill, and Littlejohn 2009; Belshaw 2011; Newfield 2010). It reflects an entrepreneurial turn in the management of the curriculum, where the econometric focus on producing commodity skills that can be exchanged, is a form of alienation of both the learner and the teacher from a wider range of social, classroom practices.

These criticisms underpin the two main themes of this article. First, that secondary staff welcome critical guidance on how to integrate relevant practices in their classrooms, in order to support a diverse range of learners (Hague and Williamson 2009; Johnson 2008), and that this is best achieved in partnership. Second, that a focus on pedagogically grounded, self-evaluation of digital literacy underpins a reassertion of teacher professionalism. These themes stress teacher-agency and radical collegiality, in enabling practitioners to describe alternative, critical pedagogic strategies. This article will address these points by analysing the co-operative response of one UK city council, working with its teaching and support staff and a University, to the

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development of secondary school staff digital literacy. Crucially, this response pivots around the creation of an infrastructure for holistic, integrated change.

Scoping an infrastructure for change

Making sense of policy in practice

Criticisms of the proposed UK Computing Programme raise a common issue: as policy redefines what it means to be a competent teacher, do educators have the necessary skills, practices and knowledge to support learners as they develop their own digital literacy? As policy set an international agenda for digital innovation (United Nations Education Scientific and Cultural Organisation [UNESCO] 2014), a focus on the digital literacy of teaching staff rooted in pedagogic design becomes critical. At issue is how staff can be supported in making sense of classroom-based technological innovation in an increasingly politicised curriculum context.

This tension between policy and practice is complicated by the contested social, institutional and personal nature of the term 'digital literacy' (Belshaw 2011). The need to take a critical approach to understanding the skills, practices and attributes of digital learning, teaching and citizenship, led Beetham, McGill, and Littlejohn (2009, p. 67) to ask: 'how do we recognise the changing contexts (new opportunities and challenges), bring them into the institution in ways that are accessible to learners, change our teaching and support practices, and help learners transform their practices to become more effective learners, workers and citizens?'. This question articulates the complex and shifting social and personal spaces inside-and-against which digital literacy emerges.

Despite the growing interest in digital literacy at policy level, limited research currently exists relating to the effective integration of digital literacy into everyday school settings (Belshaw 2011; Hague and Williamson 2009). Allied to this, there is a lack of guidance for teachers in terms of how digital literacy translates into classroom practice (Payton and Hague 2010). Without a consensus on the meaning of digital literacy, the historic evidence of teachers feeling ill-prepared to engage their students with technology in a meaningful way (Almås and Krumsvik 2007; Pianfetti 2001) is amplified.

A separate issue in practice-based innovation is how to support continuing professional development (CPD) for practitioners. Extant research highlights the importance of predicating development on trusting relationships, especially where collaborative CPD is planned (NASUWT 2012; The CPD Review Group 2003). For the CPD Review Group (2003, p. 63), in teacher-focused CPD: 'Policy-makers, at every level, responsible for developing CPD should consider whether activities take full account of the specific needs and concerns of teachers in their implementation strategies and put in place arrangements to develop and foster teacher ownership and avoid an over-managerial approach'. Baumfield and Butterworth (2007) focused on the development of radical collegiality that is based on models of enquiry, and which in turn may help to bridge the tensions that exist between long-standing associations and more ephemeral social networks. A focus on radical collegiality in CPD, where co-operative exchanges are based on trust and where disclosure about practice is negotiated, has the potential to increase teacher-agency and reduce perceptions of managerialism (Daly, Pachler, and Pelletier 2009). How might an

enabling infrastructure be created, in order to develop the digital skills, practices and knowledge of secondary school practitioners?

The relationship between infrastructure and practice: the DigiLit Leicester project

Developing an enabling infrastructure against which professionals could evaluate their own digital literacy was critical for Leicester City Council, following the £350 million capital investment in its secondary school estate. This investment was funded through the UK Government's Building Schools for the Future (BSF) programme, and 25 secondary school sites across the city will be rebuilt or refurbished by 2015. The Council views this capital programme as a catalyst to 'raise standards of attainment, improve their well-being and close the equality gaps in health and education' (Leicester City Council 2009). However, a connected strand of work was required that would engage educators reflexively, in order *both* to make best use of this infrastructural investment, *and* to support the transformation of educational provision across its secondary schools.

In order to generate a momentum for interventions with educators, it was important that the structures and practices that would support transformational learning could be scoped. A critical piece of preparatory work was the *Learner Voice in Leicester* report, which heard the voices and aspirations of young people across the City, in order to help the Council 'to deliver services *with* rather than *for* young people' (Fraser and Sykes 2011, p. 5). The report highlighted Leicester's Top Ten Learning Technology priority areas, which were pedagogically and co-operatively focused on more creative uses of technology for learning that should be increasingly student-led and collaborative. These priorities were predicated on the role of teachers as mentors in the use of digital media. As the *Decoding Learning* report points out, 'teachers have a crucial role in ensuring that promising innovations do not fail in practice' (Luckin *et al*. 2012, p. 55).

Critically, the capital BSF Programme offered a unique opportunity to work towards a step-change in practice, by connecting infrastructural investment with agendas for practice-based innovation. In order to support the city-wide development of digital literacy, a knowledge exchange partnership, the DigiLit Leicester project, between Leicester City Council and De Montfort University (DMU) was initiated. The partnership was based on the exchange of expertise in digital practice and evaluation between DMU's Centre for Enhancing Learning through Technology (CELT 2014) and the City Council's Children's Capital team. The partnership aimed to create and transfer relevant educational outcomes from the project across two public-sector bodies, in order to create a meaningful educational development infrastructure that would underpin change across the City. The project team also aimed to be open and transferable to other teams in navigating the interface between educational policy and practice (Fraser, Atkins, and Hall 2013).

Methodology: designing an infrastructure for change

Defining digital literacy

A starting point for the project team was the development of a working definition of digital literacy that would open-up discussions with practitioners. This working definition emerged from an analysis of the extant research, interpreted for the

Leicester context (Ala-Mutka 2011; Bélisle 2006; Educational Testing Service 2002; Ferrari 2012; Fisher *et al*. 2012; JISC 2012a, 2012b; Martin 2002; NAACE 2012; UNESCO 2008). The purpose of the working definition was *both* to define the initial boundaries of the Project, *and* to provide some conceptual clarity. At the same time that teaching staff were being asked to be reflexive in addressing their digital confidence, the project team had to remain reflexive in its practices and conceptual awareness.

The following working definition focused upon the work of educators:

> Digital Literacy refers to the skills, attitudes and knowledge required by educators to support learning in a digitally-rich world. To be digitally literate, educators must be able to utilise technology to enhance and transform classroom practices, and to enrich their own professional development and identity. The digitally literate educator will be able to think critically about why, how and when technology supplements learning and teaching.

This recognises the importance for staff: first, in developing the skills to utilise technology purposefully within the classroom; second, in critiquing the underlying knowledge and attitudes that enhance their existing practices; and third, in being positive role models for the critical use of technology. This criticality was central to the DigiLit Leicester project's work, and reflects Bawden's (2008) point that 'an important part of digital literacy is knowing when to use non-digital sources' (p. 28). Individual critical judgement is important in unpacking how the working definition might underpin a transformative infrastructure to support CPD. At issue was the form that such an infrastructure might take, in order to enable an engagement with innovation by teachers, schools and the City.

Designing a self-evaluation framework

The use of self- or peer-evaluation frameworks is a core digital literacy strategy that is revealed by an evaluation of *both* school-based, pedagogic practices *and* the approaches of professional organisations. The project team used a critical analysis of these frameworks to identify key digital skills, practices and knowledge, which would in turn enable pedagogic themes to be distilled and CPD to be described. Central to this approach was the creation of a self-evaluation framework for secondary school educators, which is developmental and progressive, rooted in co-operative pedagogic practice, and that would provide teaching staff with a structure for developing their own skills and practices. Framing the social support for teacher-agency was fundamental.

Much of the research in this area currently focuses on the digital literacy skills of learners or on institutional practices (Fieldhouse and Nicholas 2008; Gillen and Barton 2010; Welsh and Wright 2010), and only small pockets of research concern the skills of educators (Almås and Krumsvik 2007; Pianfetti 2001). Therefore, a range of frameworks was included in the review, in order that a broader critical perspective could be generated. The prevalence of learner and institutional frameworks offered an opportunity to analyse how the digital skills, practices and knowledge required of educators might affect and be affected by these other constituents. This enabled the contextual conditionality of the term 'digital literacy' to be interpreted for the project.

To generate a framework that situated secondary school staff digital literacy, the following frameworks were chosen for review.

The analysis of the existing frameworks focused around the following questions:

- How is digital literacy defined?
- What are the key areas of digital literacy that are highlighted?
- How is progression through the framework structured? Are the levels explicit? Are they independent or do they build upon one another?

Consultation and piloting

The draft DigiLit Leicester Framework was presented to *both* senior leaderships from five schools in Leicester *and* six experts in the field of digital literacy (Atkins 2013). Inclusion of school senior leadership at this stage reflected their importance in the success of CPD programmes. Reviews of CPD related to ICT (e.g. Daly, Pachler, and Pelletier 2009; NASUWT 2012) identified that success depends heavily on the extent to which an individual school supports developmental activities. This is in keeping with Billett's (2001) work, which highlights the importance of the workplace in giving permission for staff to define and engage in personally meaningful development. This, in turn, catalysed consultation with national experts in the domain of digital literacy, in order to negotiate the framework's wider, social and educational validity.

The consultation phase sought to test the theoretical underpinning of the themes and structure, and the process of roll-out across the City. The key was to define a valid self-evaluation tool that could be implemented in a contextually-sensitive manner. The final draft of the framework was then used in a small-scale pilot study with teaching staff from five schools across the City, who represented a mix of mainstream, special educational needs, and faith schools. In the pilot process, the project's Research Associate conducted semi-structured interviews around four key topics related to the validity of the Framework. These topics related to the participant's:

- current use of technology to support teaching and learning;
- confidence in the use of technology;
- experience of using the DigiLit framework; and
- engagement with professional development opportunities.

These topics captured not only a participant's engagement with the DigiLit Leicester framework but also uncovered information about their own skills, practices and knowledge, in order to scope the validity of the framework in diverse contexts.

Defining the self-evaluation framework: a critical review of existing frameworks

Framework themes

The analysis of extant frameworks (see Table 1) was undertaken independently by each member of the team and generated a set of core thematic areas. These areas were then discussed by the team in the context of the Leicester BSF schools, so that a bespoke framework could be created. There was no clarity in definition, themes or structure across frameworks and there was no explicit secondary-level framework. Some frameworks focused upon an explicit organisational approach, as in the case of the JISC (2012a), which suggests 'a holistic approach to reviewing how digital

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Table 1. Digital literacy frameworks reviewed by the DigiLit Leicester team.

Name	Author/s	Scope	Structure
DECK	Fisher *et al.* 2012	Teachers	None
DIGCOMP	Ala-Mutka 2011; Ferrari 2012	Learners	3 levels
DigEuLit	Martin and Grudziecki 2007	Learners	3 levels
Digital Literacies Organisational Review	JISC 2012a	Institutions	None
ICT Competency Standards for Teachers	UNESCO 2008	Teachers	3 levels
The ICT Framework	National Council for Curriculum and Assessment (NCCA), Ireland 2007	Learners	3 levels
iSkills Assessment	Educational Testing Service 2002	Learners	2 levels
The Professional Development Matrix	Martin 2002	Teachers	4 levels
The Self-Review Framework	National Association of Advisors for Computers in Education (NAACE) 2012	Institutions	4 levels

literacies are developed and embedded within their organisation' (p. 1). Based on the definition created through its *Developing Digital Literacies Programme* (JISC 2012b), the JISC developed seven significant thematic areas of digital literacy.

- Be safe in a digital environment.
- Find, evaluate and apply information.
- Use digital tools – hardware/software.
- Understand social responsibility.
- Showcase achievement.
- Awareness of digital identity.
- Collaborate – education, community & work life.

Akin to the JISC's work, the majority of frameworks were structured around a number of key areas, which are comprised of: sets of specific skills related to resources or communication; and, individual practices or capabilities related to on-line identity (Ala-Mutka 2011; NCCA 2007). However, the DigiLit Leicester team had to balance the pragmatic need to collapse complex concepts into discrete collections of skills and practices so they made sense in a process of self-evaluation, with the reality that digital literacy is more than just the mastery of particular tools or abilities. A framework was required that reflects an essential set of contextualised practices, and which includes a critical attitude towards the use of technology (Bawden 2008).

A more suitable approach was to consider the practices enabled through technology, as demonstrated within the teacher-focused DECK framework (Fisher *et al*. 2012), which looks at specific learning activities in four areas.

- *D*istributed thinking and knowing.
- *E*ngagement and motivation.
- *C*ommunity and communication.
- *K*nowledge building.

Whilst these areas or themes encapsulate much of what it means to be digitally literate, for less confident users there is a lack of clarity about what each entails.

In more generic frameworks, the desire to be comprehensive yet concise can result in key themes lacking contextual specificity for users. For the purposes of developing the DigiLit Leicester Framework, it became apparent that key themes should not only be self-explanatory and easy to decipher but also clearly linked to everyday classroom practices at all levels of confidence. Central to this was the documentation that would support individual practitioners in interpreting and using the self-evaluation framework.

The most commonly mentioned aspect of digital literacy throughout the literature was that of critical thinking and evaluation (Beetham, McGill, and Littlejohn 2009; Educational Testing Service 2002; Martin 2002; NAACE 2012; UNESCO 2008). Such criticality involves the ability to reflect on how technology can be used to enhance a given learning situation, with judgements about method and application. It also developed the ability to evaluate information sources and judge their suitability and reliability. This reinforces the fact that literacies related to the digital sphere are often thought of as being more about critical evaluation than technical competence (Gilster 1997). However, such critical skills are predicated upon fundamental information management practices, including the ability to evaluate sources. The mastery of strategies for finding, organising and sharing is so pivotal that it demands 'a re-focusing of user education' (Martin 2006, p. 12). A key issue arising from the analysis was how to ensure progression across a framework that differentiates modes of criticality for specific thematic areas, like finding and evaluating resources or collaboration. For DigiLit Leicester, it was important to define an interpretative framework, underpinned throughout each of its core themes by a critical, contextual appreciation of skills, practices and knowledge.

Another recurring theme in the review was the use of technology to support collaboration and communication (Ala-Mutka 2011; Ferrari 2012; JISC 2012b; Martin and Grudziecki 2007), including with other learners and professionals beyond the school community. This focus on collaboration connects to the idea that the consumers of information might also be the makers or producers of knowledge. In these sets of social activity that pivot around consumption and production, creativity emerges as a key facet of digital literacy (Fisher *et al*. 2012; NCCA 2007; UNESCO 2008). Whilst such creativity risks being subsumed under entrepreneurial dictates and policy agendas surrounding employability (DfE 2012a; Osborne 2013), it does enable practitioners to describe how they use digital tools for creating, repurposing and adapting information and resources. Moreover, it enables a co-operative pedagogic agenda to be defined that focuses upon the social use, sharing and production of multi-media artefacts.

Such co-operative strategies are important in the DigiLit Leicester framework for two reasons. First, they linked to agendas around making as a pedagogic process (Hackerspaces 2014; Makerspace 2014), and offer curriculum-based mechanisms for resisting *both* the commodification of production around web apps, digital artefacts, programming skills and so on, *and* the alienation of the individual teacher or learner from her peers. Second, the majority of frameworks do not focus on strategies for peer-led or co-operative CPD, which might be both radical and collegial. In order to push back against performance management agendas for digital literacy, this became a core component of the framework.

Underpinning all online activity is the importance of responsible and ethical behaviour, and developing an awareness of one's digital identity and the consequences of online actions in a global context. Whilst certain aspects of e-safety emerged from

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the review, only three of the nine frameworks reviewed included identity as an explicit area of digital literacy, and these were school or policy-level frameworks (Ala-Mutka 2011; NAACE 2012; NCCA 2007). The frameworks aimed specifically at teachers did not refer to issues surrounding the safe use of technology, possibly because they were more focused on classroom activities and skills, rather than underlying attitudes towards technology use. For the DigiLit Leicester Project, it is critical that any self-evaluation framework identifies that digital learning and teaching are associated with personal and social attitudes and risks that require critical judgement.

Taking an ethical stance that is developed socially is also a critique of the deterministic assumption that technology and digital practices are neutral, and that equality of opportunity is the key issue (Davies and Enyon 2012; Leicester Child Poverty Commission report [LCPC] 2013; Livingstone, Görzig, and Ólafsson 2012). From this flows a critique of the idea that digital practices are simply individuated skills that can be commodified and learned. Instead those practices are more usefully defined and situated co-operatively and developed collegially, and recognise that teachers' statutory duties relating to safeguarding extend to digital as well as physical environments (Office for Standards in Education, Children's Services and Skills [Ofsted] 2014). Thus, *e-Safety and Identity*, which focuses on the social and personal implications of digital professionalism, emerged as a key theme for the DigiLit Leicester framework.

Finally, the analysis of frameworks demonstrated that the subjective nature of material, classroom skills and practices required the framework to be anchored in pedagogy. As Daly, Pachler, and Pelletier (2009, p. 7) note, 'just practising' does not present enough of an intellectual challenge. Teachers require the opportunity to link new skills to existing practices and to think about how technologies can be successfully integrated into their teaching. Garet *et al.* (2001) reported that hands-on professional development, which is integrated into routinised school life, is more likely to result in improved skills, practices and knowledge. As a result, the content of the DigiLit Leicester Framework is grounded in professional practice: it will not ask staff what they can *potentially* do, but help teachers to uncover what skills and practices they *actually* apply to their teaching. It is a personal, professional reflective activity. However, a key consideration was progression and the positional nature of the self-evaluation framework.

Framework structure: towards transformative practice

The reviewed frameworks are structured around three or four levels, which tend to reveal a deficit model at the lower levels and predicate critical digital engagement on progress from very basic requirements to the demonstration of expert, transformational skills, practices and knowledge. For instance, the levels defined within the DigEuLit project (Martin and Grudziecki 2007) move from 'digital competence', generic skills and approaches, to 'digital usage', the professional application of these skills and finally onto 'digital transformation', where innovation and creativity occurs.

The focus on terms like competence and transformation might themselves become disciplinary, in that they risk producing specific, performative behaviours. Not only do they suggest that progression is experienced in a standard manner, but they also scope a digital space in which the development of 'expert skills' can be used to drive individuated performance management. In reality, learners and educators develop differential and context-specific strengths across a range of practices, which need to be

reflected in any framework themes. In order to support the co-operative development of diverse skills, practices and knowledge across educational settings, the DigiLit Leicester framework refrained from collecting and awarding an 'overall level' to individual staff, and focused upon a self-directed journey across a range of framework themes. This was a reflection of the core values of developing teacher-agency and respecting professional judgement.

The project team were concerned about ways in which they might support progression by: evaluating the spread of staff across each individual area in the framework; providing more granular feedback to practitioners; and developing co-operative, peer-based professional development. The NAACE (2012) Self-Review Framework was important in this respect. Whilst not explicitly labelling its structure, it shows progression across four levels, which represent a transition from isolated activity or interest, to whole school integration or engagement. Importantly, this framework evaluates the social and contextual use of technology rather than being organised around individual practitioners.

Whilst accepting that levels inside a framework should be distinct in order to be meaningful in practice, the DigiLit Leicester team valued an infrastructure through which practitioners could build upon their skills, practices and knowledge, contribute to those of their peers, and root this in their pedagogic practice. In particular, Martin's (2002) ICT Pioneer Teacher Progression Matrix, and Bélisle's (2006) approach to contemporary literacy, were critical in enabling a realisation of this pedagogic theory-in-practice, because they flagged progression through a range of transformative socio-cultural practices.

Martin (2002) used four, developmental levels within his framework: Entry-level; Aspirant; Practitioner; and Consultant. Martin argued that this structure 'captures the movement from one who hopes to develop the attributes of an ICT pioneer teacher, through one who is able to demonstrate some of the qualities, to one who becomes a resource to others' (p. 4). This pattern of progression appears grounded and realistic in terms of how teaching staff may develop their skills collegially. Martin also added an entry-level, to account for the minimum characteristics of staff embarking upon such a professional development journey. The idea of digital practice as a flow or journey was central to its social situation.

Bélisle (2006) identified three levels of contemporary literacy: functional; socio-cultural; and transformational. The functional model sees literacy as a set of simple skills required to function effectively within the community. In the school context, this translates to the minimum skills a member of staff needs in order to operate effectively. The socio-cultural model involves certain attitudes, values and practices. Thus, being competent means knowing which skills or practices are the best to apply to a given learning situation. The transformational model is built around the notion that by equipping ourselves with new cognitive tools, we enable a transformation of human thinking. Moreover, reflecting on the use of digital technologies in this way can bring about innovation both within the classroom and for whole-school development.

Defining the DigiLit Leicester framework

The self-evaluation framework was based on six key, practice-based themes, which were specifically suited to the curriculum responsibilities of staff working within secondary education. These were defined around critical engagement with specific

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digital skills, practices and knowledge, so that contextual engagement could emerge from pedagogic practice and support teacher-agency. Moreover, these themes were also grounded collegially, inside a school or department's curriculum design and delivery, so that the co-operative production of digital literacy was emphasised. Four areas predominated in the frameworks that were reviewed and were adapted for the DigiLit Leicester framework:

- Finding, Evaluating and Organising;
- Creating and Sharing;
- Communication, Collaboration and Participation; and
- E-Safety and Online Identity.

However, two other areas, less common among the frameworks examined, were critical for the Project's impact across the City and in the context of teaching. The first is Professional Development. The NAACE (2012) and UNESCO (2008) frameworks noted that staff should engage with CPD, particularly in relation to improving their effective use of digital tools and in developing personal learning networks. This aligns with a core aim of Leicester City Council to encourage more self-directed approaches to professional development inside online communities. The second additional theme was Assessment and Feedback. NAACE (2012) highlighted the importance of using technology to support learners in managing their own progress, through self- and peer-assessment. The latest Teacher Standards for England and Wales (DfE 2012b) also have a strong emphasis on effective assessment and feedback and the use of data to enhance differentiated provision. The inclusion of these two further areas is critical in addressing the sector-specific requirements of a secondary-level, self-evaluation framework, and in respecting the wider professional role of the educator.

In order to aid staff in developing their skills, practices and knowledge in these six theme areas, the framework needed to support differentiated progression. A four level progression matrix was defined, in order to support a transition from individual, functional practice, through scaffolded experimentation, towards an innovative and pioneering digital literacy that can be shared. Across each level the expectation is that a critical, social approach can be taken by practitioners. Politically, it also offered the opportunity to critique whether such an approach to self-evaluation and professional practice could underpin a longitudinal analysis of the impact of City-wide interventions. The levels reflect professional practice as follows.

(1) Entry

Staff who fall at this level are unlikely to have had many opportunities to experiment or engage with technology in the school context. Whilst they may have some experience of using technology for personal uses, this practice has not crossed over into the professional domain.

(2) Core

At the Core level, a member of staff can make use of common school technologies and resources and understands how these might be used to support learning and teaching.

(3) Developer

At the Developer level, the educator has the skills to make use of a range of tools, including the advanced features of commonly available technologies. They understand how their learners and peers use technology socially and ethically.

(4) Pioneer

The Pioneer has integrated ICT use fully into her/his teaching practice. S/he is confident in her/his skills and knows how to apply them in the classroom to create beneficial learning experiences. Pioneers actively engage in CPD outside the local school environment. They reflect on their practice, sharing this with others in a collegial manner, and can provide high quality training.

It is important to note that the 'Entry' level relates to the minimum requirement for a member of school teaching staff rather than being an objective beginner level. At the 'Core' level the DigiLit Leicester Framework aligns with Bélisle's (2006) functional model of literacy, and the remaining levels enable critical, pedagogic development from this starting point. At 'Entry' level, the priority is creating a functional mode of literacy so that there is a basis for developmental personal practice, which can then lead to transformative classroom practices. The choice of the term 'Pioneer' reflects an approach that is rooted in exploration, experimentation and discovery, alongside greater confidence in digital tools and practices. It is important that the term is defined through the willingness to share the outcomes of discovery and drive CPD activities, rather than colonising the practices of others.

Through the immediate feedback given to participants about their practice in each of the six themes, and the links suggested for further reading and development, the DigiLit Leicester project aims to support staff in shaping their own CPD. However, whilst some staff will find the opportunity to develop their own practice intrinsically motivating, there may be some staff who are reluctant or who lack the confidence to negotiate the boundaries of relevant CPD. Therefore, the role of Pioneers as mentors in modelling effective practice is critical in this approach (Beetham, McGill, and Littlejohn 2009).

From framework to survey: the development process

Using the Framework as an outline structure, the themes were populated with statements about the skills, practices and knowledge appropriate to each of the four progression levels. Much of this content emerged from the practices identified within other frameworks, although the tendency in those frameworks to focus upon specific technologies rather than practices was deliberately avoided. With the initial content in place, the framework then underwent a series of internal reviews, between the members of the project team, before being presented to school staff and experts in the consultation process (noted above, pp. 10–12). This process refined the content and structure of the framework, within the context of secondary school practice, to ensure its validity and relevance. Inclusion of school staff within this phase of the project was crucial to the partnership approach that ensured not only that the practices included were applicable, but also that other important skills and knowledge were not overlooked.

With the final framework agreed, a small-scale pilot study was conducted to further validate the content. In this phase, the project team worked with staff who self-identified to gather their reflections on the Framework content, its ease-of-use and interpretation. This process highlighted that to support agency and professional practice: first, that the terminology used in the tool had to be as applicable as possible to the diverse range of educational settings in the city; and second, that implementation needed to be driven locally through negotiation with each of Leicester's 25 Secondary Schools (Sharpe and Oliver 2007).

The revised content from the pilot phase was then used to create an online survey, as the most effective data collection method given the large potential number of participants, the geographic spread of schools, project team capacity and calls on school staff time. For each of the six key areas, staff were asked to consider four sets of statements relating to the use of technology in the classroom and to indicate where their current practice was in relation to those statements along a scale. Practitioners stated that they could do 'none', 'some' or 'all' of the practices described in the statements. Upon completion, aggregate scores provided staff with feedback on their current practice in each theme area, defined as one of the four framework levels: Entry, Core, Developer or Pioneer. These levels sit on top of a more granular seven scale score (0–7) linked to the statement options within each survey strand. The scoring is defined as follows: 0–1 = Entry, 2–3 = Core, 4–5 = Developer and 6–7 = Pioneer.

As well as providing immediate feedback to staff on the levels they have scored, the survey system also presents information about the next progression level along with links to resources. This approach was taken in order to support the agency of teaching staff in shaping their own CPD (NASUWT 2012), and to amplify the value of professional judgement. This issue is often exacerbated by feelings from staff that such development is driven by a managerial need to address a perceived individual deficit, rather than encouraging innovation by individual staff members (Daly, Pachler, and Pelletier 2009). In responding to this fear, the framework data were anonymised and not shared beyond the project team. The city-wide spread of framework-levels for each theme could be analysed to support wider CPD, but the digital literacy of individual staff was deliberately not labelled. The project team's approach was to push back against performance management techniques, and to create a framework based on self-evaluation and co-operative CPD.

Conclusion

The development of an infrastructure that supports city-wide transformation in the digital literacy of secondary school staff demands a focus upon authentic pedagogic innovation and teacher-agency. The pivot for the creation of this infrastructure in Leicester was the DigiLit Leicester Project, which developed a working definition of digital literacy and a self-evaluation framework to catalyse co-operative, pedagogic innovation. In defining the self-evaluation framework, a critical review of extant frameworks revealed that a custom framework was required, because those established frameworks: focused too heavily on individuated skills; identified critical evaluation as a separate practice; normalised progression in the development of digital literacy; lacked a social, ethical approach to digital life and work; or did not reflect on the professional judgement of secondary staff. As a result, the DigiLit Leicester Framework focused upon the individual's critical appraisal of her own skills, practices

and knowledge, which could then be situated co-operatively inside the secondary curriculum as it was socially constructed. This underpinned a peer-based, social approach to CPD that was progressive without being reduced to a form of appraisal or monitoring.

Critically, no such shared and open development framework (DigiLit Leicester 2014) currently exists either at national or international level, and the project effectively constitutes a new model for implementing digital literacy aimed at transforming the provision of secondary education across a city. The project's contribution of a self-evaluation framework, embedded in pedagogic practice, is important because it indicates that a responsive infrastructure can be developed and delivered in partnership with educators, in order to affect professional practice. This focus on developing an open framework in co-operation with practitioners also reinforces the importance of teacher-agency in the process of educational change. The DigiLit Leicester team's focus on building relationships with teachers, departments and schools reinforces the focus on trust and professionalism that exists elsewhere in the literature on CPD.

Many of the extant frameworks reviewed are based around an audit approach, where the skills and practices of teachers are evaluated by others (JISC 2012b; NAACE 2012). By embedding self-review into the heart of a digital literacy project, teachers are empowered to drive their own professional development, as well as influencing the co-operative opportunities that are provided in schools and city-wide. In focusing on the development of co-operative practices that are rooted in pedagogic practice, and facilitated by more confident practitioners or Pioneers, it is possible to strengthen radical collegiality (Baumfield and Butterworth 2007), and to push back against policy directives that marketise and commodify the curriculum and reduce its meaning to entrepreneurial skills and employability. This focus on teacher-agency and co-operation, which pivots around a custom self-evaluation framework, demonstrates that city-wide pedagogic transformation through teacher empowerment is a radical possibility.

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