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“Why Bother?” Learner Perceptions of Digital Literacy Skills Development - Learning Design Implications

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Abstract: Digital literacy skills are essential for today’s citizens. These skills are expected for everyday personal use, learning and effective performance at work. The UK’s Quality Assurance Agency for Higher Education (HE) and employers therefore require graduates to be able to demonstrate these skills. However, the cost of UK university education is rising substantially and cash- and time-poor learners must decide what to prioritise. In this context they may favour subject-specific learning rather than skills development. How therefore can we engage learners in developing their digital literacy? The UK’s Open University is a distance learning institution. Its Faculty of Health & Social Care (FH&SC) has evolved different approaches for digital literacy skills development using technology-enhanced learning, based on skills resources that are either generic (usable by any FH&SC module) or are context-dependent and module-specific. Our Evaluating Approaches to Developing Digital Literacy Skills (EADDLS) project is exploring learner experiences of digital literacy skills development to identify their needs and preferences, to inform how we can optimise learning designs to better engage and support learners. Furthermore, since skills activities are widely required across different programmes, there is keen interest in the pedagogical and resourcing implications of using generic activities, as opposed to module-specific activities that are more challenging to share and maintain. We therefore also explore the influence of design features such as generic or module-specific contexts. We gathered data from online questionnaires (n=298) and interviews (n=18) involving learners from three modules. Focusing on the qualitative interview data, we explore what learners value and why, including links between attitude, motivation, and preferred learning designs. We identify reasons for certain findings from our quantitative data, e.g. a preference for integrated, module-specific activities over separate, generic activities and suggest a framework for managing activity complexity based on familiarity with the skill and the context.

Keywords: digital literacy, skills development, ICT, learning design, motivation, contextualisation

1. Introduction

The ability to demonstrate digital literacy (DL) skills, defined by the European Commission as ‘confident and critical use of ICT [information and communication technology] for work, leisure, learning and communication’ (JISC 2012a), is a key graduate requirement, demanded both by the UK Quality Assurance Agency for Higher Education and by employers. However, learners dealing with competing demands of work and study may prioritise subject-specific learning over DL skills. We wish to understand how to engage such learners to ensure they achieve their qualification. We are also interested in the pedagogical and resourcing implications of using generic, shareable activities versus activities set in a subject context, which may be more challenging to share and maintain.

We are therefore evaluating student perceptions of their skills development, looking at what motivates their engagement and how features such as generic or context-specific information influence their experience. We aim to identify features in learning design that facilitate engagement and skills development.

2. Background

The OU is a distance-learning institution which employs technology-enhanced learning (TEL). A certain level of DL is required for TEL. DL is variously defined. JISC (2012b), for example, divides it into five areas: media literacy, information literacy, techno-literacy, academic practice and techno-social practice, all enabled by core ICT skills.

We consider two areas we define as:

- Information literacy (IL) – the ability to find and make use of information, including searching for, evaluating and referencing information.
- Information and communication technology (ICT) – the skills used to organise, present or share information using a computer, for example, utilising word processing, spreadsheets, email and presentation software.

These include some aspects related to the areas identified by JISC and where appropriate we relate our findings to these.

All OU degrees require IL skills and some of them require ICT skills. All FH&SC degrees include ICT. In its Social Work (SW) degree specific ICT skills are stipulated by professional regulatory bodies. For this study we selected two consecutive modules on the SW degree (roughly equivalent to first and second year undergraduate), abbreviated henceforth as SW1 and SW2, and a second year module from the Health and social care (HSC) degree, referred to as HSC2.

SW1 and SW2 students are usually employed and employer-sponsored. Sponsored students undertake work placements and therefore expect their learning to relate to social work practices. HSC2 students are usually employed but mostly self-funded. HSC2 is a core module in the HSC degree, or an optional module in other OU degrees. Although it is theory-based, the relationship to work-practice is highlighted.

For their DL skills development, these students are introduced to a task in the module learning guide and then directed to step-by-step guidance in one of two forms:

- Contextualised – a PDF document on the module website, containing module- and context-specific skills guidance.
- Generic – a web-based skills activity located in the *HSC Resource Bank* (HSCRB), a faculty repository of resources for use by any FH&SC module.

SW1/SW2 use contextualised guidance set in a social work context containing detailed screenshots and assessment-related information. By working through the PDF students will produce the required (sometimes assessed) component. More confident students can skim-read it for key information to achieve the task (Figure 1).

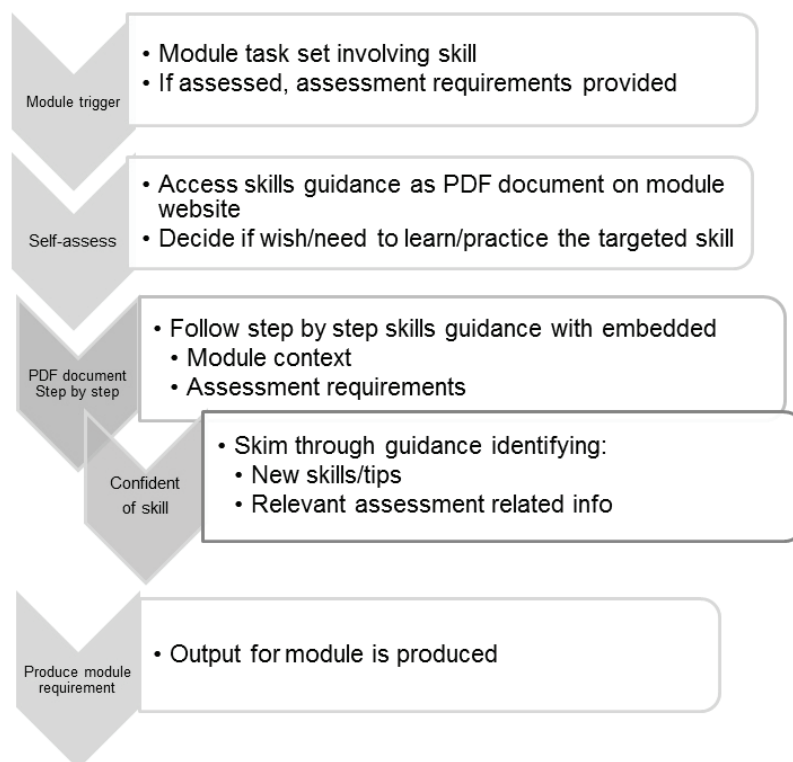


Figure 1: Use of contextualised (PDF) guidance

HSC2 uses generic guidance, with students given a direct link from the module learning guide to the relevant HSCRB activity. If already familiar with the targeted skill, students may decide to perform the module task without visiting the HSCRB. HSCRB activities provide generic examples/data to use for practising the skill but, where possible, tasks allow students instead to use examples/data that the *module* task requires them to use. Some activities therefore give students the choice of using *either* the generic data throughout the activity, *or* the module data at certain points, *or* both (giving two

stages for completing the module task). For example, in a spreadsheet activity students can use the dataset supplied within the generic activity and/or import their own dataset. So for this type of HSCR B activity students may complete it twice (low confidence), skip the 'generic' practice stage (medium confidence), or skip the HSCR B activity altogether (high confidence) (Figure 2).

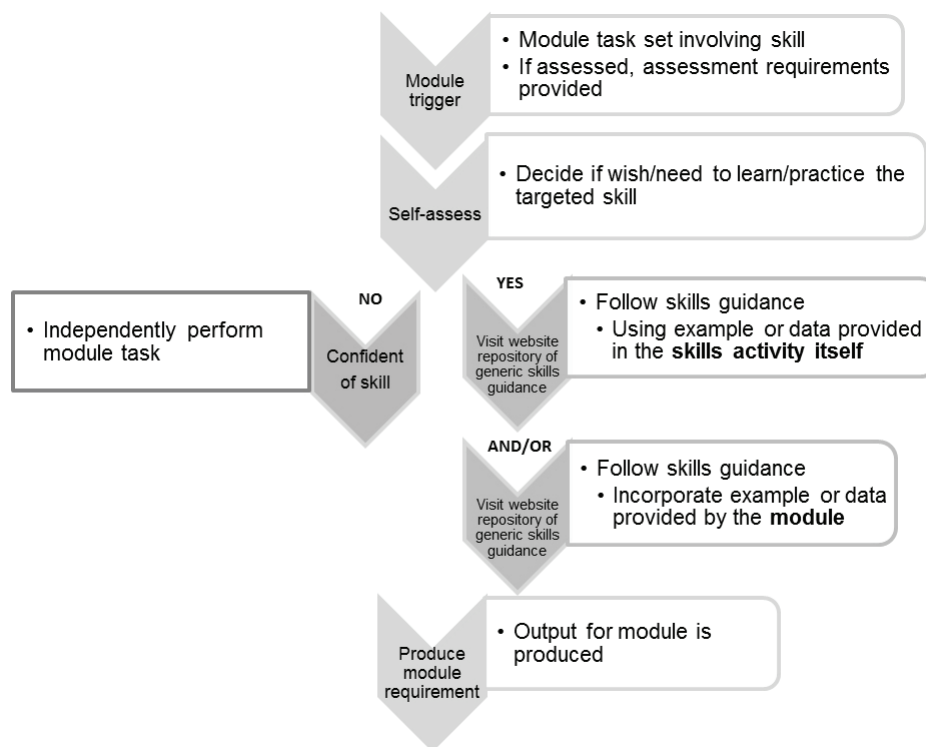


Figure 2: Use of generic (HSCR B) guidance

3. Methods

The study used a mixed methods approach. Students were invited to reflect on their skills development via a quiz towards the end of their module. A total of 298 students (23%) submitted the quiz. (See Hall, Nix and Baker 2012) for an analysis of quantitative quiz data.) When invited in the quiz to participate in a follow-up interview, 123 (41%) volunteered. We randomly selected 6 from each module (total 18 interviewees) ensuring both sexes were represented where both volunteered. Semi-structured interviews (1-2 hours) were conducted face-to-face or by telephone, audio-recorded and transcribed. All three authors took part in the first interview to standardise the approach. Subsequent interviews included one or two interviewers. Interview questions built on the quiz questions, considering attitudes, views and experiences of activity designs related to ICT and IL skills development. Interview data is being analysed using thematic analysis and a *contextualist* method, informed by Braun and Clarke (2007). Transcripts are coded in NVivo software using a set of categories or "nodes" (Bazeley 2007) agreed within the team. To maximise reliability, the first two transcripts were coded by all three authors independently and checked for interpretation. Subsequent transcripts are first-coded by one author and second-coded by another, swapping roles between authors.

4. Results

The following initial findings are based on an analysis of 6 interviews, two from each module. Comments from two additional interviews not yet fully coded are included where informative. Anonymised participants are listed in Table 1.

Vicky and Diane are both confident in their ICT skills and demonstrate 'techno-literacy' with a positive but reflective attitude to its use at home and work. Vicky comments she uses computers to run her entire life. *'I very rarely use paper and pen nowadays, even shopping lists are typed.'* Vicky, a trainee social worker, reports her boss has every IT gadget and thinks of it as an extension of herself. However, her colleagues either love or hate it and have difficulty keeping up with the organisation's many IT system changes. *'They have all the skills a social worker needs. They can write a fantastic*

assessment and it falls down sometimes at not knowing which button to press so that the system will let you in.'

Table 1: Interview participants featured

Participant	Module	Previous educational qualifications (PEQs)		Age group (age range of all participants 31-55)	Funding	
		Lower (up to/ including UK 'A' levels or equivalent)	Higher (Further or Higher Education)		Sponsored	Self-funded
Vicky	SW1	✓		36-45	✓	
Diane	SW1	✓		46 or over	✓	
Caroline	SW2		✓	36-45	✓	
Suzie	SW2	✓		46 or over	✓	
Don (part-coded)	SW2	✓		35 or under	✓	
Jane (part-coded)	SW2	✓		36-45	✓	
Tracey	HSC2	✓		46 or over		✓
Colin	HSC2		✓	35 or under		✓

Diane is a family support worker. She frequently supports colleagues as she developed extensive ICT skills in a previous job where she experienced well-integrated systems and cutting-edge software. She comments critically on the poor system at her current workplace and on her colleagues' needs.

'You know, you've got a bunch of social workers [who] are not the most adept at IT and come to it very resentfully...and then you present them with such a clunky system, it's not good.' She uses ICT to help her children, e.g. to create a backup system for homework. Caroline, currently a care manager, has long wanted to be a social worker. She completed a Masters degree (7 years ago) and likes the OU TEL approach, appreciating electronic information at her fingertips. However, she is dubious about computers. In her workplace management disseminate too much information via email, causing colleagues to find coping mechanisms. Caroline's own strategy is to skim-read, also in her OU studies. She is fairly confident using the internet at home, but considers herself not very computer literate, e.g. she finds locating files within folder structures difficult. Suzie is a senior child and family worker in a fostering department. In her previous job (teaching), she used ICT creatively to support people with learning difficulties. At home she uses online shopping and social networking. Although confident using email and Word at work, she was less confident using Excel. However, she now gathers statistics to monitor services and communicate results. Her employers view ICT as essential and are recruiting staff with more than basic skills. Suzie reports the benefits but also the frustrations experienced by colleagues when ICT systems perform poorly. Tracey, a hospital secretary, completed the European Computer Driving License independently. Previously she had only basic IL skills. She feels her IL skills dramatically improved during the current module. She has recently been researching a disease online because a relative suffers from it. Colin, a business analyst, works in social care. He expects the Social care degree to inform his practice. He holds an economics degree during which he developed traditional IL skills and studied a separate ICT module. He developed further ICT skills in various jobs. He considers himself very ICT literate but less so in IL. His OU studies introduced him to online library resources and new IL skills. Since his role involves helping to specify ICT systems and support colleagues, he has a complex understanding of his own and colleagues' skills development needs. Colin prefers to use limited ICT at home after time spent on this at work.

We see that confidence levels vary within and across areas of participants' lives and are not directly linked to level of previous qualification. More relevant is the form of technologies experienced during previous studies. Learners may bring attitudes and practices based on many years' experience including from work-based cultures. This explains why Level 1 or Level 2 students might already demonstrate strong techno-literacy awareness.

4.1 Motivation

When asked what matters most about skills development, Vicky, Diane and Tracey are interested in developing time-saving techniques. Vicky only wants to learn new or develop existing skills she will need, e.g. to make her home/work life easier. For Diane her confidence in her skills is important.

Tracey wants activities with clear instructions. She likes working online to ‘whizz’ through materials. However, her poor broadband service means she favours printable resources. Caroline’s satisfaction comes from completing everything even if unenjoyable, and achieving all possible marks. She wants to learn at her own pace with help available if needed. She expects a clear rationale for what she is asked to do or else will challenge it. Suzie stresses the importance of remembering and using skills. She is conscious of benefits her skills might bring to her workplace. For Colin skills activities need to be useful for work. Since he is already proficient, his chief interest is that they are the vehicle for studying the degree.

Motivations vary and include: improving efficiencies in practices to benefit all areas of life; achieving personal learning goals and grades; developing creative work practices; and developing new skills to support academic/work practices.

4.2 Location and timing of activities

The three modules have activities integrated within them rather than provided completely separately from the module. Each module learning guide provides regular prompts to complete the activities, some of which are assessed. Our quantitative findings show most students prefer this. They are more likely to do an activity which is integrated than if it is separate. There are no significant differences in relation to age or PEQs. Our qualitative findings support this. Four participants explain that if the activities were separate and not ‘visible’ within the module, they would be too easy to skip. Their reasons differ. Caroline does not enjoy ICT, so does not trust herself to seek out separate activities. Diane does enjoy ICT but would be tempted to skip activities because of time pressures. She likes being given opportunities to explore topics she might not have done otherwise (such as blogs, wikis and Twitter). She thinks left to her own devices, it might have been too ‘overwhelming’. Diane and Colin, thinking about students with low ICT confidence and competence, stress the importance of students gaining the basic skills they will need in the workplace. They see integration of activities as important in maximising the likelihood of completion. Colin comments:

‘The majority of what I’ve learnt within the course on the ICT side is regarded ...as very, very useful grounding to staff because we’re still getting sort of staff through from some universities where they have managed to avoid a lot of IT based sort of elements of the course and so therefore their literacy skills are poor when they come to actually use the systems at hand, so sort of as an employer that’s where the main concern lies.’

Diane suggests integration may improve students’ attitudes towards ICT: *‘It might help people to feel less resentful about the amount of ICT skills when they actually get into the workplace.’* Although Don would like a separate block of skills to work through at his own pace, he notes integrated assessed activities may aid learning and be more satisfying.

4.3 Role of choice in identifying what to engage in

There is evidence of two approaches to engagement taken by participants once they receive the module learning-guide prompt - a selective approach based on choosing (parts of) activities by particular criteria, or a methodical approach to complete all activities (Table 2).

Table 2: Participant preferences for engaging in activities

Participant	Preference	
	Selected parts	Complete all
Vicky	✓	
Diane	✓	
Caroline		✓
Suzie		✓
Don		✓
Jane		✓
Tracey	✓	
Colin	✓	

Participants who feel reasonably confident and recognise they have existing skills (Vicky, Diane, Colin and Tracey) carefully select parts of activities to engage in. They aim to quickly identify what the activity covers and what is new or stimulating. Techniques include using:

- information in the title (Vicky, Tracey)
- the introduction and listed learning outcomes to assess activity level and coverage (Vicky)
- jumping to the end of the activity to gauge how stimulating it may be (Vicky)
- the contents list (Diane)
- Browsing through the whole activity (Colin, Vicky, Tracey).

Because Vicky found she sometimes falsely assumed an activity is too basic when actually it contained new information, she changed her strategy to browsing. Diane finds browsing, even of basic skills, useful for consolidation. Tracey and Colin make good use of the optionality their module offers, completing all the module tasks without always needing or completing the HSCRB activities. However, Tracey sometimes finds it confusing being sent to different resources. Asked how she might feel using the SW PDF format if she came across information she was already familiar with, she views positively being able to recognise existing skills, rather than consider the extra detail unnecessary. Colin welcomes the optionality. Since his studies are self-funded he is determined to maximise his learning and focus on new (IL) skills. Vicky points out the importance of personal choice in engaging her, to select something she really wants to master.

Reasons for not engaging or discontinuing an activity include:

- identifying they have the skill already (Vicky, Tracey)
- it not being assessed (Vicky)
- having an existing alternative method (Vicky, Colin)
- the guidance not being clear (Tracey)
- The task being more challenging than rewarding (Vicky, Colin).

By contrast other participants feel they have no choice but to engage, for fear of missing something important. Caroline, Don, Suzie and Jane tend to complete all activities systematically, although they may skim-read familiar information. Caroline fears falling behind, failing the module, or feels she would be deceiving herself, not having truly completed the week's work. Jane 'dragged herself' through the activities, to keep abreast of skills for work, doing everything even if she had the skill already. Don worries an incorrect self-assessment may cause him to miss something. Unsurprisingly, participants in this group, feeling constrained and pressured to engage, express more stress and frustration. For them, reassuring support and clear instructions become key, rather than quick access to information.

The participants who welcome optionality to decide where to concentrate their efforts are also confident in their self-evaluation skills. However, for those less confident or conscious of time, optionality puts temptation their way and is unhelpful. They may not trust their self-evaluation skills to select what to engage in, hence complete all. Activities incorporating comprehensive details are welcomed and do not present a problem to learners confident to fast-forward past guidance about familiar skills. Participants suggested improvements to features (not included in this paper). This indicates DL in academic practice and techno-literacy: evaluating tools used for learning; making connections with experiences of digital technologies in other contexts; and their reflective awareness of how they learn.

4.4 Generic or subject-specific contexts

Quantitative findings reveal that more than 80% of respondents are happy to work through generic activities. However, more than 90% of respondents actually prefer the activities to be set in a relevant context, especially that of their current module. From our qualitative analysis reasons emerge for this view. Figure 4 indicates participants' perceived value of subject-specific versus generic context-giving information.

Caroline has a flexible view of context. She is willing to engage in generic activities if integrated within the module and a clear rationale presented. On balance she thinks contextualised within social work is acceptable and should be retained. Interestingly, three of the four participants using a selective approach to activities (Vicky, Tracey and Colin) feel that generic contexts can work. Vicky finds them acceptable if the skill-only is in focus and is at a basic level. Tracey finds generic acceptable for HSCRB activities. Colin is very confident in his ability to extrapolate from abstract or generic contexts.

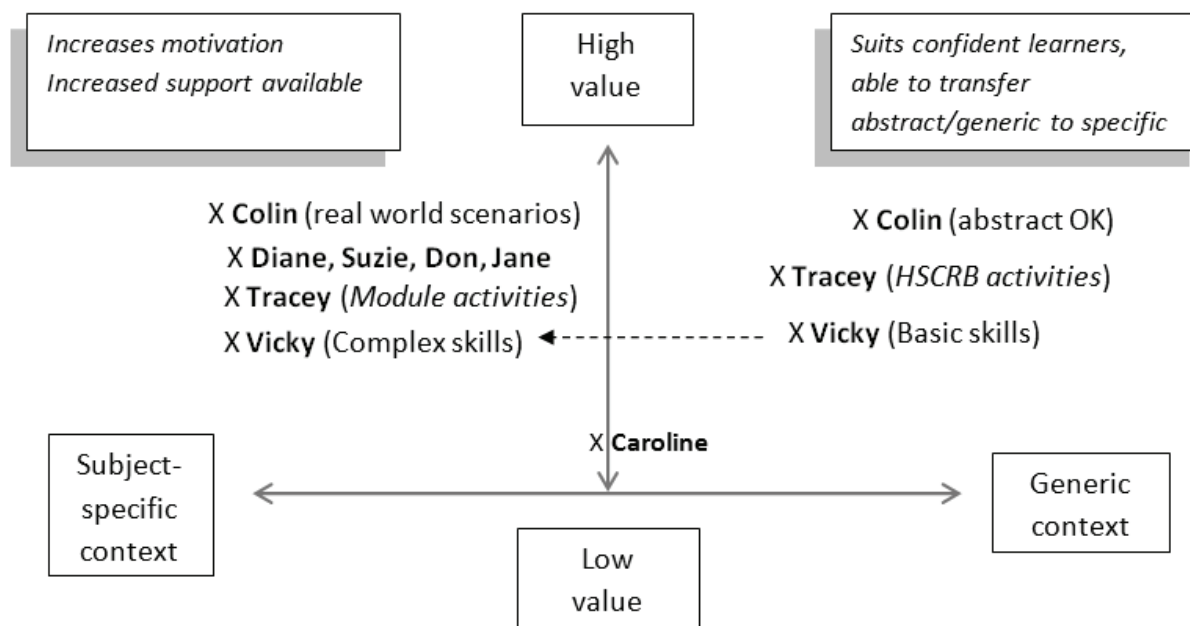


Figure 4: Perceived value of subject-specific versus generic context-giving information

However, all three actually prefer module-specific contexts. Thinking of fellow students and staff, Colin considers that FH&SC students need considerably more support. In his and Diane's experience, real world scenarios directly related to their own practice needs will aid learners to engage and see the value of the skill. Tracey feels that module activities need subject-specific contexts to maintain her train of thought and make it meaningful. Diane, Suzie, Don and Jane commented similarly. Jane adds "I wouldn't enjoy it as much if it wasn't [linked to the module]. I would hate it more!" Diane notes if a relevant context has been provided, it saves her time and effort having to identify connections and transferability herself. She acknowledges she ought to but if already provided, it makes that activity appear more useful to the module. She and Don fear generic activities may appear optional, receive little attention and easily be skipped.

Vicky thinks more complex skills can best be developed using context and content that is already familiar and understood. This enables the learner to work out what the content should look like, for example, when transformed into a new format in a database or table. As Vicky experienced, when content is unfamiliar the guidance needs to provide a clear example (as feedback) demonstrating the expected output, so learners can check their work matches this. Detailed feedback is only possible if students are working through the same data or example embedded in the activity (such as in a generic HSCRB or a PDF activity). The disadvantage of the HSC2 approach is students can only derive feedback from the generic HSCRB example, and would have to deduce feedback on the module example/data themselves. The advantage of the SW approach is students receive detailed feedback within the PDF activity on the subject-specific example used. This may include completed examples from contexts outside the student's comfort zone.

To summarise, a subject-specific context is preferred, even by the most confident, selective learners, to create a smoother, more motivational learning experience, provided the context and content is familiar. A key challenge for learners inserting their own contexts into generic guidance is the effort involved in making connections and how to check their work. Guidance containing detailed feedback saves effort and provides much welcomed support.

5. Discussion and implications

5.1 Motivation and engagement

We can expect learners to have fluid and individual digital literacies and face complex challenges connecting these across the different areas of their lives (Beetham and Oliver 2010). Learners require educational support to make these connections. The needs of work-based learners and mature students merit particular attention (JISC 2011). These learners face pressures to enhance their employability but also to ensure existing practices are up-to-date to contribute effectively in the

workplace. The impact of DL in certain professions, such as social work, is acutely felt. There is a long-standing perception of technologies as disruptive and associated with managerialism and accountability (Rafferty and Steyaert 2009). Today's learners are deeply aware of their performance because of the potential human repercussions if they fail. Over recent years, they demonstrate a growing appreciation of the benefits creative use of DL skills can bring, especially in supporting service users.

Of key interest is how we foster positive engagement and support learners to develop relevant DL skills. A previous study which included SW2 in 2008 (see Thorpe and Edmunds 2011) explored learner perceptions of the importance of fit between skills developed for study and for work practices. It highlighted that learners' attitudes towards and take up of ICT may be positively or negatively influenced by the learners' work context and by how central it is perceived to be to their work identity.

Four years on, our quantitative and qualitative findings reveal that our learners view DL, especially ICT skills, of high importance to their professional practices. However, the interviewees' confidence and competence varies in the different areas of leisure, study and work and reveals that confidence in using skills in one domain does not necessarily translate into confidence in using them in another. By virtue of studying via TEL, FH&SC learners are simultaneously developing DL. However, to develop skills further, our findings support the view that activities are more purposeful and meaningful when set within authentic (module- or work-based) contexts and provided when needed, integrated within the module (Beetham, McGill and Littlejohn 2009). DL may then be perceived as integral to the subject-discipline and also prompt engagement.

Learners therefore need approaches for how they manage their engagement. This requires complex skills and practices in self-assessment, self-awareness of learning preferences including how they learn with digital technologies, time-management, and so forth. Our analysis revealed two approaches. Learners were either selective about engagement, or else completed all activities methodically. Interestingly, those who preferred the latter approach all came from SW2. One possible explanation is that SW2 are engaged in work placements and feel more concerned with their professional obligations and responsibilities, and therefore prefer not to risk missing key content. This would suggest that perhaps while on SW1 they might have approached engagement differently (since not yet on placement). Alternatively, this may suggest that they lack confidence in self-evaluation skills. This may be because learners have not as yet learnt to recognise and articulate their skills and have not yet made connections between skills used in different areas of their lives. Analysis of the remaining interviews may provide clarification.

Learners were found to be modest in their self-assessment of their confidence and skills, even when they had extensive experience and gave examples of themselves supporting colleagues, analysing, critiquing and influencing work-based ICT practices, thus demonstrating significant 'techno-literacy'. One way we address this may be, in combination with the employability agenda, to provide creative opportunities to support learners throughout their studies to recognise and articulate their skills, accomplishments and personal development needs (Pegg et al. 2012). Our reflective quizzes proved valuable in this respect.

5.2 Managing skill-context complexity

Our findings suggest that when a context is familiar and content is understood, learners can focus on learning or practicing a skill. Learners prefer that context to be subject-specific and relevant to their module to support their learning. We suggest that the more unfamiliar the module material is to a learner, the greater the challenge to determine how it should fit into a skills activity if this also is new. Figure 4 suggests how we might manage this by balancing how new or familiar the targeted skill and context may be.

For instance, when introducing a new skill with which the learner has low familiarity (see point 1 in Figure 4), in order to minimise challenge, we should ideally draw on module content from earlier in the module (point A) rather than what is currently being covered in the module (point C). This ensures learners are familiar with it and are able to work out how to apply the skill to it. A task which introduces a new skill as well as unfamiliar content might be unacceptably challenging, represented in Figure 4 by the solid (red) triangle. The area up to the (red) dashed line represents what might be acceptable.

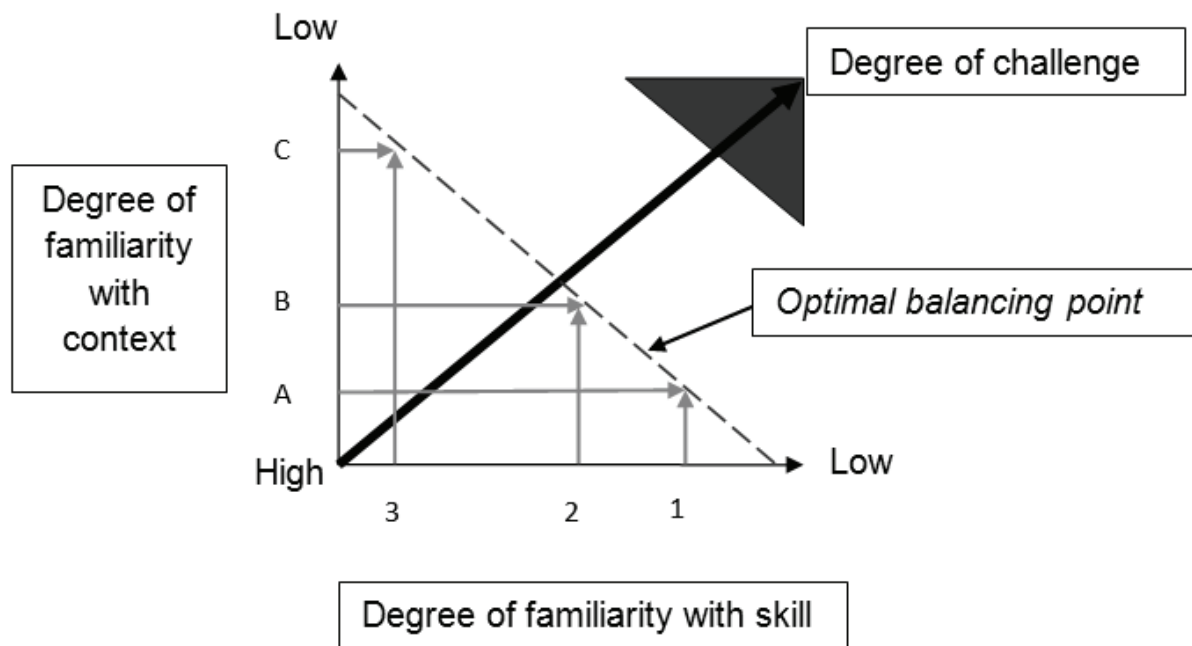


Figure 4: Balancing new versus familiar skill and context

Students need iterative practice to develop their ability to transfer, abstract, evaluate and articulate their DL. Perhaps this could be achieved by using practice (point 2) with more recent module content (point B), and practice (point 3) with new content (point C). Based on this analysis if both (module) content and the skill are new, then the student will need greater support, such as visual and other feedback to scaffold them and instil confidence. This suggests that the (module) data will need to be integrated within the guidance to provide detailed feedback.

Finally, to foster making connections to other areas of life, a skill could be practiced in different contexts by making points A/B/C represent home/module/work (in any order).

6. Conclusion

There are limitations in our study as participants may be self-selecting. Nonetheless, we can see patterns emerging and also find possible explanations to illuminate our quantitative findings. Based on our analysis so far, if we wish to optimise engagement, we should provide activities integrated within the module at the point when needed, and contextualised within the module-subject. Features should facilitate learners to swiftly identify key information and offer supportive guidance to those feeling under more pressure to engage. We have proposed a framework for balancing the degree of challenge within activities. Approaches which encourage iterative practice, critical reflection and articulation may convey a clear rationale for this commitment to benefit all areas of life.

We will be exploring further connections between quantitative and qualitative data with a view to identifying further implications for designing and resourcing effective skills activities.

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