

“What do I need?” – evaluating learner perceptions of digital literacy skills development to inform enhancements to learning design

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Abstract

The ability to demonstrate digital literacy skills, defined by the European Commission as the confident and critical use of ICT for work, leisure, learning and communication, is a key requirement for graduates, demanded both by the UK Quality Assurance Agency for Higher Education and by employers. These skills enable learners in the current digital environment to engage effectively in study programmes, in the workplace and at home. The Open University's Faculty of Health & Social Care (FH&SC), working closely with the OU Library, has evolved different approaches to digital literacy skills development using technology-enhanced learning and based on activities which are either 'generic' (usable by any FH&SC module) or are context-dependent and module-specific. The Evaluating Approaches to Developing Digital Literacy Skills (EADDLS) project explores learner perceptions of their digital literacy skills development in modules using different approaches, and considers the implications for learning design, including the pedagogical and resourcing implications of using generic versus customised activities. The project aims to identify design features which optimise learner engagement in skills activities, looking in particular at factors motivating learner engagement in skills development and at how design features (such as contextualisation of skills activities in terms of relevance to subject or working practice) influence learner perceptions and experiences of their skills development. This paper focuses on the initial analysis of qualitative data collected from interviews (n=18) across three modules. We reveal what skills learners value and why, and suggest features of learning design that may be important motivators. For example, learners with greater prior knowledge of a skill need to be able to easily identify which parts of an activity deal with skills they already have and which parts develop new skills.

1 Introduction

The ability to demonstrate digital literacy skills, defined by the European Commission as 'confident and critical use of ICT [information and communication technology] for work, leisure, learning and communication' (JISC, 2012) is a key requirement for graduates, demanded both by the UK Quality Assurance Agency for Higher Education and by employers. Despite the importance of digital literacy skills development, time-poor learners may not fully engage in such skills development, preferring instead to prioritise the subject-specific content of their modules. As learning designers we need to understand how to engage such learners to ensure they meet the qualification requirements. We are also interested in the pedagogical and resourcing implications of the chosen method of delivery. Activities customised so they are relevant to particular students may be more challenging to maintain and re-use than generic activities. As part of the Evaluating Approaches to Developing Digital Literacy Skills (EADDLS) project, we are therefore evaluating learner perceptions of their digital skills development, looking in particular at what motivates their engagement and how their experiences are influenced by features such as

generic or context-specific information. We aim to identify features in learning design that facilitate engagement and therefore skills development.

2 Background

The Open University (OU) is a distance-learning institution and uses technology-enhanced learning to deliver 'supported open learning'. Students to varying degrees therefore require digital literacy skills just to engage in OU studies. For this project we divide digital literacy into:

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

IL skills fall within the general requirements of all OU degrees. ICT skills are a qualification requirement for particular OU degrees. In the Faculty of Health & Social Care (FH&SC) these include the Social work (SW) degree and the Health and social care (HSC) degree. Data were collected from students on three modules in these degrees:

- SW1 – a Level 1 (equivalent to first year undergraduate) social work module
- SW2 – a Level 2 (equivalent to second year undergraduate) social work module
- HSC2 – a Level 2 health and social care module.

OU SW students are all mature students, currently employed, and usually sponsored by their employer. Sponsored students undertake practice learning opportunities (work placements), hence their studies need to relate to their work practices.

HSC2 students are generally mature students, usually employed, though mostly self-funded. HSC2 is a core module in the HSC degree, but also an optional module in other OU degrees. HSC2 is theory-based but the relationship between theory and practice is highlighted.

In these modules students are introduced to a task requiring digital literacy skills in the module learning guide. They are then directed to skills guidance, provided in one of two forms:

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

The former is used by HSC2 students, who are provided with a link to the relevant HSCRB generic skills activity. The latter is used by SW1 and SW2 students, whose activities, where appropriate, are contextualised within social work.

SW1/SW2 students visit their module website to access a PDF document containing step-by-step guidance with screen captures and assessment related information. By

working through this document students will produce the required (sometimes assessed) component. Less confident students can follow the guidance in detail. More confident students can skim the document for key information to achieve the task, as shown in Figure 1.

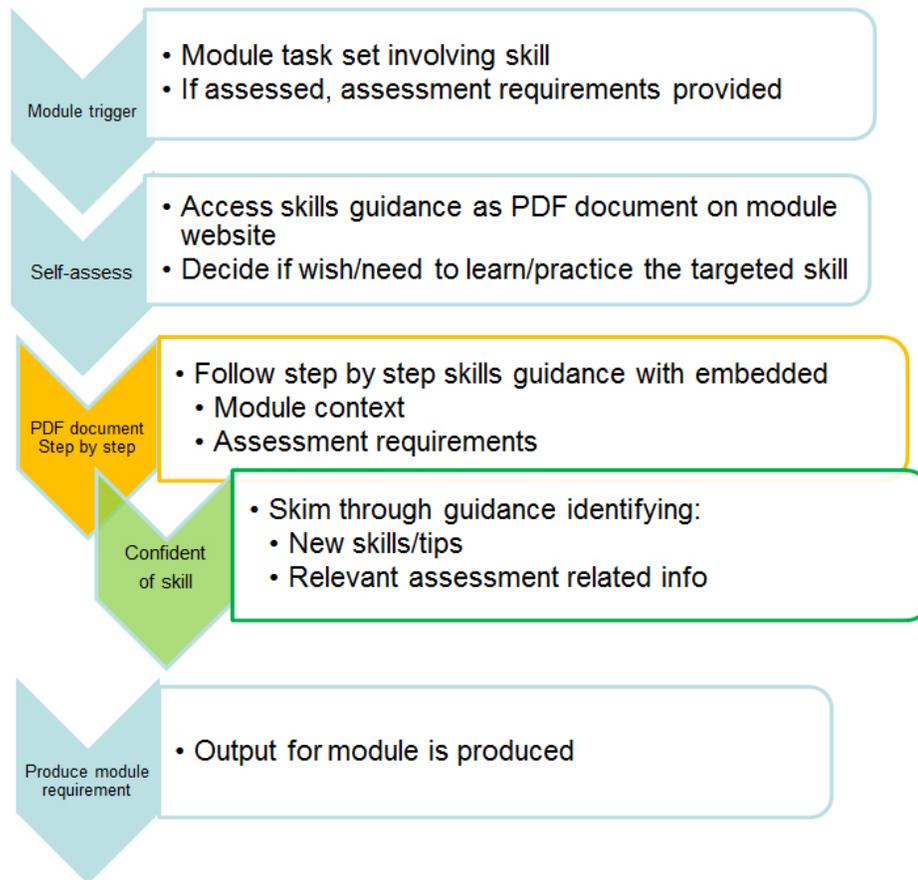


Figure 1: Use of module-specific guidance

HSC2 students instead are given the option to visit the *HSCR*B repository holding generic skills activities. If already familiar with the necessary skill, they may decide to perform the module task without visiting the HSCR. For less confident students the HSCR activities include generic examples/data that students can use to practice the skill. However, where possible, the activities also allow students instead to use the examples/data that the *module* task requires them to use. In some activities, this only happens at certain points. For example, in an activity that shows students how to organise files into folders, they are given the opportunity at one point to customise a set of folders that will be useful for their module. In a few activities, however, students have the choice of using *either* the generic data throughout the activity, *or* the module data, *or* both (giving two stages for completing the module task). For example, in an activity that shows students how to use spreadsheets, they are supplied with a set of data they can use to complete the activity but also given the opportunity to import their own data set if they want to use that instead. So for these particular HSCR activities, students may complete them twice (low confidence), skip the 'generic' practice stage (medium confidence), or skip the HSCR activity completely (high confidence). This is illustrated in Figure 2.

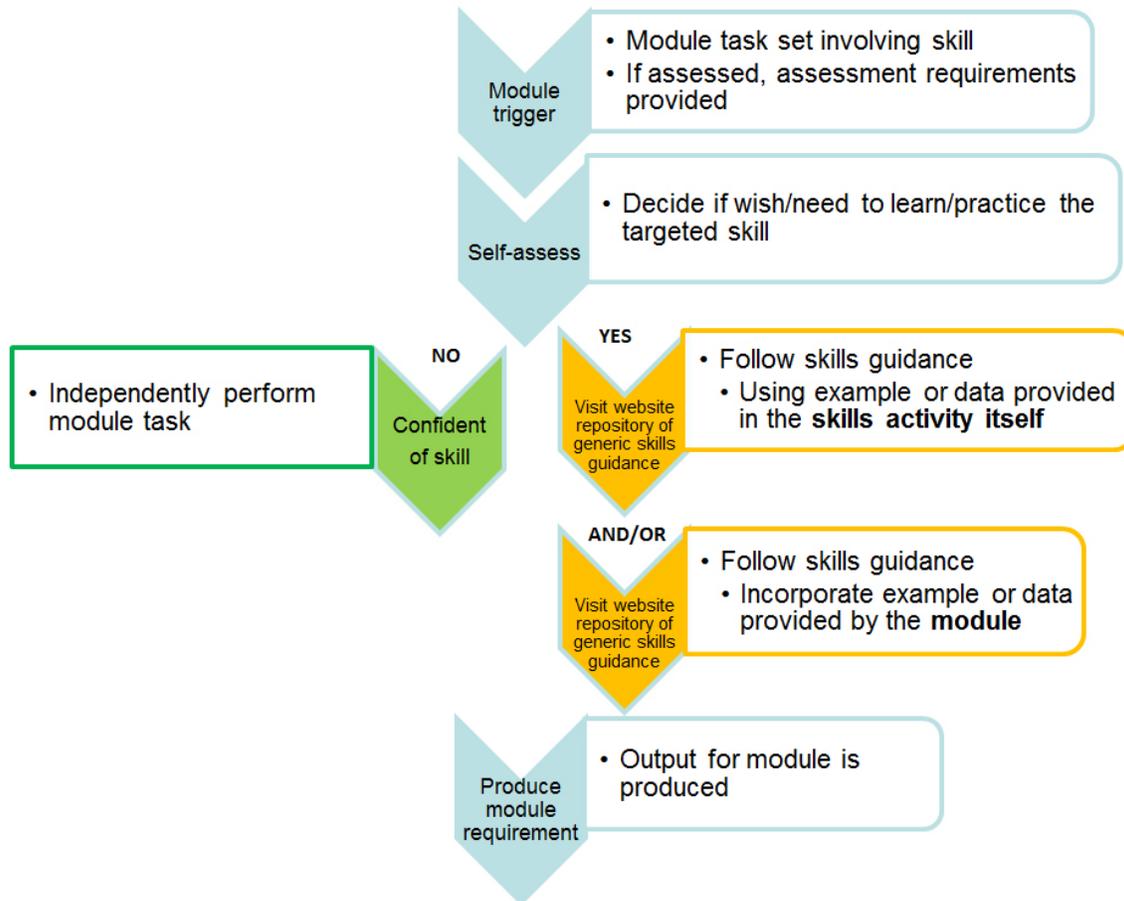


Figure 2: Use of HSC Resource Bank generic guidance

3 Methods

A mixed methods approach was used for data collection. All students were offered the opportunity to complete a reflective quiz towards the end of their module inviting reflections on their skills development. A total of 298 students (representing 23%) submitted the quiz. (See Hall, Nix & Baker (2012) for an analysis of quantitative data from the quizzes.) When invited to participate in a follow-up interview at the end of the quiz, 123 students (9.5%) volunteered. We randomly selected 6 from each module (total 18 interviewees), but ensured that both sexes were represented where both volunteered.

Participants were interviewed face-to-face or by telephone using semi-structured interviews with questions that build on the quizzes. Interviews (approximately 1.5 hours) were audio-recorded and transcribed. For the first interview all three authors took part in order to standardise the approach, thereafter holding interviews alone or in pairs.

3.1 Approach for qualitative data analysis

The qualitative data from the interviews is being analysed using thematic analysis. To help manage the quantity of data we collected, the transcripts are being coded in NVivo software using a set of categories/nodes (Bazeley, 2007) agreed within the

team. To maximise reliability of coding between team members, the first two transcripts were coded by all three researchers independently and checked for interpretation. Subsequent transcripts are being coded by one team member and checked by another.

4 Results

The following initial findings are based on the analysis of 3 of the 18 interviews, one from each module. The three anonymised participants are as follows.

Vicky (SW1, sponsored) is confident in her ICT skills and has a positive but reflective attitude to its use at home and at work. She comments that she can live without a television but not without a computer. According to Vicky, her line-manager is similarly disposed towards ICT whereas her colleagues either love or hate it and have difficulty keeping up with the organisation's many IT system changes.

Caroline (SW2, sponsored) has previously completed a Masters degree and enjoys studying. She is currently a Care manager but has wanted to be a social worker since she was 18. Although she did not enjoy her first degree at a traditional university, she likes the OU technology-enhanced learning approach with easy access to electronic information. However, she has always been sceptical about computers. At work she finds staff cannot cope with the quantity of information disseminated via email. Caroline acknowledges her own coping strategy is to skim read and she also applies this in her OU studies. Although Caroline is fairly confident using the internet at home, she considers herself not very computer literate. For example, she finds retrieving files within folder structures difficult.

Tracey (HSC2, self-funded) works as a secretary in a hospital. She was already confident in ICT skills, having independently completed the European Computer Driving License. However, she had only basic IL skills and depended mainly on Google. She feels her IL skills dramatically improved during the current module. Someone close to her recently developed a disease so she has been researching this online.

This background information reveals that confidence levels may vary across different aspects of their lives. It informs participants' motivation for engagement and their evaluation of particular features.

4.1 Motivation

When asked what matters most about their skills development, Vicky wants the activities to help her develop existing skills which will make her life easier, either at work or at home. She does not want to develop skills which she may never need.

Tracey similarly is selective about activities. She is interested in new (not existing) skills. What matters is that the instructions are clear to carry out the tasks. Like Vicky, she is interested in time-saving techniques. She enjoys studying using fast internet connections to quickly achieve tasks. However, poor broadband services in her area affect her view of online features. She strongly favours printable resources rather than slow loading webpages.

What matters to Caroline is that her learning is at her own pace and support is available if needed. She tends to complete all the activities. Her satisfaction comes from ticking off all her studies as complete at the end of each week, and achieving all possible marks. Her view is that hard work pays off. She wants to see a clear rationale for what she is being asked to do or else she will challenge doing it.

4.2 View of skills strategy

It appears that the module and programme's skills strategy was not always clear. Although Vicky (SW1) and Tracey (HSC2) found the rationale clear and took a pragmatic approach to engaging with the activities, Caroline (SW2) was unclear about the strategy. She thought the skills development had been covered at Level 1 and her anxieties caused her to deliberately skip reading strategy-related guidance. Tracey reported that some HSC2 students had not anticipated the extent of the ICT work required and some expressed (disruptive) anxieties. She felt more advance information should have been provided. The implication for educators is to regularly signpost skills strategy guidance within programmes and if possible to make this engaging.

4.3 Identifying parts to complete

Vicky finds skills activities a welcome break from the main module. She uses a variety of approaches to carefully select what parts of an activity to engage with. She wants to quickly identify what the activity covers and what is new or stimulating. She uses information in the title, introductory paragraph outlining the activity and the listed learning outcomes to get a sense of the level of the task. She jumps ahead to the end of the activity to gauge how stimulating it may be. Vicky found that sometimes she made false assumptions and dismissed an activity as too basic when actually it contained new information. For this reason her strategy includes browsing through the guidance to look for new or unexpected tips.

Tracey's approach is simpler, she uses the activity title to gauge whether she already has the targeted skills. She clicks on links and browses the guidance to check what is covered. The drivers for her to complete an activity are the satisfaction of learning a new skill, completing the task, and marks (if assessed). If the first is not possible (either because the skill is familiar or because the guidance is not clear) she remarks she will skip the activity.

Because of Caroline's fear of falling behind or failing the module if she skipped any activities, she methodically completes them all, though not necessarily in one sitting, and might postpone an activity if it appears uninteresting.

Vicky appears keenest to discover new tips and so has more complex techniques for locating these, whereas Caroline appears to have devised an approach by which she ensures she completes all the activities in full. Perceptions of choice are explored below.

4.4 Choice versus directed learning

A feature which Caroline finds helpful is skills activities integrated within the module. If these were separated out and not visible within the main module material, it would be too easy to skip them. Since she does not enjoy ICT, she does not trust herself to

seek out any separate activities. Caroline follows the directed rather than a selective route, unlike Tracey and Vicky.

Tracey makes good use of the optionality her module offers to draw on HSCR B activities. She completes all the module tasks without always needing or completing the HSCR B activities. She does not complete them if she finds partway through that she already knows the skill. She finds it sometimes confusing to be sent to different places for resources, hence her favourable view of the social work integrated PDF activities when described to her. Asked how she might feel using this format if she were to come across information she is already familiar with, she takes a positive view of being able to recognise skills you already have, rather than considering the extra detail unnecessary.

Vicky points out the importance of personal choice in engaging her, and her desire to get to grips with a particular skill. When she encounters a challenging activity (such as working with bibliographic software), Vicky does not pursue it unless it is essential, especially if she already has an existing method.

It appears that optionality is welcomed by the more confident participants, enabling them to decide where to concentrate their efforts. However, putting temptation in their way to skip activities is not helpful for the less confident participant. The combination of integrated activities and a methodical attitude towards working through all activities ensures an approach which works for Caroline. Integrated activities do not present a problem to a confident learner who can fast-forward past what is familiar.

4.5 Useful features and possible enhancements

Participants commented on existing features of skills activities that they find useful and engaging, and suggested new features they feel would enhance their learning experience. This is summarised in Table 1.

Table 1: Participants' views on features of skills activities

Type of feature	Existing feature perceived as useful and engaging	Suggestion for new/ improved feature to enhance experience
Indicators of content	<ul style="list-style-type: none"> • Descriptive titles and introductions • Lists of learning outcomes, index lists, clickable menus • 'Before' and 'after' images at start of task to swiftly convey aims 	<ul style="list-style-type: none"> • Hover/pop-up facility e.g. over an activity title, to reveal outline of its contents to quickly assess what to engage with
Still screen captures	<ul style="list-style-type: none"> • To illustrate expected outputs • To break up dense text 	<ul style="list-style-type: none"> • More detailed illustrations of what outputs should look like
Video screen captures		<ul style="list-style-type: none"> • To illustrate processes • To convey speed, efficiency, time-saving techniques • To provide audio instructions for a more supportive experience.
Audio	<ul style="list-style-type: none"> • Audio podcasts useful for scenario setting, sense of 'real world' tasks 	<ul style="list-style-type: none"> • Audio instructions added via commentary on video screen capture to provide more supportive experience
Printable resources	<ul style="list-style-type: none"> • Useful reference documents for self and colleagues/family • Provide text-based alternatives (e.g. when broadband service poor) 	
Formatting	<ul style="list-style-type: none"> • Ability to scroll/browse • Different stages of task clearly indicated using boxes or separate sections 	

4.6 Generic or subject-specific contexts

This figure illustrates the value participants attached to subject-specific versus generic context-giving information.

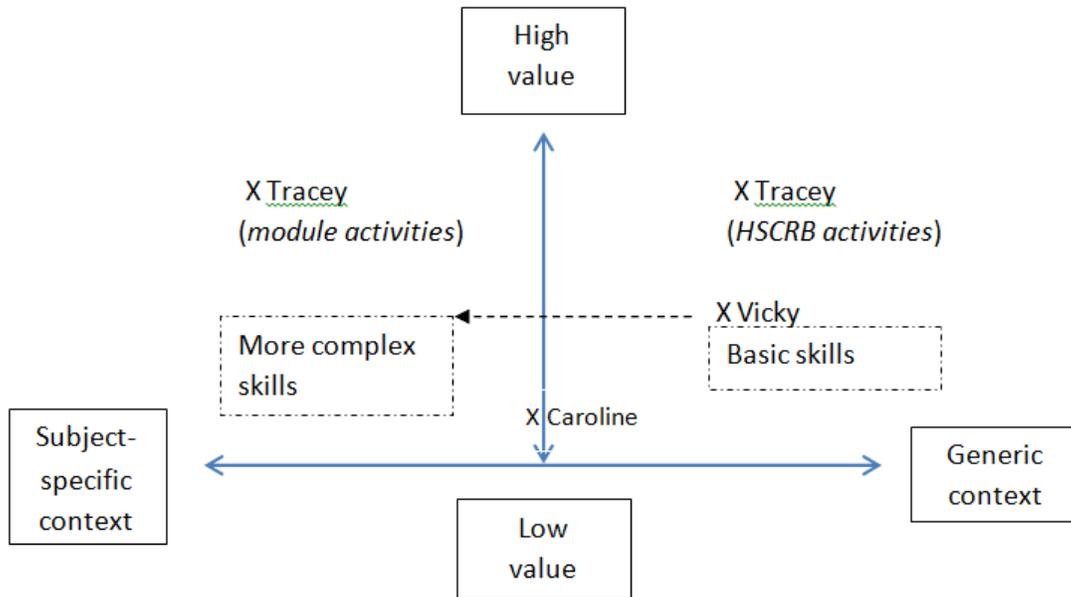


Figure 3: Value of subject-specific versus generic context-giving information

Caroline has a neutral view about context. She did not particularly enjoy the contextualisation within social work but thought on balance it was acceptable and should be retained. Nevertheless, she would be willing to engage in generic activities if integrated within the module and a clear rationale presented.

Tracey feels that if the skill only is intended to be the focus then a generic context is fine (as in the HSCRB). If the context is familiar (e.g. holiday expenses), then the skill can appear in focus. However, she would prefer the familiar context to be related to the module subject so that it maintains her train of thought on her module studies and makes it more meaningful. For this reason she believes module activities should use subject-specific contexts.

Vicky considers generic context acceptable for basic skills. However, she 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.

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 PDF activity). Tracey highlights that using this method the guidance can demonstrate the expected output and students can check their work matches this. All three interviewees noted this need. The disadvantage of the HSCR2 approach is that students can only derive feedback from the generic HSCR activity, and would have to deduce feedback on the module 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, if the aim is for the skill itself to be in focus, then a context separate to the module is acceptable. However, a subject-specific context is preferred. This supports students' concentration on the main module learning and aids meaning-making, provided that the context and content is familiar.

5 Discussion and conclusions

As we have seen, factors within the participants' immediate environment influence their engagement even before they view the learning designs themselves.

A previous study (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. Our findings agree with those from a separate analysis of quantitative data from this study (Hall, Nix & Baker, 2012) that learners consider digital literacy (especially ICT skills) of high importance in their work. Nonetheless, the participants' self-reported confidence and competence varied in the different areas of leisure, study and work and revealed that confidence in using skills in one domain did not necessarily translate into confidence in using them in another. In our on-going data analysis we will be exploring this further.

In terms of awareness of the skills strategy, although two participants were clear and pragmatic about the module's approach, one participant actively avoided the strategy-related guidance due to anxiety. It was also reported that lack of awareness by other students sometimes caused disruption. This highlights the challenge facing designers if they are to communicate a programme strategy effectively, as well as the need to do so regularly.

Regarding engagement with the learning activities, the two more confident participants were selective, and interested in finding new and time-saving techniques to enhance their existing practices. Their approaches reflected this focus. Visual features were important to allow them to glean key information, including feedback during an activity. Their reflections reveal that such feedback is particularly important for learners working independently, using their own contextual data, to enable them to work out the equivalent steps to carry out using the targeted skill. This initial finding is significant because it suggests that even more confident learners require materials that provide them with adequate support.

The less confident participant was motivated by marks and the personal satisfaction of completing tasks. Perhaps surprising, given her previous experience of post-graduate study, she completed all activities, rather than engaging selectively. Features she identified as important to motivate engagement focused on supportive devices to reduce the feeling of isolation. This included regular prompts to engage from clearly visible, integrated module activities and features such as visual, video and audio illustrations to give a sense of support and human presence. Several studies indicate that skills development is more effective when integrated within the curriculum (e.g. Kingsley and Kingsley, 2009). In this case it appears that the visual and structural props afforded by integrated assessed activities supported this learner. Further analysis of the remaining interviews may reveal to what extent

there is a link between low confidence and the need for a more audio-visually supportive framework. This clearly has resource implications.

Concerning the use of context, our quantitative data indicates students prefer and are more likely to complete a contextualised activity (Hall, Nix & Baker, 2012). Qualitative data has revealed reasons, such as the role this plays in helping learners maintain their focus on their module studies. Participants also revealed that when a context is familiar and content is understood, they can focus on learning or practicing a skill.

We suggest that the more unfamiliar the module material is to a student, the less capable they are of determining how it should fit into a skills activity if the skill is also new to them, unless the activity design can provide a high degree of explicit feedback.

Figure 4 illustrates how, when designing a task, the learning designer may need to manage the degree of challenge presented. This may involve considering the expected degree of familiarity of the learner with the targeted skill and activity content/context.

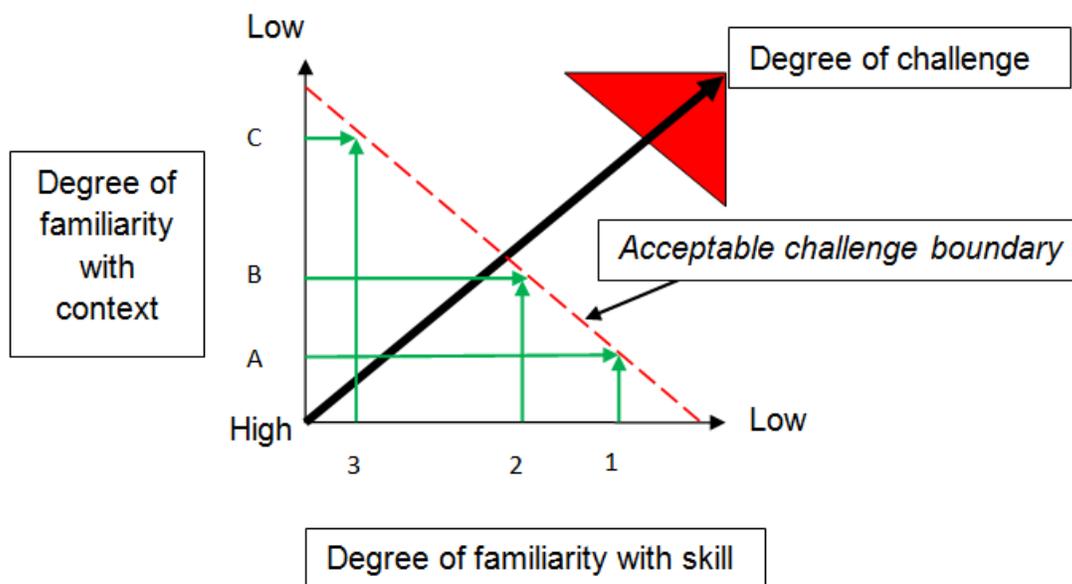


Figure 4: Balancing degree of familiarity with skill and context

For instance, when introducing a new skill with which the student has low familiarity (see point 1 in Figure 4), in order to minimise challenge, designers should ideally draw on content covered 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 prohibitively challenging, represented in Figure 4 by the solid (red) triangle. The area up to the (red) dashed line represents what might be acceptable.

Fluency in skills emerges after repeated practice but time-poor learners may be reluctant to engage in multiple practice attempts. Perhaps learners could be induced by using practice (point 2) with more recent, familiar module content (point B), and then further practice (point 3) with new and more challenging module content (point C)?

Based on our initial analysis the implication is that 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 would need to be integrated within the guidance in order for detailed feedback to be possible.

To summarise, based on 3 of the 18 interviews and supported by our quantitative findings we conclude that to maximise engagement, digital literacy skills activities should be contextualised within the module context and be integrated rather than separate activities. We have proposed a framework for balancing the degree of challenge within an activity. As we analyse the remaining qualitative data we aim to identify further themes, patterns, and connections between quantitative and qualitative data, with a view to identifying further implications for designing and resourcing effective skills activities.

6 Acknowledgements

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7 References

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Biography

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