STUDENT PERSPECTIVES ON DIGITAL SKILLS

Emergent findings from a research study of digital skills conducted at DCU as part of the Enhancing Digital Teaching & Learning project 2020-2022

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Enhancing
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Introduction

The Enhancing Digital Teaching and Learning in Irish Universities Project (EDTL) ran from January 2019 to November 2022, funded through the Irish Higher Education Authority's Innovation and Transformation Programme and co-ordinated by the Irish Universities Association (IUA). The project aimed to enhance the digital attributes and educational experiences of Irish university students. Ensuring university students have the requisite digital skills to thrive in society and in work is a sentiment expressed in European, national and sectoral policy, such as the Digital Education Action Plan (European Commission, 2020), the National Skills Strategy (Department of Education & Skills, 2016) and the IUA Strategy (IUA, 2022). The EDTL project sought to achieve its aim by providing professional learning opportunities to staff to enable them to integrate digital technologies across curriculum, teaching, learning and assessment.

The focus of the EDTL project at Dublin City University (DCU) during this period was largely around the topic of digital assessment, aligned to Area 4 of the European Framework for the Digital Competence of Educators (DigCompEdu). This focus was chosen because students see assessment as the most important part of their programme of study and strategically decide to focus their energies on that (Gibbs, 2010). By embedding digital technologies into assessment design, there is greater potential for students to develop digital skills.

The project team, based in DCU's Teaching Enhancement Unit (TEU), coordinated various staff and student initiatives, including the provision of professional learning opportunities for staff, development of resources for both staff and students, and hosting digital upskilling sessions for students. A key aspect of the project was to conduct research relating to student experiences of digital technologies and assessment over the lifetime of the project. Focus group interviews were completed with students from across a range of programmes, both undergraduate and postgraduate, to explore their experiences. This concise report shares the emergent findings from this research study. The report organises the findings into three main themes and is followed by a high-level discussion of each of these themes.

The project team at DCU is grateful for the assistance of the wider TEU, DCU Students' Union, and the IUA with this research study and report. Most of all, the team is grateful to the students who participated and shared their experiences, from which we learned much and hope to act upon as we enter an exciting period of potential for DCU and the higher education sector as a whole.

Background

Student voice has been a core pillar of the EDTL project nationally (Flynn et al., 2020), and this has also been the case at DCU. The project team has enjoyed close ties with DCU Students' Union throughout the lifespan of the project, and the addition of student interns to the team in 2020 was most welcome.

In 2019, DCU's Research Ethics Committee granted ethical approval for the team to conduct a research study relating to the students' experiences of digital teaching and learning, with a particular focus on digital assessment. The aim of this study was to inform the rollout of the EDTL project at DCU, and support for digital assessment practices beyond the lifespan of the project. Focus group interviews were completed with students towards the end of each academic year of the lifespan of the project (2019/2020, 2020/2021 and 2021/2022).

The Covid-19 pandemic impacted recruitment for and facilitation of the focus groups in year one, as there was a need to pivot to an online format using the Zoom video conferencing tool in the weeks following emergency campus closures from March 2020. Year two focus groups continued on Zoom, and in year three the team adopted a hybrid approach, with some participants in person and others participating via hybrid classroom technology. Each focus group lasted around one hour. Participants in 2021 and 2022 received a €15 voucher as a token of appreciation.

The focus groups were recorded and transcribed afterwards, with student identifiers removed in line with research ethics guidelines. The data from all focus groups were coded using NVivo software in summer 2022, following a coding reliability approach outlined by Guest, MacQueen & Namey (2012).

Time Period	No. of focus groups	No. of participants	Faculties represented
March - April 2020	3	**5** Undergraduate **5** Postgraduate	• DCU Business School • Humanities & Social Sciences • Institute of Education
April - May 2021	4	**11** Undergraduate **9** Postgraduate	• DCU Business School • Engineering & Computing • Humanities & Social Sciences • Institute of Education • Science & Health • Open Education
February - March 2022	4	**20** Undergraduate **7** Postgraduate	• DCU Business School • Engineering & Computing • Humanities & Social Sciences • Institute of Education • Science & Health • Open Education

Findings

Given the prevalence of technology in our societies (Hillyer, 2020), it is not surprising that the findings indicate that students use a variety of technological tools in their daily lives, for learning, working and their own personal needs. Students voice their need for assistance in developing digital skills, to support their learning during their time in higher education, and to apply in their lives and careers after graduation. This finding echoes prior research debunking long-held assumptions about current and emerging generations of higher level students being 'digital natives' (Brown & Czerniewicz, 2010). The findings are discussed below in three distinct but interconnected themes:

1. **Digital skills for learning and thriving in higher education**
2. **The affordances of digital assessment and feedback**
3. **Digital skills for the workplace**

Theme 1: Digital skills for learning and thriving in higher education

Overview

Students use a wide range of digital tools to support them to learn and thrive in higher education. The tools specifically mentioned most regularly through the discussions are DCU's virtual learning environment, other technologies supported by the university such as Microsoft Office, the Google Apps suite, and research tools supported by the library. Third party tools such as online video resources are also described by a large number of focus group participants as useful in supporting their learning. The majority of students also use digital tools specific to their particular discipline. In addition to using tools for learning, students use digital technologies in their personal lives. Students share their experiences of using these tools and indicate the need for support in developing digital skills to maximise the benefits of these tools. While current support for developing digital skills is acknowledged, and students report a level of proficiency in digital skills, the challenges of developing skills are discussed and suggestions for improvements are offered.
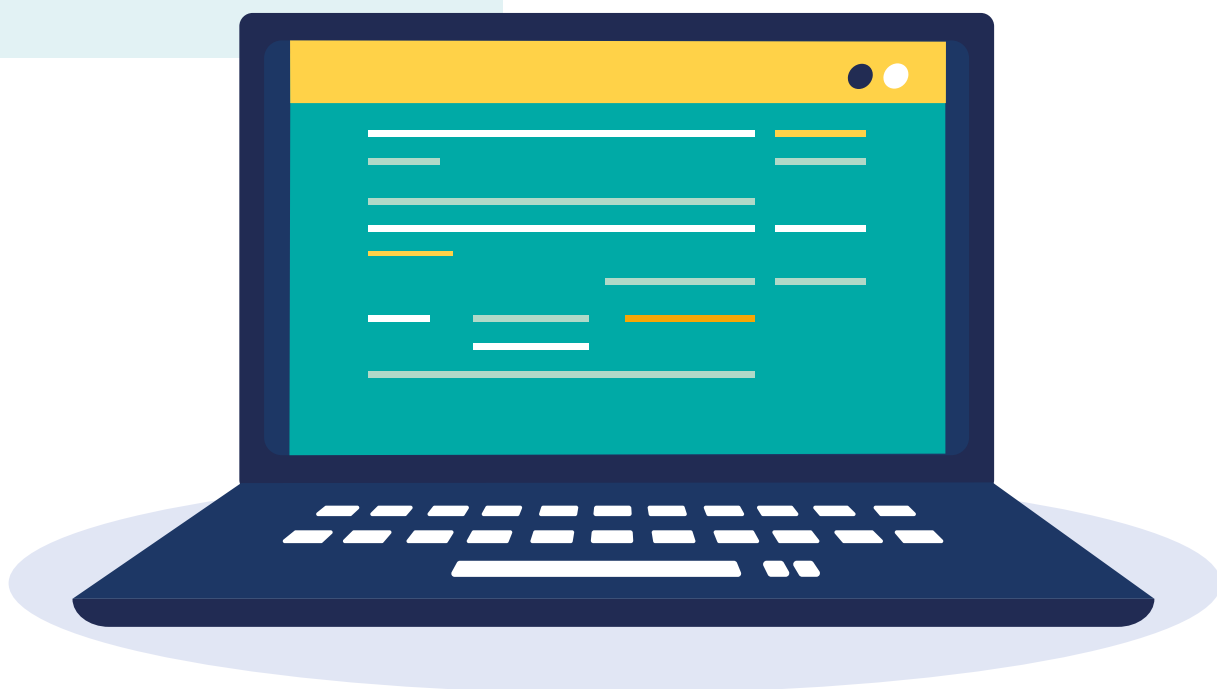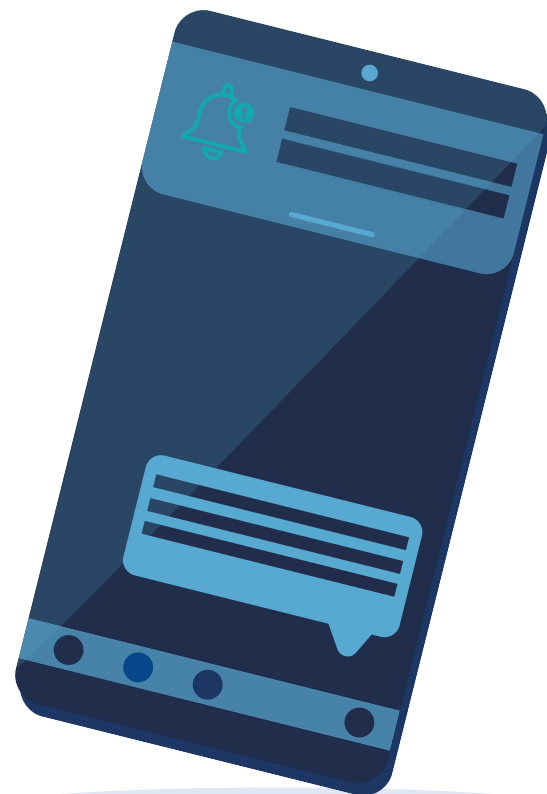
Range of tools used

The majority of focus group participants use the virtual learning environment (VLE), Loop, and e-portfolio platform, Loop Reflect, to support their learning. Google Docs and Microsoft Office suites, which are provided by DCU, are also widely used, with presentation tools and Microsoft Excel particularly popular across all disciplines. Tools supported by DCU Library, such as journal databases and the referencing tool Zotero, are also mentioned. The use of video as a learning tool is widely welcomed, and mentioned across all focus group interviews. Students find the use of video in lectures engaging and enjoy researching video resources independently, through platforms such as YouTube, the Khan Academy and TED Talks. In relation to selecting tools to support learning, students favour a mix of lecturer recommendations and self-discovery. Focus group participants from each faculty report using specific tools to support discipline-specific learning activities directly related to their programme of study, e.g. Adobe Creative Suite for multimedia students, GitHub for computing students, and so on.

In addition to using tools for learning and thriving in higher education, students are adept technology users in their lives outside of university. In particular, social media is widely used by students in their personal lives and to support small business ventures. Instagram and TikTok are the preferred platforms and are used to consume and share content, and as a messaging tool. While several students create and share original content relating to their personal interests, the term 'content creation' did not resonate and is associated with a more professional approach to social media usage or the term 'influencer'.

This deep engagement with digital technologies has resulted in the development of transferable digital skills to manage privacy, digital identity and digital footprint. Students who participated in the year two and three focus groups are more aware of cybersecurity issues, digital identity/footprint and the impact of technology use on their wellbeing than the year one participants, perhaps due to an increased reliance on technology during pandemic lockdowns in 2020 and 2021.

> *"I would very rarely tag anybody unless I knew they were tagged and I'd have public posts maybe on my social media, but I'd be more aware to take them down after a certain time. Even if it's just like a cleaning thing. But you never know what in the past could come back to you later. So, it's always nice every few months just to put everything private."*

In some cases, the discipline context demanded specific digital skills e.g. managing privacy for those undertaking studies in education. By way of illustration, in the following extract a postgraduate student reports an experience of assessing the privacy concerns relating to a specific social media tool (Facebook).

> *"I find being a teacher, when they find you on that (Facebook) you might know somebody in the community and you are obligated to friend them, then they might know your sister and all of a sudden, your life is just completely exposed."*

Student experience of digital tools for learning

Focus group participants were invited to share their experience of the tools they use to support learning and in particular their experience of using the VLE and e-portfolio platform (Loop and Loop Reflect). Perceptions are somewhat mixed. Students describe their experience of the VLE as inconsistent and recognise that the use of the VLE depends on the skills and competencies of the individual lecturer, aligning with the findings of the Irish National Digital Experience (INDEx) Survey (NFETL, 2020).

> *"I found Loop helpful but it always depends on the lecturer and running it, that, some lecturers are quite used to it and like can make it easy to work through, but then sometimes with other lecturers, it's a lot more messy."*

On the other hand, for students who engage with programmes completely online, Loop is described as a vital connection to the university.

> *"I'm an Open Education student, so, I was never in the college, so, for me, Loop is like my link to DCU. It's really the only connection I have between me being at home and the college."*

Similarly, student experiences of the e-portfolio platform, Loop Reflect, are also somewhat mixed. Several students report spending a significant amount of time learning how to use the tool, adding to their workload. The following extract summarises a recurring frustration with the Loop Reflect interface expressed throughout the focus group discussions.

> *"Loop Reflect would probably get one or two stars out of 10 for me. For somebody who understands web development, it's on the very lower end of being user-friendly simply because it's just slow, and the symbols and the buttons don't really represent what you're able to do."*

In contrast to the user experience of Loop Reflect, the Google Sites app (also available through DCU) is described as easier to engage with by several participants.

> *"This year, for the time, I used Google Sites to make an e-portfolio, much more intuitive because it's automatically linked to the stuff that is in your Google Drive. So, it is much easier."*

Others were more positive about Loop Reflect and it is evident from the findings that when adequate support is provided, students appreciate the benefits of the platform.

> *"I think it's actually really useful to work with and they give us a lot of support with learning how to use Loop Reflect because I think at the start it's a bit hard to work with and people are often kind of confused with it."*

Support for digital skills development

Across the board, students call for further support and training in relation to developing digital skills. While they acknowledged that there is some support for developing digital skills in their programme of study, there was a sense from the focus groups that further, and more timely opportunities are needed. On the other hand, students acknowledge that existing supports, such as user-triggered tours of the VLE, are often ignored.

> *"I think there's a lot of things that we as students will ignore like the training on how to use Loop. We're never going to look at that, there'll be pop-ups upon pop-ups like "here's how to use Loop" but I will still click off them and then complain about it."*

Calls for support in developing Microsoft Excel skills also recur throughout the focus group discussions. The need for such skills echoes findings from another research study conducted as part of the EDTL project, where graduates and employers noted that an excellent level of Excel skills are required in the workplace (Stone & Lowney, 2022).

The key challenge for students in developing digital skills development is finding time to engage with support available to them. Focus group participants call for digital skills opportunities to be scheduled mindful of their live class timetables and other commitments. Others suggest that the provision of 'just-in-time' support would facilitate students to explore and develop digital skills at particular points-of-need during their programme of study. Refresher opportunities throughout the semester are suggested to build on initial introductions at the start of the year e.g. in relation to citing and referencing digital tools.

Theme 2: The affordances of digital assessment and feedback

Overview

All students report some level of interaction with digital technologies for assessment and feedback. For some, their experience is limited to simply uploading digital files to the VLE, while others use digital tools to support their assessment through creating multimedia artefacts or using digital tools to engage with the assessment brief. The experiences of digital assessment depend on the particular discipline of the student and include: video assessment, discussion fora, Loop Reflect portfolios and quizzes. The benefits of digital assessment are identified as: choice and flexibility; authentic assessment relevant to work context; scope for creativity; and reduced assessment anxiety through continuous assessment. The challenges of digital assessment are identified as: developing the required technical skills; lack of clarity on the rationale for a digital approach to assessment; and lack of clarity on assessment grading. Suggestions for improvements and for managing these challenges are also offered.

Feedback is highlighted as a key aspect of the assessment process in the findings, reflecting the literature (Evans, 2013; Nash & Winstone, 2017). The use of email feedback is widespread and welcomed by students. More sophisticated digital feedback tools such as video and audio feedback are not as widely used. Where such tools are used, students are very positive about it, echoing emerging experiences in higher education contexts (Kirwan, Raftery & Gormley, 2019).

Discipline specific experiences of assessment

Student experiences of digital assessment vary and are discipline specific. Disciplines such as computing and engineering require the integration of particular technologies into assessment design due to their applied technical nature. Disciplines linked to a profession, such as education, also require students to engage with digital technologies that are prominent in that profession e.g. digital tools used in the early childhood, primary, or post-primary classroom. In other disciplines, such as those within the humanities, written assessment remains the dominant method, although students offered examples of how digital technologies are now being woven into assessment, for example, a wiki assignment in a law subject.

Benefits of digital assessment

Generally students welcome the integration of digital technologies in assessment and highlight specific potential benefits. Students perceive digital technologies as having potential for supporting authentic assessment—assessment linked to real-world contexts and activities—and thus helping them to prepare for the workplace. For example, Loop Reflect offers an opportunity to facilitate authentic assessment directly linked to future careers.

> *"I'm taking my undergraduate science, and now this year I'm expected to do the journal as well, the Reflect kind of portfolio thing and, so, for my personal course in psychology, it makes sense, it's very interactive, it's cool, as well, psychology might be driven in that way, digital interventions and digital mental health applications."*

Students feel that the use of digital technologies facilitates greater choice and flexibility in terms of addressing their assessment briefs. Offering choice in relation to assessment aligns with the principles of Universal Design for Learning, which guide DCU's approach to curriculum and assessment design (Dublin City University, 2017).

> *"In one of my modules, we have quite a broad range of what we can do, like it's a presentation, but he doesn't really care how we present it. Like, it could be a doc, it could be a poster, like you could do a Zoom recording, you could do, like, a podcast version of it. And I think it, I don't know, I think, caters to everyone a little bit more."*

Digital approaches also offer opportunities to embrace creativity, which is welcomed by students as an alterative to the traditional essay.

> *"Before Christmas, we had the option of writing an essay or making a video presentation, and I did the video presentation and I made it into a news programme. And I was presenting the facts in the news. I thought it was really, it's such a creative way to do something that you could write an essay for."*

Students' experiences of digital assessment relate largely to continuous assessment and not terminal examinations. In addition to the benefits that digital technologies bring to continuous assessment, students appreciate the broad benefits of continuous assessment itself: fairness, validity and less anxiety inducement compared to terminal examinations (Kniveton, 1996; Miller & Parlett, 1974).
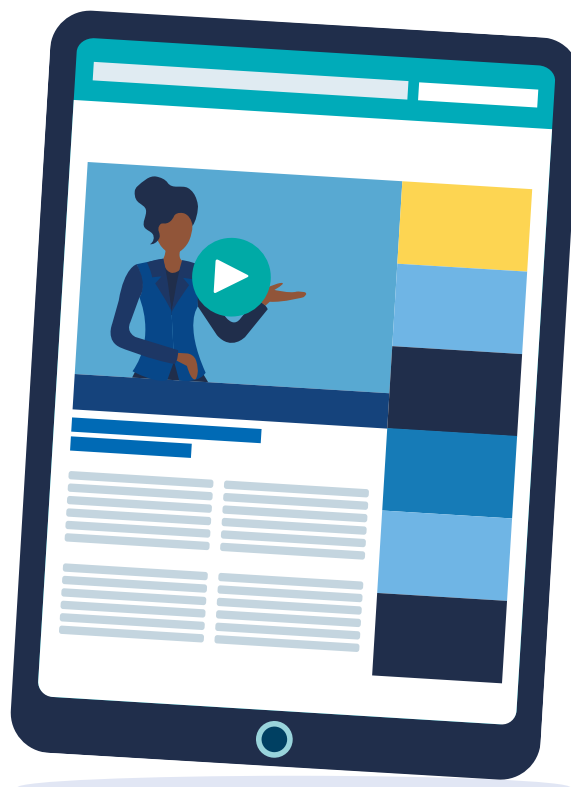
Challenges of digital assessment

While digital assessment is generally welcomed, the challenges are also discussed. Students call for guidance in relation to selecting specific tools to avoid being overwhelmed by choice.

> *"Let's say they (the lecturer) prefer podcasts more than posters or something like that, so there's that fear of like okay, they may actually prefer one way or another."*

The rationale for using a digital approach to assessment is not always clear to students, and at times led students to feel that technology was being used "for the sake of using it". In particular, Loop Reflect is described in one particular context as a "solution to a problem that never existed".

Developing specific digital skills is highlighted as another key challenge to engaging with digital assessment. Students called for structured opportunities to develop these skills within their programme or as extra-curricular activities. Currently, students feel that they must take responsibility to develop such skills independently, which can detract from time needed to work on the substantive material of the assessment itself.

Students also call for greater clarity in terms of grading digital assessments e.g. whether the use of technologies are included in the grading criteria.

> *"I think with some assignments it was kind of confusing with kind of what we are asked to do, so, you'd have to do a lot of emails back and forth on just to clarify what exactly you're going to do and there was a lot of help in that way but it would have been helpful to kind of add it up there (the VLE)."*

While broadband connectivity is not raised widely as a challenge to engaging with digital assessment, it is mentioned twice across the focus groups as a potential challenge.

> *"I live in quite a rural area, I'm on rural broadband… [with] Screencast-O-Matic I spent about three hours trying to record my five minute video before giving up on it."*

Digital feedback

Digital approaches to feedback are described as offering welcome flexibility for students by removing the need to meet a lecturer in person. The relative brevity of digital feedback is also welcomed:

> *"It's just quick and easy really because you don't need to arrange a time to go and meet a lecturer, you can just log on any time and just see the comment that they've left. And it's normally quite a brief informative comment rather than like a big conversation that you could be having."*

This finding suggests that students view (and/or experience) feedback as a transaction, and not a dialogue. Literature suggests engaging students in feedback dialogue aids their learning and self-regulation (Winstone, Pitt & Nash, 2021).

It is evident that the use of digital feedback tools such as audio and video feedback is not widespread. Where such tools are used, students describe one of the benefits as adding tone, echoing emerging findings in this area of research (Kirwan, Raftery & Gormley, 2019).

> *"I actually have received feedback via their voicemail message on Loop before and I do think that those help with the tone and push."*

Students perceive the use of digital grading rubrics as offering a clear map of expectations in advance of engaging with the assessment, and clarity in relation to the grading process.

> *"I like that (rubrics) because you can see how it is broken down like you might think you overall did really well but say, your conclusion might be worth twice as much as your introduction, and then you know how it was broken down."*

Email feedback is commonplace and perceived as offering benefits such as reducing the logistics of meeting face-to-face. These findings highlight the potential for expanding the use of digital feedback. Students were clear that the mode of feedback is not as important as the quality of the feedback.

> *"The format that it's delivered doesn't matter as long as it's good quality feedback. If it's over email, if it's told to you, it doesn't matter, provided that it's actually useful."*

Echoing sentiments that are documented in literature (Y1Feedback, 2016), students generally seek greater levels of feedback, including feedback on what they have done well in an assessment and what they have done not so well. Another suggestion emerging from the findings is to provide digital feedback on terminal exams, something that is not currently widely provided.

Theme 3: Digital skills for the workplace

Overview

Students are highly attuned to the need for digital skills to succeed in the workplace. Students refer consistently throughout the focus group discussions to careers they hope to pursue post-graduation, and appear to have a good understanding of the discipline specific, and general digital skills they will need. The majority of focus group participants indicate that their university experience supports the development of digital skills through learning opportunities, both within and external to, their programmes of study. Suggestions for improving opportunities to develop digital skills for the workplace align broadly with suggestions for developing digital skills for learning.

Authentic digital skills development

Students view digital technologies and skills development in a pragmatic manner and prefer to develop digital skills that they will use again in the workplace as evidenced in the following comment in relation to creating video artefacts for an assessment:

> *"I don't think any of us appreciated doing it because to be honest, to be quite blunt, we're never really going to use it again."*

The discussions in the focus groups indicate that students prefer not to engage with digital assessments that are not relevant to future studies or a future employment context. This aligns with discourse around skills development in higher education being directly linked to employment and economic success (Holborow, 2012).

Non-discipline specific digital skills

Students also recognise that broad, non-discipline-specific skills are needed to help them succeed in the workplace. For example, some of the focus group discussions raise the importance of being active and effective on platforms like LinkedIn, and on creating an appropriate digital presence to support career development.

> *"LinkedIn is very critical for us to keep in contact because even though my field is not broad, it's still very hard to figure out what to do in the future. So for me, I use LinkedIn to talk to people who graduated from my degree to ask them what they are doing. What's up for the future, to get insight into what I would have to do after I graduate."*

Presentation and communication skills are also mentioned throughout the data by almost every student across all disciplines. While there is not an exclusive focus on digital presentation and communication, the need for digital skills and 'general digital literacy' in this regard is acknowledged.

Existing digital skills development opportunities

Although some students report opportunities to develop digital skills within their programme relevant to their career development, others call for more opportunities in this regard. Students acknowledge that digital skills development occurs incrementally and across a variety of contexts in the university and beyond. Students share how they have developed digital skills in their second-level education, through part-time employment, social and sporting activities, interaction with friends, and other informal and non-formal contexts including their own independent learning. This conception of a learner developing skills in cross-boundary contexts echoes the concept of a 'learning ecology' put forward by authors such as Jackson (2013). This finding suggests that although students see a role for digital skills development in their programme, and through assessment, digital skills development can be supported through a variety of opportunities.

Recommendations

The emerging themes prompt some recommendations for how DCU can continue to support students to develop digital skills for learning and for the workplace, through sustaining and enhancing existing opportunities and developing complementary opportunities.

Many of the points raised by students in the focus groups align with approaches already taken by the TEU in designing professional learning for staff. The findings validate these approaches and also offer insights for further development. As the EDTL project concludes, the recommendations naturally focus on sustaining professional development for staff in relation to digital assessment and feedback, and consolidating approaches to student digital skill development.

Embedding digital literacies and skills for students

- **Consolidate and enhance existing student support and guidance for Loop, Loop Reflect and other institutional tools. Draw on relationships with DCU Student Support & Development, Information Systems Services and DCU Students' Union to market this support and guidance more effectively.**

- **Continue to research student experiences of digital technologies across the university to inform the integration of digital assessment across programmes and modules.**

- **Create a clear map of existing digital skills development opportunities for students, including those provided by the EDTL project. This map can be used to communicate existing opportunities to students and staff, and to identify any gaps in provision.**

- **Ensure that digital skills opportunities continue beyond the lifespan of the EDTL project by building on existing partnerships between DCU units.**

Embedding digital approaches to assessment and feedback

- Synthesise the benefits of digital assessment as outlined in the study and promote to staff to encourage further integration in DCU programmes.

- Sustain the discipline-specific approach of the EDTL professional learning offerings to support staff to design assessment that leverages digital technologies, at a programmatic level. The backing of leadership and the provision of resources are key to ensuring staff engagement and sustainability.

- Building on the 'Y1Feedback' project in 2016, examine current digital feedback practices in DCU, to ascertain if or what elements or practices are related to disciplines, and how they can be enhanced to better support student learning.

- Continue to promote the affordances of audio and video feedback for students, and support staff to develop the skills needed to produce effective feedback in these formats.

Enhancing current use of digital technologies for teaching, learning and assessment

- Build on existing work such as the development of VLE module page templates to support staff to use the Loop VLE more consistently.

- Encourage wider use of grading rubrics to provide consistency called for by students.

- Continue to enhance the VLE and related technologies to improve the student experience, such as through user interface improvements.

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