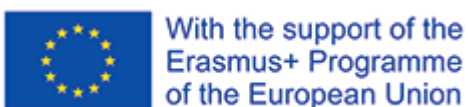




DigCompEdu and the Professional Development of Teachers in Higher Education

IO5 Report:

Overview, Stakeholder Consultations, and Policy Recommendations



ERASMUS+: Strategic Partnership (KA203-867FE04B). Project period: 1 September 2019 – 31 December 2022

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IO5: Overview, Stakeholder Consultations, and Policy Recommendations

1. Background and Context

1.1 University Teaching in a Digital Era

Over the past several years, there have been many reports, strategies, and ‘foresight’-style documents published which attempt to envision new approaches (with varying degrees of ambition) to the teaching mission of higher education institutions. A recurring theme has been that of the training and professional development of those who teach viewed against the competing pressure for research productivity and excellence. The increased penetration of digital and multimedia technologies into all aspects of professional (and personal) lives has led to a parallel challenge of rising expectations for universities to demonstrate that they are offering modern, state-of-the-art educational experiences that suit the needs of the workplace and wider society.

As a starting point, we can consider the two reports of the European Commission’s High Level Group on the Modernisation of Higher Education (June 2013, October 2014), the first of which focused on the status accorded to teaching within universities and whose core recommendation is captured in the statement in the report’s introduction:

“The essential challenge for the higher education sector, generally speaking, is to comprehensively professionalise its teaching cohort as teachers.”

The issue of ‘parity of esteem’ between the teaching and the research dimensions of academic practice is one which often features also in more recent discussions centred on academic careers and the nature of higher education institutions.¹ Some universities (either individually or in common with peers in their own country) have begun to be more explicit about their role expectations for academic staff and identify indicators of achievement and alternative pathways through promotion. This may, for example, mean staff being able to pursue either a teaching focused or a research route up to full Professorship level.

“This vision for Europe’s universities in 2030 requires a reform of academic careers. This should be acknowledged and supported by all stakeholders through the following actions:

....promoting further parity of esteem between different career paths, including parity of esteem between research and teaching;...” (EUA, 2021, p. 12)

In their second report, the High Level Group made specific recommendations with regards to ‘New modes of learning and teaching’, partly in response to the emergence of MOOCs as a potential challenge to traditional institutions and their pedagogical and business models, but also more generally to identify opportunities for embracing technologies and the wider agenda of access, participation, and flexibility in the higher education landscape. Once again, they reiterate the point that:

“Teaching staff are, of course, at the frontline of delivering these changes and they must be equipped with the skills and knowledge to allow them to fully utilise the range of new teaching tools available. Continuing professional development for teachers must become the norm across all European institutions.”

A subsequent detailed report based on surveys across the Eurydice network in 2017, noted that:

¹ And, indeed, features in the Rome Ministerial Communiqué (2020) of the Bologna Follow-Up Group (Annex III) “, assuring....structural measures to assure the parity of esteem for teaching and research. If needed, academic career schemes should be revised to ensure a better recognition for teaching in academic careers;”

“Across Europe, there are almost no large-scale continuing professional development (CPD) programmes providing academics with the opportunity to improve their teaching skills. Most initiatives in this area are isolated activities of individual higher education institutions.” (Eurydice, 2017)

Whilst highlighting the lack of a common approach across Europe to academic staff career development and training in pedagogy, each of these reports did note specific examples of good practice in individual countries, professional associations, and particular universities.

1.2 DigCompEdu – The European Digital Competence Framework for Educators

Explicit recognition of the digital aspects of contemporary teaching, learning and assessment and the need for training and support is evidenced in parallel reports and initiatives over the same time period. Indeed, the European Digital Competence Framework (Punie et al. (2014)) which was a first step to identify the core skills and knowledge that citizens should have in order to thrive in a digital age was fairly quickly adapted to the education context, not in terms of the skills of students, but those of teachers through the advent of the European Digital Competence Framework *for Educators* (DigCompEdu, Redecker & Punie (2017)).

A distinctive aspect of DigCompEdu is that it is centred in the pedagogical relationship between teacher and student. It does not, for example, set out to identify specific tools, packages, or software with which teachers should be familiar, but rather considers six key areas within three overarching domains:

- Educators’ professional competences
- Educators’ pedagogic competences
- Learners’ competences.

Figure 1 captures the connections across the areas, domains, and competences. Details of the specific competences are provided in Appendix 1.

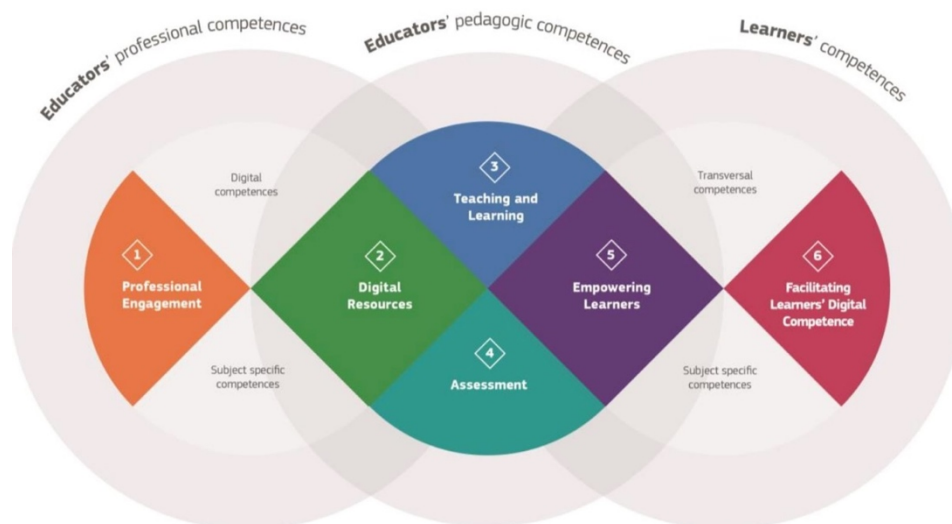


Figure 1: The European Digital Competence Framework for Educators (DigCompEdu)

Taking inspiration from the Common European Framework of Reference for Languages (CEFR)², DigCompEdu has also adopted a number of proficiency levels.

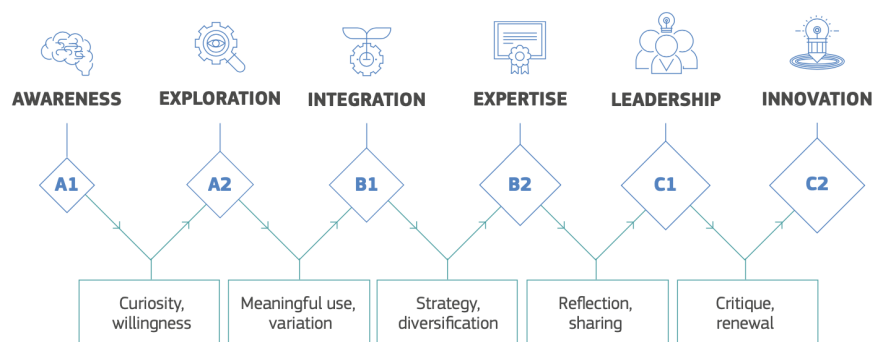


Figure 2. The progression sequence across the levels.

The description of each level, in broad general terms, is shown in this extract from the Framework definition document.

Newcomer (A1):

Newcomers are aware of the potential of digital technologies for enhancing pedagogical and professional practice. However, they have had very little contact with digital technologies and use them mainly for lesson preparation, administration or organisational communication. Newcomers need guidance and encouragement to expand their repertoire and to apply their existing digital competence in the pedagogical realm.

Explorer (A2):

Explorers are aware of the potential of digital technologies and are interested in exploring them to enhance pedagogical and professional practice. They have started using digital technologies in some areas of digital competence, without, however, following a comprehensive or consistent approach. Explorers need encouragement, insight and inspiration, e.g. through the example and guidance of colleagues, embedded in a collaborative exchange of practices.

Integrator (B1):

Integrators experiment with digital technologies in a variety of contexts and for a range of purposes, integrating them into many of their practices. They creatively use them to enhance diverse aspects of their professional engagement. They are eager to expand their repertoire of practices. They are, however, still working on understanding which tools work best in which situations and on fitting digital technologies to pedagogic strategies and methods. Integrators just need some more time for experimentation and reflection, complemented by collaborative encouragement and knowledge exchange to become *Experts*.

Expert (B2):

Experts use a range of digital technologies confidently, creatively and critically to enhance their professional activities. They purposefully select digital technologies for particular situations, and try to understand the benefits and drawbacks of different digital strategies. They are curious and open to new ideas, knowing that there are many things they have not tried out yet. They use experimentation as a means of expanding, structuring and consolidating their repertoire of strategies. Experts are the backbone of any educational organisation when it comes to innovating practice.

Leader (C1):

Leaders have a consistent and comprehensive approach to using digital technologies to enhance pedagogic and professional practices. They rely on a broad repertoire of digital strategies from which they know how to choose the most appropriate for any given situation. They continuously reflect on and further develop their practices. Exchanging with peers, they keep updated on new developments and ideas. They are a source of inspiration for others, to whom they pass on their expertise.

Pioneer (C2):

Pioneers question the adequacy of contemporary digital and pedagogical practices, of which they themselves are *Leaders*. They are concerned about the constraints or drawbacks of these practices and driven by the impulse to innovate education even further. Pioneers experiment with highly innovative and complex digital technologies and/or develop novel pedagogical approaches. Pioneers are a unique and rare species. They lead innovation and are a role model for younger teachers.

Given that the framework is aimed at educators at all levels (i.e. including primary, secondary, further and higher education) some of the language used in the individual competences may not be appropriate for

² <https://www.coe.int/en/web/common-european-framework-reference-languages/level-descriptions>

those working specifically in higher education (for example, there are some references to communicating with parents). Nonetheless, it does provide a common frame of reference and indicate possible paths for professional development and progression through the levels.

The High Level Group's second report on the modernisation of higher education had already drawn attention to the increasing importance of digital technologies in teaching and learning, triggered in part as a response to the MOOC phenomenon which, at the time that group was reporting, was seen as a major potential 'disruptor' in the provision of higher education (Barber et al. (2013)). As the hype around MOOCs subsided³, some of the sense of urgency may have abated, but there was nonetheless raised awareness (and in some cases, investment in projects and national initiatives) of the potential of technologies and the need to address infrastructural deficits.

Three particular recommendations which the group made were:

"Recommendation 3: The integration of digital technologies and pedagogies should form an integral element of higher education institutions' strategies for teaching and learning. Clear goals and objectives should be defined and necessary organisational support structures (such as the European Academy of Teaching and Learning⁴) established to drive implementation."

"Recommendation 4: National authorities should facilitate the development of a national competency framework for digital skills. This should be integrated into national professional development frameworks for higher education teachers.

Recommendation 5: All staff teaching in higher education institutions should receive training in relevant digital technologies and pedagogies as part of initial training and continuous professional development. "

Whilst 'Recommendation 4' talks about a national competency framework for digital skills (and there are some examples which have arisen, e.g. the UK's JISC Digital Literacies and subsequent Digital Capabilities Framework⁵; the extensive range of projects⁶ supported by Ireland's National Forum for the Enhancement of Teaching & Learning, including the All Aboard project⁷ and the Professional Development Framework⁸) DigCompEdu provided an opportunity to take a wider European perspective, allowing national agencies and institutions to build on a common framework, something which was embraced by a range of Erasmus+ and other related projects (including CUTE).

³ To some extent this is mirrored in analyses of the literature. A simple use of Google's Ngram viewer, for example, reveals that 'MOOC' as a term reached a peak in US and UK publications in 2015 and has been on decline since then. Interestingly, this is not the case in some other languages and education systems where perhaps MOOCs have more effectively occupied a particular niche, albeit that in these cases they are provided by universities and/or national agencies themselves rather than alternative, private providers (e.g. <https://www.fun-mooc.fr/>).

⁴ A proposed organisation which has not been established.

⁵ <https://digitalcapability.jisc.ac.uk/what-is-digital-capability/>

⁶ <https://www.teachingandlearning.ie/our-priorities/digital-transformation/key-developments-since-2014/>

⁷ <https://www.allaboardhe.ie/>

⁸ <https://www.teachingandlearning.ie/our-priorities/professional-development/the-national-professional-development-framework-pdf-for-all-staff-who-teach-in-higher-education/>

1.3 COVID-19 and the 'Pivot' Experience

The lockdowns imposed globally as a result of the COVID-19 pandemic, of course had a dramatic impact on higher education institutions. Determined to continue to provide continuity to students, staff, and society, institutions participated in the 'pivot' to online learning in a very short timescale and as the crisis continued into the next academic year, with varying public health requirements in different countries, some institutions engaged in a mix of online, blended, and hybrid/'hyflex' teaching. All these modes have a significant dependence on technological infrastructure and the need for users to have appropriate competencies. Consequently, many university teaching and e-learning centres were placed under extreme pressure to rapidly roll out training on a large scale across the entire academic workforce, and ensure that students also had access to equipment, connectivity and appropriate technology support.

Reports, such as those compiled by the Coimbra Group of universities (Coimbra Group (2020)), have drawn attention to many of the initiatives which were undertaken. The authors recognised at the time that these were emergency conditions and that,

"The pivot to online delivery of education cannot be sustained in the long-term because the vast majority of courses currently on offer were pedagogically designed to be delivered face-to-face."

However, they note also that,

"This COVID-19 crisis is an opportunity to reflect on good practice for the design of online and blended courses and the challenges that this process entails in protecting learning outcomes for students."

A follow-up report was published in December 2021, in which they note the importance of ensuring that the relationship between pedagogy and technology is one which meets real educational needs:

"Special attention should be devoted to online or digital pedagogy, in line with advances in technology-enhanced environments." (Coimbra Group (2021))

The authors comment that whilst there was a heroic response to the circumstances, the future presents a number of challenges.

"Despite the many positive dimensions of the online teaching and working, such as digital inclusion and mobility, home-office flexibility, or time and financial savings, there seems to be widespread agreement on the fact that virtual learning requires much effort, on behalf of both staff and students. While a lot of work has been done to build on existing virtual initiatives and/or set up new systems and infrastructure, it is difficult to catch up with the speed with which change is happening." (p75)

In common with other observers and commentators, they draw attention to the impact on wellbeing of both staff and students.

"Many universities have noted the prevalence of pandemic burnout among staff which calls for additional support at all levels. It is widely acknowledged that online teaching has increased the workload and the risk of burnout and screen fatigue, while the need of psychological counselling for both students and teachers seems to have risen sharply." (p74)

In conclusion, they reiterate that,

"...continuous professional development and training are paramount in developing successful and efficient virtual spaces." (p75)

The EUA's Survey of National Rectors' Conferences (Gaebel & Stoeber (2021)), did reveal uncertainty over which changes will remain beyond the COVID period even though the expectation is for 'enhancement of the

online services the institutions offer' and more blended and online learning. The requirement for investment in infrastructure and professional development being crucial in ensuring sustainability.

The Reflection Paper on the post-pandemic future of digital and online learning in higher education (Humpl & Andersen (2022)) makes very clear that,

“ ... educators can only cope with digital and online learning formats on a permanent basis if digital education is embedded in their professional development, including initial teacher education. In particular, educators need to learn how to tailor digital technology to specific subjects, objectives and activities.” (Recommendation 2, p13)

There is also recognition of new and emerging technologies such as artificial intelligence and augmented reality and ensuring that continuing professional development is provided to academic staff on the potential impacts of such on their design of courses and teaching. The need to develop the skills and confidence of students also, is noted and reference is made to the proposal of a European Digital Skills Certificate in the European Digital Education Action Plan which, itself, states:

“Digital competence should be a core skill for all educators and training staff and should be embedded in all areas of teacher professional development, including initial teacher education.” (p8)

It is interesting to reflect on the changing narrative over the COVID period, from the initial, dramatic switch to 'emergency online teaching' and the focus on rapid upskilling of staff, through a period in which confidence grew in teaching online and in hybrid modes with technologies such as Zoom, Teams, etc, before a more recent realisation that issues of work intensity, resources, and sustainability require a more balanced and realistic perspective on possible futures.

The concept of 'hyflex'⁹ teaching received considerable attention in this middle period, with product vendors and suppliers of AV equipment showcasing technologies to support a teaching scenario in which some students were physically present whilst others were online in live teaching sessions. Whilst there are no doubt excellent examples of such a form of teaching, for the teacher it can prove to be exhausting and provides a significant additional cognitive load trying to engage both groups equally and to ensure that the technology itself is properly configured. Without careful pedagogical design, additional technical support or the use of purpose-built teaching venues, it presents a large number of risks to quality, consistency and engagement.

MIT's recent report on 'Leveraging Best Practices' (MIT (2022)) bases its recommendations on extensive consultation with teaching staff, and aims to identify what are the valuable educational lessons to take forward into the post-COVID period. It presents, perhaps, a more sober view than some of the earlier ambitious statements from technology enthusiasts, but most likely resonates with the broader academic community in its areas of focus and practicality. Three aspects are recommended for detailed consideration:

- **Community, well-being and belonging.** This gives voice to the emotional toll of the COVID experience on staff and students, but also invites us to consider how we can use technologies and the way we design our courses and the student experience to build a sense of belonging and mutual support. By being isolated during the lockdown, most of us rediscovered the value of community and as educators and learners, perhaps this was one of the most important learnings from the experience.
- **Enhancing engagement** - here the discussion considers the ways in which teaching can be more participatory in the classroom and beyond.

⁹ <https://library.educause.edu/-/media/files/library/2020/7/eli7173.pdf>

- **Enriching and augmenting the learning environment** – examining opportunities to change the physical layout of our teaching spaces and not just focus on the virtual, with investment and a willingness to innovate and experiment both essential.
- **Assessing learning** – a wide range of experiences throughout this period have demonstrated to many in the academic community that our assessment methods merit revisiting, redesign, and indeed stand to be challenged in terms of how effective they are at authentically capturing student achievement and capability. On the more negative side, this also has become a priority in many institutions due to concerns around the integrity of online (and other forms of) assessment, particularly with the growth in contract cheating providers.¹⁰

1.4 Approaches to Professional Development in Teaching with Technology

Whilst the call for professional development of teachers in higher education is echoed across all these publications and other national, sectoral, and institutional strategy documents, the question as to the most effective means of facilitating this should be considered. In the context of the current project, approaches which are well-fitted to the promotion of effective use of technologies in supporting learning may vary from traditional training delivery, for example. Similarly, it is worth considering the mix of pedagogy and technology skills, as well as whether the training is incorporated into a wider professional development structure.

Basilotta-Gómez-Pablos et al (2022) undertook a systematic literature reviews teachers’ digital competence (in higher education) and although noting that the research has mainly been based on self-assessment and reflection they state that

“Teachers recognize that they have a low or medium–low digital competence, as well as the absence of certain competencies, especially those related to the evaluation of educational practice.”

Castañeda et al (2018) and Domingo et al (2020) stress the importance of teacher skills development being holistic, situated, and enabling teachers to support the learning of their students as ‘active participants in a digital world.’ A number of other authors (including Montoro et al (2015), Ecclesfield et al (2012) consider that becoming an active digital practitioner in education is often achieved by teachers pursuing self-directed learning, experimenting through trial and error, and sharing questions, support, and ideas with peers and networks of which they are members.

Peer-learning and the development of communities of practice are common in many professional contexts but may be particularly well-suited to the issue of digital competence. The situated and ‘just in time’ aspects are important and give relevance and focus to the learning. Formal programmes and workshops have their role, but those who are designing academic staff training, should consider the distinct advantages that can be offered by peers learning together in a real teaching context. An interesting example which is used in one of the partner countries (Ireland) is that of Peer Triads in Open Online Courses¹¹ which combines the strengths of discussion, implementation of an innovation or tool, and reflection on practice.

The Erasmus+ EdDiCo Project (EdDiCo (2020)) conducted interviews with educators in higher education which confirm that many of those who teach tend to develop their skills individually, as they feel they need them, perhaps in response to a particular identified need. Again, the average self-reported competence level was medium, but with a spread and a mix of low and high skill and confidence levels across the sample. Their

¹⁰ <https://www.forbes.com/sites/susanadams/2021/01/28/this-12-billion-company-is-getting-rich-off-students-cheating-their-way-through-covid/>

¹¹ Introduction to Peer Triads in a PD Open Course <https://hub.teachingandlearning.ie/wp-content/uploads/2021/06/NF-2020-Introduction-to-Peer-Triads-For-Participants.pdf>

preference was to have an available mix of professional development opportunities which included structured workshops and ‘Autonomous forms of self-training, not necessarily in solitude, but often with the help of colleagues or even friends/acquaintances from other fields.’ (p.18)

DigiHE (another Erasmus+ consortium) compiled the results of a survey from across European countries on digitally enhanced learning and teaching in higher education, and identified that the three main enablers were: (a) Proactive participation of staff and students (74%); (b) Professional Development and training (59%); (c) Strategy (43%). These were all seen as more important than other factors such as targeted funding from national initiatives, joint projects, etc. The respondents strongly agreed (67%) that peer-exchanged within the institution, enabling staff to learn from each other was the most useful measure for improving digitally enhanced teaching.

2. The CUTE Project: Competences for Universities – using Technology in Education

The CUTE project has explored issues around the enhancement of teachers’ digital competence in higher education, through a number of events, small-scale initiatives carried out in partner institutions or across institutions, consultations and interviews, and the development of a number of practical tools to nurture and support a more strategic approach to such professional development within universities. Whilst many of these are reported elsewhere¹² it is useful to present some examples of this work here which are particularly pertinent.

(1) **The CUTE Canvas**¹³ is a simple, effective tool for planning and organising local initiatives to enhance digital competence. By getting educational developers, training professionals, academics, or combinations to scope and plan a project or activity, it helps to embed DigCompEdu, set realistic targets, and enable reporting and review. Completion of the Canvas works best as a group activity and its layout and design is specifically to encourage such collaboration.

CUTE with the support of the Erasmus+ Programme of the European Union

CUTE roadmap CANVAS

1-ACTION NAME OR IDENTIFIER

2-PRIORITIES OF THIS ACTION
Choose all that apply and provide a description.

3-PEOPLE
Answer the following questions: • Who is going to lead this action? • Who will participate in this action? • Who is going to be directly affected (target group)? • Who will benefit from this?

4-TIME SCALE
Choose one. Provide any additional details if necessary:
S - Short Term: 1-6 months.
M - Medium Term: 6 months to 1 year.
L - Long Term: Longer than 1 year.

5-IMPACT
Small scale: individual practice, small group, single discipline, etc. **Large scale:** at a College or institutional level. **Transformative:** significant, permanent change that alters practice and perspective, perhaps also at a sectoral rather than single institutional level.

6-GOALS
Strategic Level: related to the institutional mission, vision, and high-level goals, often long-term, less tangible, but very important. **Operational Level:** practice-focused, related to small groups or changes, short term, often easy to measure and quantify.

7-ACTION INDICATORS OF PROGRESS
Please list/describe some tangible/ measurable indicators that will help you to monitor progress on the tasks/action.

8-RELEVANT AREAS OF DIGCOMPEDU
Choose all that apply from the DIGCOMPEDU Framework:

1 - Professional Engagement	4 - Assessment
2 - Digital Resource	5 - Empowering Learners
3 - Teaching and Learning	6 - Facilitating Learner's Digital Competence

1-NAME

2-PRIORITIES OF THIS ACTION

3-PEOPLE

4-TIME SCALE

5-IMPACT

6-GOALS

7-ACTION INDICATORS OF PROGRESS

8-RELEVANT AREAS OF DIGCOMPEDU

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¹² <https://cute.ku.dk/outputs/>

¹³ <https://cute.ku.dk/outputs/canvas/>

Figure 3: The CUTE Canvas for planning activities.

The Canvas has been used within the partner institutions to plan, undertake, and complete projects such as:

- Short course based on ‘daily challenges’ on the topic of Open Educational Resources (AGH)
- Mapping of training courses and informal learning events onto the DigCompEdu competences (UoG)
- An initiative to promote Inclusive Learning by using technologies for accessibility and hosting a symposium (UoG)
- Integrating the DigCompEdu competences into a general teaching development survey across an institution (UCPH)
- A combined workshop, activity, and follow-up activity on Assessment with academic staff (UNAK)
- Developing a Digital Tools Backpack for university teachers (UM)
- Constructing a ‘mind map’ model of supports and responsibilities across a complex organisation (UM)

(2) Raising awareness and promoting the use of DigCompEdu in higher education. All of CUTE’s activities are connected with this aim, but a range of approaches have been taken to introduce the framework to teachers, managers, and senior decision makers.

Most partner institutions reported a generally low level of awareness of DigCompEdu and its constituent competencies. However, for those who facilitated training sessions there was often a positive response from academic participants once they became aware of the framework, and particularly when they were given opportunities to assess their own (and, sometimes, their department’s) knowledge, skills, and confidence.

The original SELFIE and online self-check tools were available as the project began, but these were limited in terms of their usability or application to the pedagogical context of university-level education. Partners used a number of approaches, including some of the ‘actions’ listed in the previous section, or focussing on one dimension at a time.

One institution produced an online self-assessment¹⁴ with a more graphical interface than the standard self-check tool and used this with academic staff. A summary of the responses from this tool used with 90 academic staff is shown in Figure 4 below, revealing the extent to which DigCompEdu can be informative at an organisational level. Of course, a more detailed breakdown of the data is needed to draw conclusions, but this summary chart at least indicates that one of the commonest levels across the 6 domains of the framework is B1 – Integrator. There are fewer staff who judge themselves to be at the higher levels in areas such as ‘facilitating learners’ digital competence’ and differentiation and personalisation, for example. Selecting digital resources and creating and modifying content, by contrast, are aspects in which there is a fairly high level of confidence.

¹⁴ <https://www.allaboardhe.ie/publicDigCompEdu/story.html> is the version that is publicly available to any user. No identifying data is requested or stored.

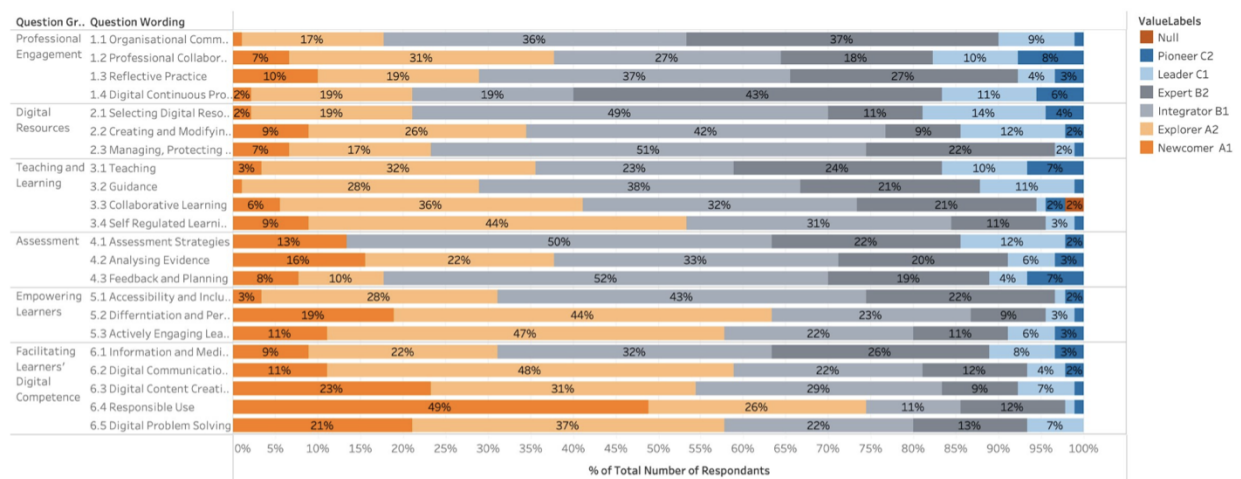


Figure 4 : Combination of self-assessed levels across a survey sample of 90 academic staff from a wide range of subject disciplines at one institution.

In the same institution, feedback was obtained from a formal module/course which was run a number of times with different cohorts of academic staff from across a range of subject disciplines, and comments included:

"I like this framework and I think it has good potential as a tool for self-development. I particularly like how the focus is on the 'end goals' of technology use, rather than on the technologies themselves. I think we can sometimes get a bit distracted by the technological bells and whistles, losing sight of their purpose in the process."

"I found the DigCompEdu exercise useful in identifying specific areas that I'd like to develop"

"Personally, I find this assessment to be a very useful exercise, as it highlights my weaknesses with regard to digital competence and brings some aspects into the spotlight I never reflected on before (like for example area 5 - empowering learners)."

(3) The development of a Toolkit to support the enhancement of digital teaching competences. This resource, and the associated COMET tool, facilitate self, group, and organisational assessment, activity planning and the design of an institutional roadmap. [<https://cutetoolkit.ku.dk/>]

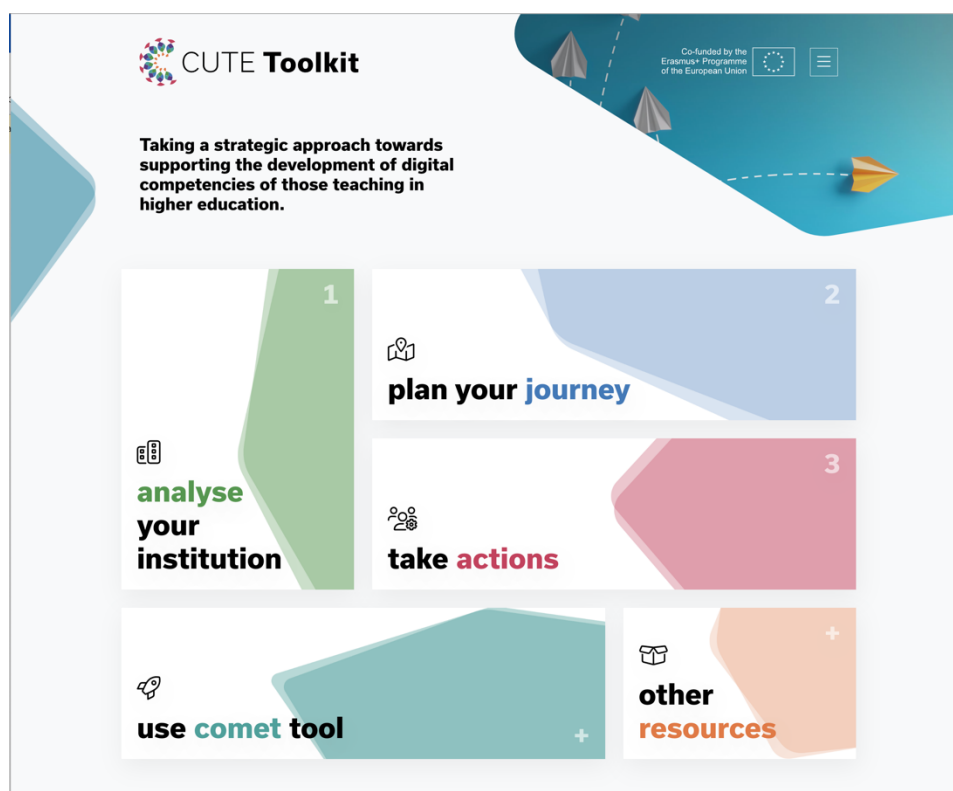


Figure 5: The design of the home page of the CUTE Toolkit and resources collection

3. Stakeholder Consultations.

These took place over the period June – October 2022, hosted by each of the university partners, to which representatives of senior stakeholders in university management, leaders in teaching and learning, and educational developers were invited. In two cases (Spain and Ireland) participants were from multiple institutions in the country. In the case of Ireland, the discussions were facilitated via the representative body for the universities (the Irish Universities Association, IUA). In the other institutions, the representation was from across the range of Faculties/Colleges and senior offices. Some of the consultations were online, others took place in person. Some institutions offered multiple sessions, others a single integrated event. Further details can be found in Appendix 2.

Participants were asked to consider three main questions:

1. *How do we best approach continuing professional development (CPD) for academic staff in the area of digital skills for teaching and learning, based on your experience and your roles?*
2. *What are the key factors for large scale and systemic change in digital competence of staff in HE?*
 - *What areas are worth targeting? For example, are Departments key units of change? What are the realistic and practical issues regarding capacity, investment, etc?*
 - *What are your views on the extent to which the collective/collaborative approach can work in enabling HE institutions in your country to thrive in a digital age?*

3. *Looking at DigCompEdu as a core framework for digital skills/confidence of academic staff, what aspects might be refined/added/changed for a future version (taking into consideration recent experience and future plans, for example)?*

Each question was explored in breakout groups or discussion sessions with responses and suggestions noted by the facilitators. A detailed summary of the key points raised is provided in Appendix 3. In each case, the conversations were deep, insightful, and shed light on the range of perspectives and current understanding of the issues amongst the stakeholders.

Commonalities were identified across all the consultations, with similar themes recurring throughout, along with responses which were specific to the particular institutional or national context.

Responses to Q1: CPD for academic staff in the area of digital skills for teaching and learning.

A strongly expressed, common response across all the events, was the need to recognise that ***digital competences are best viewed in the wider context of teaching and learning practice (and with relevant pedagogical theory)***. In other words, that the development of such skills and confidence is best effected by integrating with the development of teaching competences and viewing how technologies can be put into the service of identified educational goals.

To some extent this reflects much of the commentary in the educational development community, which often emphasises a ‘pedagogy first’ approach to technology. However, more recently it has been suggested that since digital technologies are all-pervasive in all aspects of life and work, this in itself may be a rather dated conceptualisation and that we should, in fact, be considering a deeper connection between the two, or as Fawns (2022) suggests, ‘entanglement’, where it is not sensible to consider teaching without technology, nor the selection and use of technology without consideration of the teaching and learning uses to which it is being put.

There was also a recognition that current training and professional development provision should be enhanced and supported at an institutional or sectoral level. Offerings from teaching centres (and similar units) should be flexible and include a mix of:

- (a) short, ‘just in time’ type training (or online self-instructional lessons);
- (b) courses or modules which connect the technology with real teaching needs and opportunities to enhance student learning;
- (c) targeted and collaboratively developed training for the specific requirements of particular departments or academic disciplines;
- (d) means of sharing examples of good teaching (and effective use of digital technologies) and developing a culture of peer learning;
- (e) qualifications and credentials, where appropriate, for teaching and learning which could be part of career progression.

As Eurydice (2017) noted, there is considerable diversity across the academic workforce in terms of expectations, institutional focus, and national sectoral requirements. For example, in many ‘traditional’ universities there is considerable emphasis on the importance of research activity, and indeed it is often the research profile which is used to select applicants for lectureships and professorships. In such institutions, there has often been a slowness to accept that the role of an academic is also that of a professional educator

rather than purely a scholar whose primary role is the establishment of a strong reputation for research. In the most extreme cases, there has been a persistent belief that a high-quality education is ensured simply by learning from such experts in their field. More commonly, it has become accepted that teaching requires knowledge and skills in pedagogy and continuing reflection on teaching practice. The issue is the extent to which this plays a role in academic career development, performance management/goal setting, workload, and status.

Nonetheless, there is a desire to learn from the pandemic experience, and although many institutions have increasingly been speaking of a 'return to the classroom', much of the discussion in these stakeholder events highlighted the opportunity that currently exists to rethink our teaching and assessment practice (which incorporates the digital competences), and indeed how we can support and foster higher levels of student engagement and participation, based on the experiences of the past few years. Crucially, however, a number of participants emphasised ***the need for continued, sustainable investment in both infrastructure and training.***

Responses to Q2: Key factors for large-scale or systemic change in digital competence of academic staff.

Here the focus was on aspects of structures, organisation, and institutional strategy. Once again, there were many similar views across the groups, the most frequently voiced being that of a need for leadership and a coordinated strategy across the institution, with some scope for greater levels of cooperation and collaboration between support units, academic departments, and senior managers.

Suggestions included consideration of structured CPD with pathways and opportunities, as well as setting an expectation that CPD is an ongoing requirement for staff throughout their career. Some participants spoke of 'gatekeepers' and administrative constraints in a number of existing structures and units which might need to be addressed in order to make engaging in professional development more feasible and indeed more rewarding.

Academic identities are most usually centred around the discipline, with staff cooperating within departments or in the delivery of degree programmes in their field. Rather than portraying these as 'silos', they might instead be seen as identifying the most appropriate 'unit of change' as being the discipline community or the department/school. Being cognisant of the signature pedagogies of each discipline, whilst raising awareness of issues in common to all those who teach or support learning in higher education, is more likely to lead to significant, systemic change than purely generic training. It demonstrates also the value of having 'champions' within these communities and in showing evidence of impact and supporting networking on two levels: across the institution and within the discipline/subject area at national or international levels.

In addition, there can be a danger with frameworks in general that can lead to them implying conformity and rigidity in implementation. Whilst DigCompEdu attempts to avoid this by not focussing on very detailed, specific technologies, for example, the crucial aspect can be how the Framework is used and in the case of higher education in particular, there is value in recognising the power of the 'agency' that academic staff can have in their own development¹⁵.

Another suggested pressure for change is that of student expectations. As we live in an increasingly digital world, young people in particular use technologies for many aspects of their learning, social, and work lives, it is a reasonable expectation that educational institutions such as universities will also avail of technology in how they operate and in the resources and materials to which they provide access.

¹⁵ For example, see Aagaard, Toril & Lund, Andreas. (2019). Digital Agency in Higher Education: Transforming Teaching and Learning. 10.4324/9780429020629.

But teachers themselves are also actively seeking training and support. Many are committed educators, wanting to embrace new approaches and in some cases are already engaged in the design and development of online and multimedia learning materials. Connecting 'the digital' with broader educational underpinning conceptual frameworks such as student-centred learning, for example, might also persuade those staff who value teaching to embrace the technologies. Some academic staff are, in other words, apprehensive but most would be willing to embrace change if given time, support, encouragement, and recognition.

Responses to Q3: The DigCompEdu framework itself

One strong finding is that, *within higher education, the DigCompEdu framework is not necessarily as widely known as it could be*. There are some countries and institutions where it has been embedded either in strategies or projects (Spain, Ireland) but even in these there are often other frameworks and models in place for a range of aspects of academic practice, or at different levels of education (e.g. UNESCO model at school level). In other institutions there was little recognition or knowledge of the framework and no reference to it within policy documents or institutional strategy. The awareness amongst those in the front-line of teaching (lecturers, tutors, etc) is likely to be even more fragmented and based on personal exposure by association with a project rather than through formal training.

Nonetheless, amongst those who were familiar with the framework, and those to whom it was described and explained (introductory materials were provided prior to the consultation events to ensure that all participants could fully engage in informed discussions), there was strong agreement that it provides a very useful basis for developing a shared conversation with a common lexicon and a potentially powerful tool for self-development. Allowing an individual or a group to identify their current 'baseline' level in each of the competences provides a means of identifying areas for additional training, or for a focus for peer learning.

Suggested means of enhancing DigCompEdu and its value in higher education include:

- Integrating Open Education in the framework (we note of course that this has already been done, based on the significant groundwork undertaken in Spain¹⁶).
- Add (or update) competences related to sustainability; online, hybrid, and blended learning; live online communication, teaching, and facilitation; resilience and adaptability; Artificial Intelligence, Augmented Reality, and Learning Analytics.
- Revising some of the wording and emphasis in the competences to reflect the context of higher education. In the current version some of the terminology and examples used are more suitable for school-level teaching and some descriptions are too broad to allow easy distinction between levels.
- More explicit inclusion in competences or level descriptions of teaching methodologies or appropriate pedagogical knowledge.
- Consideration of a re-calibrating of beginner levels based on increased digital skills arising from the COVID lockdown period, but also from rapid development of digital technologies in all aspects of life.

The discussions also addressed the practicalities of using DigCompEdu on individual and collective levels. Feedback from those who have used it with colleagues is that it can initially be seen as a long checklist of items and more user-friendly approaches to compiling a digital competence profile should be explored¹⁷.

¹⁶ <https://ec.europa.eu/jrc/communities/en/community/digcompedu-community/news/jrc-%E2%80%93-crue-collaboration-development-digital-competence-higher>

¹⁷ Some strategies for doing this were described in Section 2, above

Given the focus on CPD and some of the suggestions in response to the earlier questions, the issue arose of how DigCompEdu could become embedded within a wider framework for overall academic practice (i.e. which embraces teaching, research, and other activities), particularly in regard to career progression and promotion. Proposals included the establishment of microcredentials or digital badging of each of the domains, the building of a professional e-portfolio, and the mapping of the specific competences to training, courses, and role responsibilities.

4. Conclusions and Recommendations

Our review of the literature (both research and the 'grey' literature of reports and strategy documents), the experience gained from the multiple activities undertaken in the project partner institutions, and the feedback from our detailed stakeholder consultations lead us to identify some consistent and recurring themes and give us confidence to make a small number of specific recommendations.

1. **There is a need to develop and embed initial and continuing professional development for those teaching in higher education with a focus on pedagogical knowledge and skills, an understanding of curricular design, and awareness of the context of learners and learning.** The digital aspects should be fully embedded within such training and development, but there will also be a need to provide training and support in a number of different modalities, such as workshops, short courses, peer-networks, self-study, micro-credentials, and professional qualifications. Educators can be active in shaping their own development, rather than simply being subject to training requirements, and this sense of agency can be highly motivating. Recognising and rewarding good teaching, expert curricular design, and commitment to the broader teaching and learning community should become the norm in higher education institutions. The connections between teaching, learning, and research should be the distinguishing characteristics of university-based learning.
2. **DigCompEdu has a valuable role to play in benchmarking and developing a common understanding of the key areas and competencies for the use of technologies to support teaching, learning, and assessment.** However, in higher education, it is still not widely known beyond specialist groups and professionals. Key to raising its profile amongst the target community of teachers and educators is ensuring that it is seen as clear, practicable and relevant to career development. Specific suggestions include:
 - The design of a simple, attractive, user-friendly self (and group) assessment tool and the provision of a toolkit/resources to support training and development.
 - Embedding of the framework within overall academic professional development frameworks, courses, and qualifications.
 - Provision of a version which uses language and terminology appropriate to the higher education context, recognising the other dimensions of academic practice (research, scholarship, professional activities) and the different role of the teacher in higher education compared to other sectors/levels.
 - Recognition of how the framework can be used as a tool to empower educators and support their agency and ownership of their own personal, professional development.

3. **DigCompEdu can be updated to incorporate a wider range of teaching modalities and scenarios (supported by technologies), particularly those which have come to the fore during the COVID-19 experience and which have the potential to have longer lasting impact.** In addition, there is scope to place an enhanced emphasis on aspects of pedagogical knowledge and reinforcing the connections between technology and pedagogy. These do not necessarily require additional domains but could be included within existing areas. Specific suggestions include:
- Copyright, licensing, Open Educational Resources and Practices¹⁸
 - Data, use of evidence, evaluation, and analytics – from both practical and critical perspectives. This includes Artificial Intelligence and its applications to a wide range of educational activities including learning analytics, personalisation, assessment, creativity, and the challenges it may pose in these areas.
 - Further considerations of assessment approaches and issues of academic integrity and authentic forms of assessment.
 - Learning and curriculum design¹⁹ at multiple levels (programme, module, lesson).
 - A focus on teaching performance or activity in ‘live’ classes (whether online, on-site, or hybrid) which promotes engagement and learner participation through the use of simple, accessible tools such as polling apps, whiteboards, and shared spaces such as Padlet.
 - The ability to identify new opportunities to incorporate technologies of new types into teaching, learning, and assessment (e.g. VR, AR, simulation).
4. **There requires to be greater recognition of the importance of the well-being of staff and students and the need to ensure that expectations, workloads and targets are realistic and sustainable.** This can be reflected within DigCompEdu itself but is central to all aspects of working and studying within universities. The COVID-19 experience was one in which institutions continued to function only on the basis (in most cases) of considerable additional work, stress, and a mutually supportive response to a major health and social emergency. Our consultations, and recent reports, have emphasised the importance of reaching a new balance which is manageable on a personal and collective levels, and which nurtures engagement, creativity, and success.

¹⁸ Now partially incorporated with the recent inclusion of the Open Education Framework.

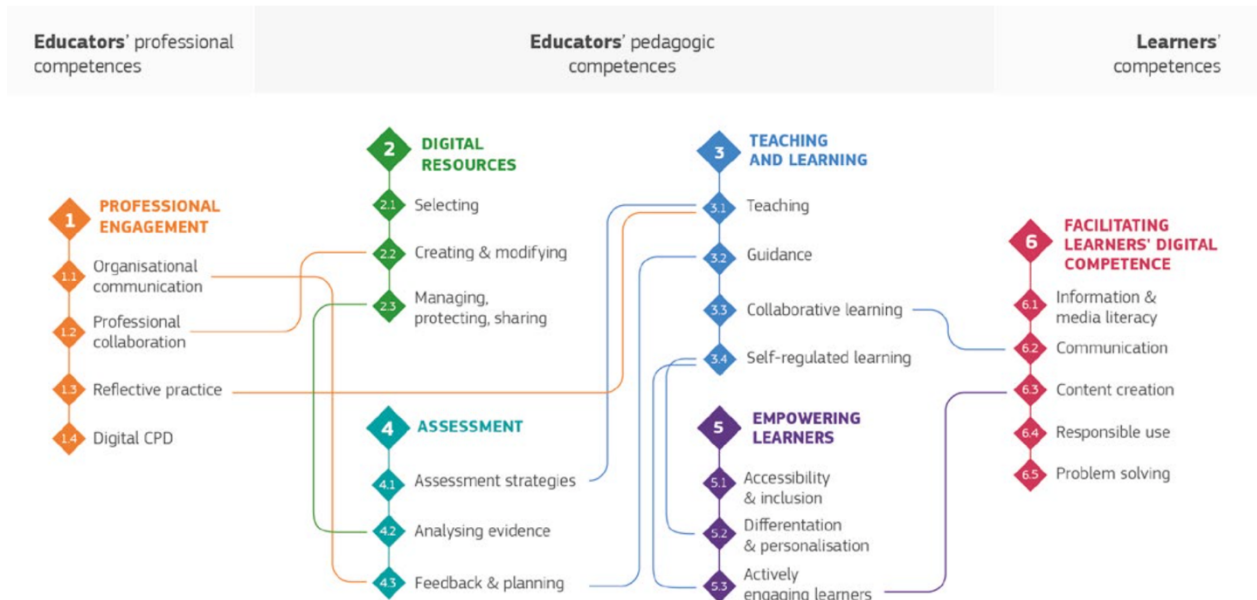
¹⁹ Use of a system such as the ‘ABC Method’ which is based on Laurillard’s six types of learning has proven to be very effective in educational development in higher education. <https://www.ucl.ac.uk/teaching-learning/case-studies/2018/jun/designing-programmes-and-modules-abc-curriculum-design>

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Appendix 1. The European Framework for the Digital Competence of Educators



List of competences within each area and their connections.

Appendix 2. The Stakeholder Consultation Events

The range of participants who engaged in the stakeholder consultation events is as listed below and represents a number of key decision makers and influencers within their institutions or sector.

Akureyri, Iceland: Rector, Vice-Rector, Deans, Heads of Departments, Director of Centre of Teaching & Learning

Copenhagen, Denmark: Vice-Provost for Education, Associate Deans for Education, Heads of Department

Murcia, Spain: 14 participants from number (13) of Spanish HEIs: Vice-Rectors for Digital Strategy and Education, Directors, Rector's Delegate for Teaching Transformation, Communication and Management, ICT Coordinators, Technical Specialists.

Krakow, Poland: 3 events: Academic trainers, instructional designers, Vice-Rector for Teaching & Learning, Heads of Department/Centres, Vice-Dean, Head of Tutoring Programme, Education Services staff, Recruitment Centre staff, Academic staff in areas of competency development, Careers Centre staff.

Galway, Ireland: Co-facilitated with the Irish Universities Association: President of the European University Association, Senior staff from the IUA, Directors of Teaching & Learning Centres, Vice-Presidents, Deans, Learning Technologists

The specific formats for the events varied, but most began with an introductory overview (one included a short presentation by the President of the EUA) and then formed breakout or discussion groups (some online, some face-to-face) to address each of the key questions, with notetakers in attendance to capture the main ideas.

Appendix 3. Summary of key points raised in each of the Stakeholder Consultations

	Copenhagen, Denmark	Galway/Ireland	Murcia/Spain	Akureyri, Iceland	Krakow, Poland
Q1	Digital competencies in (existing) mandatory T&L course for all staff	Don't separate digital from pedagogical as much? integration	Motivation/incentives, time from teaching for CPD. Desire for change. Mentoring, collaboration, microcreds, etc	Need to visit departments and raise awareness of DigCompEdu and develop training and support	Need to embed the digital in CPD and training on teaching and learning and not only on technical training.
	Just in time resources and training, driven by teacher needs, also support for official CPD requirement, trailblazer exemplars	Balance and different needs, CPD and informal communities, etc. Promotion (motivator), recognition, etc. Ongoing CPD requirement?	Digital embedded within the pedagogical not just technical. Qualifications and online training for teacher digital competences	Examples of good teaching, course and learning materials design, etc, should be shared	Need to blend digital learning with traditional classroom and teachers need most support there.

	Training Heads and how to motivate others who don't engage	Can we sustain investment and innovation long-term? Teaching in class and online and tech as embedded	Need systemic change and institutional vision aligning teacher training etc	Interest in seeking common training courses and activities across all the schools, importance of working collectively and agreeing on such	
	Ongoing recurring investment	Drive to 'return' to previous models	Need infrastructure investment and support		
	Closer work between T&L centres and local depts...use of coaches	Flexible CPD, focusing on enhancing teaching and promoting student engagement etc.	Learn from pandemic		
	Integrated planning of teaching, co-production with students		Portfolios and sharing, peer-review.		
	Consider the 'agency' of academic staff in shaping their own development				
Q2	All levels of management need to engage	How to shift behaviour...examplee g Athena Swan external pressure at HE system level	Official accreditation of digital competence for anyone teaching blended/ online	Demand comes from the teachers themselves, as well as student expectations and wider society's use of technologies	Change of practices and offerings from the teaching centre.
	More blended formats and online, integrate digital into teaching, not separate	Connect CPD and professional T&L quals with promotion	Share practice, communities of practitioners, conferences and seminars	Need more introductions of what is possible, how it can be done, and provide support directly to teachers	Need for a coordinated, strategic, and united approach across the institution.
	Variations across institution, gatekeepers, administrative constraints	Enriching relationship with industry and external..flexible courses, learning in workplace/ community..etc.	Evidence of impact of training, follow up, promote teacher involvement.		Welcoming of forthcoming new strategy which hopefully will introduce wider institutional change.
	Coordination and partnership between centre and local	Students as key driver of change and their expectations	Structured CPD plan and pathways/levels, integration of the framework and it being clear to everyone		Lack of awareness of DigCompEdu across institutional management.
	Can't do everything at once, workload considerations, planning	Clarity of definitions and language around modalities of teaching/learning and tech.	Need paradigm shift in training		Value in connecting with broader ideas such as student-oriented learning, etc.

	Student expectations can be a driver	Connect with dept/ discipline and academic identities/ contexts			
		Need to share, collaborate at all levels.			
		Continuing investment essential			
		Some discussion around the numbering of the domains- does that imply an order? Also about refining content of the domains, especially in assessment vs analytics.			
Q3		Used as underlying framework in a current national project	Well-developed model, but lost amongst number of models. How to connect different frameworks?	University needs to develop a strategy for digital competence and set goals.	Topics such as sustainable online learning could be included
		Useful baseline for personal and group comparison. Could be refined to help set personal goals	Lots of disconnection could be useful to have higher level view for teachers to integrate and connect different competences and skills in their work	Important to take pride in supporting PD of teachers	Some of the DigCompEdu competences and terminology more suitable for school level teaching rather than higher education. Needs a closer fit to higher education context
		Add digital resilience and adaptability	More scope for teaching methodologies,	Emphasise value of online community of learners to support one another and improve retention.	
		How to connect with national frameworks for teaching (eg AdvanceHE, NF)	Integrate Open education		
		Connection between this and translation into student capabilities made clearer...	Consider new and emerging technologies (AI, AR, etc)		
		Micro-credentials and badging for each area/level to help strengthen it as a usable competency framework			

Appendix 4. Summary of specific recommendations for future versions of DigCompEdu

- Incorporation of Open Education (in terms both of resources and practices)
- More explicit inclusion of competences related to teaching and learning modalities such as online, blended, hybrid, synchronous and asynchronous.
- Consideration of clearer distinction between assessment of students, evaluation of courses, and the use of data/learning analytics either for reflection on personal progression or overall materials/course review.
- Ensuring that the wording used in the competence descriptions is relevant to higher education contexts. This could also include opportunities to show connections with the other dimensions of academic practice (research, scholarship, and professional work).
- Identifying ways in which new and emerging technologies such as AR, VR, and Artificial Intelligence, fit into specific competences and any impact on modes of teaching and learning.
- More explicit inclusion in competences or level descriptions of appropriate pedagogical knowledge.
- Consideration of a re-calibrating of beginner levels based on increased digital skills arising from the COVID lockdown period, but also from rapid development of digital technologies in all aspects of life.