Developing Digital Practice in Initial Teacher Education (ITE)

Contents

Executive Summary

How can we support teachers working in initial teacher education (ITE) to develop their digital practice?

Based on twelve in-depth interviews with colleagues working in ITE, this report provides a snapshot of current digital practice. The findings in this report investigate the organisational support teachers in ITE can draw on as well as stories of individual good practice.

Applying design thinking approaches, the interviewees' responses are mapped to 'How might we' statements and personas to present a clear picture of the problem space. Insights and solutions from the interviews are matched to the relevant challenge.

The ideas and approaches outlined in this project are also mapped to existing professional frameworks (see Appendix A).

Introduction

"Education is about change. We can't afford to be stagnant."
Quote from INT6 taken from the interview data

Initial teacher education (ITE) plays a foundational role in the next generation of teachers and learners alike. This report takes the data from twelve in-depth interviews with our members involved with ITE, carried out over 2022-3. Talking to our members about the challenges they face with digital has always been a cornerstone of what we do at Jisc. Whether that's through online events, supporting communities of practice or doing a deep dive into more focused project work, such as this.

The responses from the interviews reveal practical approaches to affect change in digital practice at both an individual and organisational level. Digital clearly has an important role to play within ITE programmes, whether that's through facilitating online mentoring, providing digital media to complement observations or developing the digital skills needed to teach in the twenty-first century. Insights into the internal organisational support available to ITE teachers and many examples of individual good practice are included.

Several themes emerged during the interviews that reveal complex and wide-ranging challenges, stressing the ubiquity of digital. Digital is everyone's responsibility and many of the examples within this report include collaboration across roles and departments in order to achieve success. The aim of this report is to highlight those challenges our members responsible for ITE face and provide actionable steps forward.

Every institution is different, but there is much we can learn from each other's challenges and successes. Comparing and contrasting the challenges and successes from different interviewee's during this project has produced an insightful cross-fertilisation of ideas. This report attempts to marry up the successes with the challenges to provide guidance that addresses shared problems.

If you work in ITE then many of the findings within this report will resonate with you. It is our intention that our impartial review of the data will provide a fresh perspective with ideas to inspire and consider.

Research Method

How can we support teachers working in initial teacher education (ITE) to develop their digital practice?

Market research is a key part of testing assumptions and uncovering the challenges our members who are engaged in initial teacher education face. For this project we conducted twelve in depth interviews with members involved with initial teacher education. Interviews were chosen due to their advantages in collecting rich, qualitative data.

Interviews

The interviews consisted of a semi-structured conversation which lasted between thirty and sixty minutes. A degree of consistency was ensured with set questions framing the discussion, but follow-up and probing questions were also used with the interviewee's responses. This allowed the interviewer to explore specific topics relevant to the interviewee in more depth.

The interviews were all conducted anonymously to ensure the interviewee's responses were as uninhibited as possible. Although the interviewees were anonymous, we have used the interview codes ('INT' followed by a number) to evidence the statements found in this report. This not only provides a source code for the statement, but the number of INT codes attached to each statement also provides an indication of how often this issue came up in the interviews.

One drawback to using interviews as a research method is the risk of interviewer bias. To mitigate this as much as possible, we had more than one interviewer conducting the interviews with a separate note taker in each interview to record the responses.

All of the interviews took place online using Microsoft Teams.

The interviewees

Nine of the twelve interviews were conducted with interviewees from the Further Education (FE) sector and the remaining three came from Higher Education (HE).

Although teaching staff made up most of the interviewees a range of roles took part in the interviews. The roles interviewed for this project include:

- Centre Manager for Teacher Education (2)
- Digital Teaching Leader (1)
- Digital Transformation Manager (1)
- Head of department for Access and Initial Teacher Education (1)
- Head of Digital Innovation and Digital Pedagogy (1)
- Learning Technologist (2)
- Subject Librarian (1)
- Teaching Staff (full and part time) (3)

Digital practice spans a broad spectrum of roles within an institution and support for ITE programmes does not solely lie with teaching staff.

ITE Programme coverage

ITE includes a range of courses and programmes that differ across the nations and institutions of the UK. Factors such as the criteria of the awarding body as well as the trainee teacher's sector, academic level and prior experience will all influence the course specification.

Furthermore, in many cases teachers responsible for ITE programmes are likely to teach on a range of courses, rather than one.

The twelve interviews included the following ITE programmes:

Table 1: ITE courses identified from the interviews.
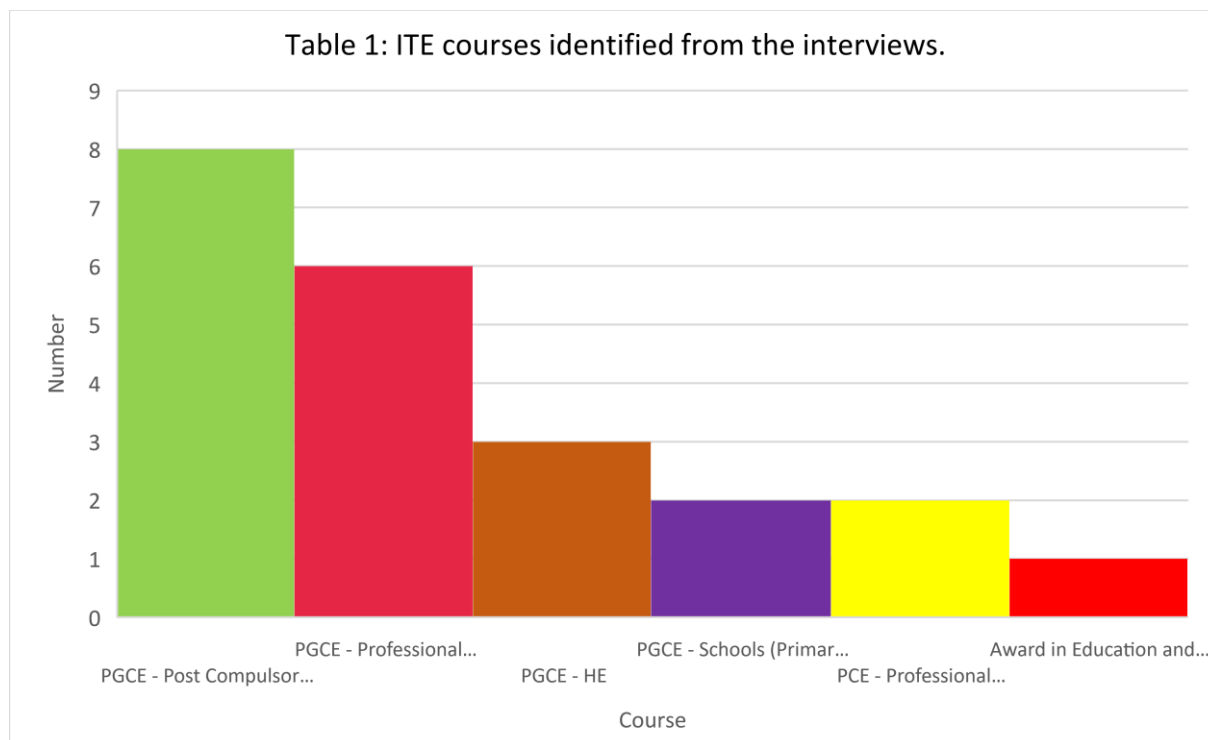
Legend: ⬤ PGCE – Post Compulsory Education and Training (PCET) ⬤ PGCE – Professional Graduate Certificate in Education ⬤ PGCE – HE ⬤ PGCE – Schools (Primary and/or Secondary) ⬤ PCE – Professional Certificate in Education ⬤ Award in Education and Training (AET) L3

Although there are many similarities across different ITE programmes the data from this project has a bias towards those working in the PGCE – Post compulsory Education and Training (PCET) sector. These are typically FE colleges in which their ITE provision is validated by an HE institution.

Mapping the problem space

"Think of a time when you did use digital technology with learners on an ITE programme. Were there any barriers that impacted adoption, and if so, what were the main ones?"

This question in the interview was designed to help us map the problem space and identify the barriers teachers on ITE programmes face. Asking people what they struggle with is a difficult question to ask, for the following reasons:

1. It involves an admission of perceived failure (even though that failure may not lie solely with the individual, but the organisation's processes and culture as a whole)
2. The veracity of the response is dependent on a degree of trust between the interviewer and interviewee.

The anonymous nature of the responses in the interviews helped to mitigate point one. The issues relating to point two require a little more unpacking.

SMoKE

The barriers for overcoming many of the challenges relating to digital delivery in ITE programmes are often complex and wide-ranging. Interviews produce a lot of unstructured data, which presents the researcher with an opportunity to classify that data in a way that is meaningful to the audience.

One useful model to apply that looks at the challenge more broadly and helps you to identify the barriers in terms of the skills, motivation, knowledge, and environment factors (SMoKE). SMoKE is based on Cathy Moore's earlier work on **action mapping**.


(Reference: **Jisc's Digital Pedagogy Toolkit**)

Applying the SMoKE model (skills/motivation/knowledge/environment) to the challenge of digital delivery provides a more holistic picture of the barriers that need to be addressed.

During the interview process it was clear that many of the barriers were due to external factors beyond the immediate sphere of influence of the teacher. Furthermore, barriers don't always lie solely with the technology, but how it is implemented, internal and external processes and an organisation's appetite to experiment and innovate.

To illustrate this point, let's look at the challenges flagged in the interviews through the lens of SMoKE.
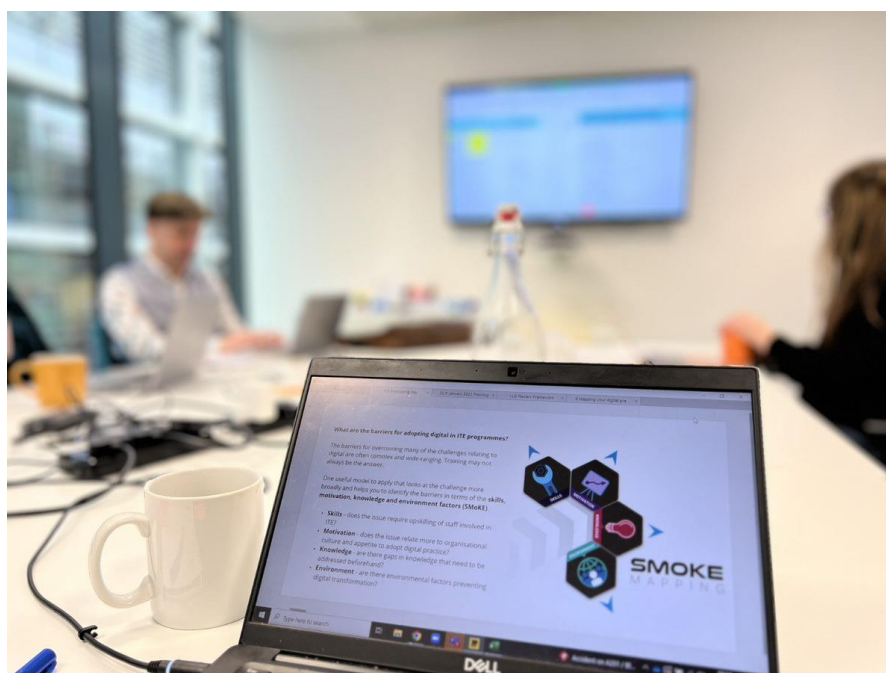
Skills challenges

Skills challenges relate to both teaching staff and the skills of learners on ITE programmes themselves. The interview source codes can be found in parentheses after each point. This provides the reader with a sense of how often this challenge came up during the interview process.

Barriers focusing on **skills** include:

There is a lack of consistency in skills for many ITE teachers, resulting in an inconsistent experience for learners (INT1, INT11, INT12, INT13).

Many students on ITE programmes come from vocational backgrounds and their digital skills vary. The world of academia is often new to them, making academic writing and navigating online sources of information a challenge (INT8, INT11, INT12).

Lack of diagnostic testing of student digital skills is an issue (INT16).

Staff need to model good digital skills themselves (INT13).

Motivation challenges

Motivation challenges often relate to staff willingness to do something, rather than a lack of possessing the pre-requisite skills. The reasons for this are wide-ranging and may include negative prior experience, perceived lack of relevance or organisational culture.

- Barriers focusing on **motivation** include:

- Digital is perceived as an add-on ("It's just one more thing…") (INT9, INT13, INT16, INT17).

- Negative prior experiences of staff with technology can be a big barrier and results in a lack of motivation to try anything new (INT13, INT6, INT17).

- Some staff lack confidence in trying digital approaches, e.g. recording sections of lectures (INT17, INT18).

- Learners on ITE programmes don't always appreciate the value of digital in their chosen field (INT9).

- Staff feel less motivated to use digital when they see it as a distraction rather than a complement to the learning (INT9).

- The number of digital tools available can feel overwhelming (INT9).

- Phishing scams and online safety issues impact on digital adoption (INT9).

- Issues around GDPR and accessibility can stifle innovation and a willingness to try new approaches (INT17).

Knowledge challenges

Knowledge barriers could be categorised as "people don't know what they don't know." This is not necessarily due to a lack of skills or even willingness to engage with digital, but simply a lack of awareness of what is possible and understanding how digital can be applied.

Barriers focusing on **knowledge** include:

- Staff don't always have positive experiences with learners in live online learning settings, with a lack of participation and engagement cited as examples (students have cameras off, minimal responses). An increased understanding of techniques to stimulate engagement is desirable (INT6, INT8).
- The connection between digital use and pedagogy is not fully understood (INT15, INT16).
- A joined-up approach between different departments within an organisation is needed for digital to work. This does not always happen (INT13, INT16).
- Students who have been out of education for some time don't always have the knowledge to differentiate between unreliable sources of information found on Google and credible academic journals and e-resources. Teachers on ITE programmes need to build this into their courses (INT8).
- Staff aren't always aware of what support is available to them (INT15).

Environment challenges

Environmental barriers often fall beyond the control of the individual and are more to do with the internal digital infrastructure (connectivity, access to devices), institutional processes and the criteria of awarding bodies.

Barriers focusing on **environment** include:

- Many ITE programmes delivered by FE institutions are validated by HE institutions. The expectations around the digital aspects of the course vary and are sometimes not explicitly stated (INT6, INT11, INT12, INT13).
- The size and layout of buildings and departments for students who have not been in education for a long time can be intimidating, making it difficult to find the information they need (INT8, INT15).
- The Wi-Fi connection on campus is an issue (INT12).

'How might we' statements

Now we have identified the challenges we need to address them.

"How might we" (HMW) statements based on the challenges are a tool used in design thinking to reframe problems as opportunities for generative thinking. For example, an HMW statement starts with "how might we" and ends with a call to action that poses a question.

By turning a problem into a question that can be solved, an HMW helps to organize how you approach the problem. It also encourages multiple perspectives and teamwork, which can lead to innovative solutions.

During the prototyping phase the project team revisited the challenges and reframed them as questions. We did this activity in pairs, taking the interview data as our source. This approach helped to produce the following HMW statements:

HMW Skills questions

- How might we ensure there is a consistency of skills in ITE? (INT1, INT11, INT12, INT13).
- How might we reduce the fear of using new tools to allow learners and teachers to experiment? (INT17, INT9, INT11, INT16).
- How might we diagnose the learner's digital skills to ensure they have the required skills for the profession? (INT6, INT16).
- How might we instil confidence in our new teachers to record sections of lessons? (INT8, INT11, INT12, INT17).
- How might we upskill all teachers to meet the requirements of the relevant standards framework? (INT1, INT6, INT11, INT12).
- How might we help teachers model good digital pedagogy? (INT13).

HMW Motivation questions

- How might we change the perception of digital being an add-on? (INT9, INT13, INT16, INT17).
- How might we reframe a prior negative experience of digital to our advantage? (INT13, INT6, INT17).
- How might we increase motivation to use recorded media? (INT17, INT18).
- How might we influence learners to appreciate the importance and value of digital? (INT9)
- How might we mitigate the distraction factor of digital? (INT9).
- How might we prioritise the digital tools staff use so they don't feel overwhelmed? (INT9).
- How might we reduce the fear of phishing scams and online safety for staff and learners? (INT9).
- How might we educate teachers on GDPR and accessibility issues? (INT7).

HMW Knowledge questions

- How might we support staff to develop their online learning techniques in order to stimulate participation from learners? (INT6, INT8).
- How might we improve awareness of how to find out about good digital practice? (exemplars) (INT15, INT16).
- How might we support departments to work together more? (INT13, INT16).
- How might we develop critical thinking skills in learners when evaluating online sources? (INT8).
- How might we raise awareness of what support is available to staff? (INT15).

HMW Environment questions

- How might we work more closely with validating institutions for ITE courses to ensure the digital aspects are more consistently and explicitly stated? (INT6, INT11, INT12, INT13).
- How might we make the learning environment (physical and virtual) more user-friendly and less intimidating for learners who are new to education? (INT8, INT15).
- How might we improve connectivity on campus? (INT12).

Personas

Personas play a valuable role in design thinking. They help you to understand your users' experiences, behaviours, and needs.

Although personas are fictional characters based on the research, they still provide a lens on real world issues. Representing user types allows us to approach the challenges they face from a variety of perspectives. For example, a newly qualified teacher starting out may have a different perception of digital compared to a teacher who has had a negative prior experience.

How you tailor support will vary and understanding how people approach digital from a range of perspectives is key to producing solutions that work. Personas not only help to build empathy; they result in a better user experience.

For this project we have developed three different personas:

- "Anxious" Andrew,
- "Strategic" Sue,
- "Zealous" Zeb.

These three personas represent different types of approaches to digital. They do not represent anyone in real life, but you may relate to aspects of all three in some way. Furthermore, they are not intended to represent the "right" or "wrong" way of approaching digital as such. There is a degree of caricature to all three, but the intention is to provoke thought in how you might support these (and other) types of persona at your organisation.

To help tailor your support, the 'How might we' statements from the previous section have been mapped to the three personas.

Persona One:
"Anxious" Andrew

Experienced teacher who teaches on a range of initial teacher education programmes. Andrew started teaching before digital became widespread. Negative prior experiences have made him wary of trying new approaches with tech.

Quotes:

"In person works best for me and my learners."

"I don't have time to play with technology. Besides, the awarding body doesn't require us to use technology in our sessions."

"I include digital in my programmes by asking the digital champions in college to come in and do bespoke sessions for me."

Digital Behaviours:

- Uses the VLE as a repository to upload slide decks.
- Email the main source of contact with learners outside of class.
- Feels a little overwhelmed by tech, so tends to avoid.

Needs:

- Exemplars to inspire relevancy of digital.
- Coaching / mentoring from a digital champion.
- Safe digital spaces that allow people to experiment.

"How might we" statements relevant to Andrew:

- How might we reduce the fear of using new tools in order to allow learners and teachers to experiment?
- How might we instil confidence in our new teachers to record sections of lessons?
- How might we help teachers model good digital pedagogy?
- How might we reframe a prior negative experience of digital to our advantage?
- How might we support staff to develop their online learning techniques in order to stimulate participation from learners?
- How might we raise awareness of what support is available to staff?

Persona Two:
"Strategic" Sue

Experienced teacher who takes an incremental approach to embedding digital into initial teacher education. Sue considers how digital maps to existing frameworks of professional practice. Not always confident but appreciates digital can make a difference.

Quotes:

"I don't feel that confident using tech, so I build in opportunities where learners can showcase their digital skills and learn from each other."

"Digital has a place but must be considered within the broader requirements of the course."

"Sometimes I worry that if I don't use digital I'm not preparing learners adequately for the way education, work and life is evolving."

Digital Behaviours:

- Plans peer-to-peer activities using online collaborative spaces.
- Builds in library support to develop critical approaches to online sources.
- Uses institutional platforms, like Teams, for mentoring.

Needs:

- Theoretical frameworks to critically evaluate the value of digital.
- To understand the links between digital practice and professional practice.
- Autonomy when making decisions about digital.

"How might we" statements relevant to Sue:

- How might we upskill all teachers to meet the requirements of the relevant standards framework?
- How might we reduce the fear of using new tools in order to allow learners and teachers to experiment?
- How might we help teachers model good digital pedagogy?
- How might we prioritise the digital tools staff use so they don't feel overwhelmed?
- How might we enhance critical thinking skills when interrogating online sources?

Interview code sources (internal use): INT9, INT12, INT13, INT16, INT17

Persona Three:
"Zealous" Zeb

Newly qualified teacher who teaches part time some of the initial teacher education programmes. Zeb loves exploring new tech and often trail blazes with third party tools that have not been used before in the college.

Quotes:

"The media IS the message. I like to use rich media to make my programmes engaging. Tik Tok is great for doing bite-size videos on key learning points."

"Artificial Intelligence (AI) is all the buzz at the moment. I'm looking at how I can fit this into my programmes to raise awareness of tech trends."

"Let's hook up on Insta!"

Digital Behaviours:

- Records key parts of lectures for learners to access.
- Uses asynchronous discussion forums for learners to collaborate.
- Social media used to promote courses / resources.

Needs:

- Accessibility concerns for learners on new platforms.
- To consider the pedagogy, rather than taking a "tech first" approach.
- An awareness of GDPR and where data is held.

"How might we" statements relevant to Zeb:

- How might we reduce the fear of phishing scams and online safety for staff and learners?
- How might we make the learning environment (physical and virtual) more user-friendly for those who don't come from academic backgrounds?
- How might we educate teachers on GDPR and accessibility issues?
- How might we diagnose the learner's digital skills to ensure they have the required skills for the profession?
- How might we mitigate the distraction factor of digital? (INT9).
- How might we consistently model good digital pedagogy?

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Interview code sources (internal use): INT13, INT15, INT16, INT17

Internal organisational support and good practice

"What support is currently available to help new teachers develop their digital practice?"

The twelve interviewees were asked this question to uncover what institutions are currently doing internally to support ITE staff. Data from the interviews reinforced the importance of this question in the following ways:

- Staff are not always aware of what support is available to them (INT15).

- The dangers of working in silos (INT13, INT16).

- The number of digital tools available can feel overwhelming (INT9).

- Some staff lack confidence in trying digital approaches, e.g. recording sections of lectures (INT17, INT18).

In order for ITE staff to succeed with digital they need to work closely with their peers both internally within the institution and in their broader professional networks.

Internal organisational support

The responses collected from this question during the interviews signpost a number of ways organisations can support teachers delivering ITE programmes. In many interviews the support mentioned relates to one or more HMW statement(s).

Tables 2-5 that follow cross-references the internal organisational support to the HMW statements and personas from the previous section. This starts to build the foundations for how staff can be supported from an organisational perspective. In many cases there is a repetition of the support statements from the interviewees. This is intentional and indicative of the overlap between many of the challenges flagged.

Good practice highlighted

"Can you describe a good example of how digital is used on the ITE programmes you're involved with?"

The question focusing on good examples above allowed interviewees to draw on evidence that may lie beyond their own institution's available support. What has worked for them? What have they put into effective practice? Are there any lessons to learn here? Drawing on their own experiences and peer networks provides new ways of addressing the problem space.

Good practice achieved by individual teachers complements the internal support available to paint a rich picture. When taken together both strengthen the role digital can play in improving the learner experience. This data has also been added to Tables 2-5 under Individual good practice.

As with the Internal organisational support, the responses collected from this question are sometimes repeated in the tables. This is intentional, as some of the responses address multiple issues. The nature of the good practice highlighted by individual teachers is subtly different from the internal organisational support. Here the ideas often fall within the professional autonomy of the individual to affect the change. Whereas internal organisational support depends on other departments and processes within the institution, that may lie beyond the influence of the individual.

A cautionary note on specific references to hardware and/or software in this section: Jisc is an impartial advisory service, and these references should be seen in the context of the individual interview, rather than as an endorsement to inform procurement.

Support mapped to HMW statements
Table 2: Skills Challenges

HMW Statement / Persona	Internal organisational support	Good practice highlighted
How might we ensure there is a consistency of skills in ITE? (INT1, INT11, INT12, INT13).	- Introduce a means for teachers to self-assess their digital capabilities to identify strengths and areas for development (INT6). - Identify 'digital champions' within departments to promote the benefits and share good practice (INT12, INT13). - Build digital into the induction programmes for teachers (INT12). - Embed 'How Tos' for specific digital tools into the VLE (INT13, INT16). - Onboarding – support new staff through a digital advocates programme (INT14).	- Map digital practice to relevant professional frameworks. These differ depending on your nation within the UK. Cross-referencing with a relevant framework will ensure a degree of consistency in practice. See Appendix A for more details (INT12, INT13). **See Further resources and support for more details.**
How might we reduce the fear of using new tools to allow learners and teachers to experiment? (INT17, INT9, INT11, INT16). Persona: "Anxious" Andrew Persona: "Strategic" Sue	- Explore available support from learning technologists focusing on specific digital tools (INT1). - Consider prioritising one or two digital technologies to use on an ITE course (INT9). - Identify 'digital champions' within departments to promote the benefits and share good practice (INT12, INT13). - Build digital into the induction programmes for teachers (INT12). - Implement a mentoring scheme (INT12, INT17). - Embed 'How Tos' for specific digital tools into the VLE (INT13, INT16). - Provide a 'safe space' for all departments to use where teachers can experiment with digital before using it with learners (INT13, INT16).	- Digital platforms that allow conversations to take place (Yammer, Teams, etc) are an effective means of getting learners to collaborate and support each other. Setting up peer teaching practice groups can help to build confidence (INT9, INT12, INT13). - Use e-portfolios, such as PebblePad, asking learners to upload paperwork before observations. That way they can be asked questions around digital use before the observation takes place (INT12). - Schedule digital teach meets where staff and learners can learn from each other (INT12, INT13).

HMW Statement / Persona	Internal organisational support	Good practice highlighted
How might we diagnose the learner's digital skills to ensure they have the required skills for the profession? (INT6, INT16). Persona: "Zealous" Zeb	• Introduce a means for teachers to self-assess their digital capabilities to identify strengths and areas for development (INT6).	• Build in a digital assessment activity to identify strengths and areas for development (INT12, INT16). • **See Further resources and support section for more details.**
How might we instil confidence in our new teachers to record sections of lessons? (INT8, INT11, INT12, INT17). Persona: "Anxious" Andrew	• Explore available support from learning technologists focusing on specific digital tools (INT1). • Consider prioritising one or two digital technologies to use on an ITE course (INT9). • Provide a 'safe space' for all departments to use where teachers can experiment with digital before using it with learners (INT13, INT16).	• VLE help pages, including instructional videos as well as aspirational ideas for new teachers to explore (INT13).
How might we upskill all teachers to meet the requirements of the relevant standards framework? (INT1, INT6, INT11, INT12). Persona: "Strategic" Sue	• Introduce a means for teachers to self-assess their digital capabilities to identify strengths and areas for development (INT6). • Provide a 'safe space' for all departments to use where teachers can experiment with digital before using it with learners (INT13, INT16).	• Map digital practice to relevant professional frameworks. These differ depending on your nation within the UK. Cross-referencing with a relevant framework will ensure a degree of consistency in practice. See Appendix A for more details (INT12, INT13). • **See Further resources and support for more details.**

HMW Statement / Persona	Internal organisational support	Good practice highlighted
How might we help teachers model good digital pedagogy? (INT13). Persona: "Anxious" Andrew Persona: "Strategic" Sue Persona: "Zealous" Zeb	• Identify 'digital champions' within departments to promote the benefits and share good practice (INT12, INT13). • Implement a mentoring scheme (INT12). • Set up an internal blog to record and celebrate positive impacts of digital using AI (INT16). • Institutional leaders need to model good digital practices (INT13). • Informal institutional social channels e.g. Yammer (INT15). • Provide a 'safe space' for all departments to experiment and play with digital tools. Focus on the pedagogical benefits and impact on students (INT16).	• Build in a 'digital pedagogy showcase' session where learners receive peer feedback, critiquing how digital has been used (INT6, INT13). • Build digital into key components of ITE courses, such as mentoring. Consider how digital tools can facilitate mentor and mentee communications. Are there advantages to meeting virtually in some situations? (INT12). • Schedule digital teach meets where staff and learners can learn from each other (INT12, INT13).

Table 3: Motivation challenges

HMW Statement / Persona	Internal organisational support	Good practice highlighted
How might we change the perception of digital being an add-on? (INT9, INT13, INT16, INT17).	• Identify 'digital champions' within departments to promote the benefits and share good practice (INT12, INT13). • Build digital into the induction programmes for teachers (INT12). • Set up an internal blog to record and celebrate positive impacts of digital using AI (INT16). • Provide a 'safe space' for all departments to experiment and play with digital tools. Focus on the pedagogical benefits and impact on students (INT16).	• Build digital into key components of ITE courses, such as mentoring. Consider how digital tools can facilitate mentor and mentee communications. Are there advantages to meeting virtually in some situations? (INT12). • Map digital practice to relevant professional frameworks. These differ depending on your nation within the UK. Cross-referencing with a relevant framework will ensure a degree of consistency in practice. See Appendix A for more details (INT12, INT13). • **See Further resources and support for more details.**
How might we reframe a prior negative experience of digital to our advantage? (INT13, INT6, INT17). Persona: "Anxious" Andrew	• Arrange 'summer school' sessions for staff to upskill with digital (INT6). • Implement a mentoring scheme (INT12, INT17). • Provide a 'safe space' for all departments to experiment and play with digital tools. Focus on the pedagogical benefits and impact on students (INT16).	• Focus on the principles of evidence-based practice. Just because something hasn't worked in the past doesn't mean that will always be the case. What is the research telling us? (INT6, INT17). • Schedule digital teach meets where staff and learners can learn from each other (INT12, INT13).
How might we increase motivation to use recorded media? (INT7, INT18).	• Explore available support from learning technologists focusing on specific digital tools (INT1). • Implement a mentoring scheme (INT12, INT17). • Embed 'How Tos' for specific digital tools into the VLE (INT13, INT16).	• Promote the benefits of bite-sized video content that support learners who have to work remotely e.g. during a pandemic (INT8). • Incorporate story telling techniques into recordings to make recordings more engaging. The recording could focus on a particular aspect of the learning journey and offer different perspectives on a challenging part of the course (INT17).

HMW Statement / Persona	Internal organisational support	Good practice highlighted
	• Provide a 'safe space' for all departments to use where teachers can experiment with digital before using it with learners (INT16).	• VLE help pages, including instructional videos as well as aspirational ideas for new teachers to explore (INT13). • Turn video content into interactive learning objects, using video editing software like Kinemaster (INT13). • Use recordings to complement observations so teachers can use them for reflection on their own practice (INT18).
How might we influence learners to appreciate the importance and value of digital? (INT9).	• Identify 'digital champions' within departments to promote the benefits and share good practice (INT12, INT13). • Informal institutional social channels e.g. Yammer (INT15).	• Consider using digital tools that allow learners different ways to respond. For example, anonymous feedback can boost participation from learners who lack confidence (INT6). • Consider how digital can add a social dimension to learning. Observations should not just include feedback on delivery alone. How were the learners included in the lesson? Did digital help facilitate inclusion? (INT9, INT13). • Map digital practice to relevant professional frameworks. These differ depending on your nation within the UK. Cross-referencing with a relevant framework will ensure a degree of consistency in practice. See Appendix A for more details (INT12, INT13). • **See Further resources and support for more details.**
How might we mitigate the distraction factor of digital? (INT9). Persona: "Zealous" Zeb	• Consider prioritising one or two digital technologies to use on an ITE course (INT9).	• Provide bespoke sessions on digital wellbeing that focus on the benefits and pitfalls of social media (INT15).

HMW Statement / Persona	Internal organisational support	Good practice highlighted
How might we prioritise the digital tools staff use so they don't feel overwhelmed? (INT9). Persona: "Strategic" Sue	• Explore available support from learning technologists focusing on specific digital tools (INT1). • Implement a mentoring scheme (INT12, INT17). • Embed 'How Tos' for specific digital tools into the VLE (INT13, INT16).	• VLE help pages, including instructional videos as well as aspirational ideas for new teachers to explore (INT13).
How might we reduce the fear of phishing scams and online safety for staff and learners? (INT9). Persona: "Zealous" Zeb	•	• VLE help pages, including instructional videos as well as aspirational ideas for new teachers to explore (INT13). • Provide bespoke sessions on digital wellbeing that focus on the benefits and pitfalls of social media (INT15).
How might we educate teachers on GDPR and accessibility issues? (INT7). Persona: "Zealous" Zeb	• Embed 'How Tos' for specific digital tools into the VLE (INT13, INT16). • Provide a 'safe space' for all departments to experiment and play with digital tools. Focus on the pedagogical benefits and impact on students (INT16).	• VLE help pages, including instructional videos as well as aspirational ideas for new teachers to explore (INT13). • **See Further resources and support section for more details.**

Table 4: Knowledge challenges

HMW Statement / Persona	Internal organisational support	Good practice highlighted
How might we support staff to develop their online learning techniques in order to stimulate participation from learners? (INT6, INT8). Persona: "Anxious" Andrew	• Explore available support from learning technologists focusing on specific digital tools (INT1). • Identify 'digital champions' within departments to promote the benefits and share good practice (INT12, INT13). • Implement a mentoring scheme (INT12, INT17). • Embed 'How Tos' for specific digital tools into the VLE (INT13, INT16). • Provide a 'safe space' for all departments to use where teachers can experiment with digital before using it with learners (INT16). • Onboarding – support new staff through a digital advocates programme (INT14).	• Introduce relevant media into Virtual Learning Environment (VLE) course design to ensure the content is current and engaging, such as e-resources like Box of Broadcasts for topical documentaries (INT8). • Use e-portfolios, such as PebblePad, asking learners to upload paperwork before observations. That way they can be asked questions around digital use before the observation takes place (INT12). • Build digital into key components of ITE courses, such as mentoring. Consider how digital tools can facilitate mentor and mentee communications. Are there advantages to meeting virtually in some situations? (INT12). • Schedule digital teach meets where staff and learners can learn from each other (INT12, INT13). • Include a range of synchronous and asynchronous activities so learners have a degree of flexibility when participating (INT12). • For larger groups of learners online, build in activities like breakout rooms that allow learners to support each other and build relationships. Provocation questions and prompts to use chat are another way to boost participation (INT13, INT17). • VLE help pages, including instructional videos as well as aspirational ideas for new teachers to explore (INT13).

HMW Statement / Persona	Internal organisational support	Good practice highlighted
How might we improve awareness of how to find out about good digital practice? (exemplars) (INT15, INT16). Persona: "Anxious" Andrew	• Arrange 'summer school' sessions for staff to upskill with digital (INT6). • Identify 'digital champions' within departments to promote the benefits and share good practice (INT12, INT13). • Implement a mentoring scheme (INT12, INT17). • Embed 'How Tos' for specific digital tools into the VLE (INT13, INT16). • Set up an internal blog to record and celebrate positive impacts of digital using AI (INT16). • Onboarding – support new staff through a digital advocates programme (INT14). • Informal institutional social channels e.g. Yammer (INT15).	• Schedule digital teach meets where staff and learners can learn from each other (INT12, INT13). • VLE help pages, including instructional videos as well as aspirational ideas for new teachers to explore (INT13).
How might we support departments to work together more? (INT13, INT16).	• Investigate bespoke sessions in the library focusing on digital resources, e-journals and searching techniques (INT8). • Explore available support from learning technologists focusing on specific digital tools (INT1). • Arrange 'summer school' sessions for staff to upskill with digital (INT6). • Identify 'digital champions' within departments to promote the benefits and share good practice (INT12, INT13). • Implement a mentoring scheme (INT12). • Provide a 'safe space' for all departments to use where teachers can experiment with digital before using it with learners (INT13, INT16). • Informal institutional social channels e.g. Yammer (INT15).	•

HMW Statement / Persona	Internal organisational support	Good practice highlighted
How might we develop critical thinking skills in learners when evaluating online sources? (INT8). Persona: "Strategic" Sue	• Investigate bespoke sessions in the library focusing on digital resources, e-journals and searching techniques (INT8).	• Draw on library expertise from within the institution to raise awareness around advanced searching techniques, research skills and e-journals (INT8). • Use theoretical frameworks when introducing digital to foster critical approaches (SAMR, ABC, 5 stage model - Gilly Salmon, pedagogy wheel, Laurillard's conversational framework, etc). (INT1, INT14). • **See Further resources and support section for more details.** • Use e-portfolios, such as PebblePad, asking learners to upload paperwork before observations. That way they can be asked questions around digital use before the observation takes place (INT12).
How might we raise awareness of what support is available to staff? (INT15).	• Explore available support from learning technologists focusing on specific digital tools (INT1). • Identify 'digital champions' within departments to promote the benefits and share good practice (INT12, INT13). • Implement a mentoring scheme (INT12, INT17). • Embed 'How Tos' for specific digital tools into the VLE (INT16). • Set up an internal blog to record and celebrate positive impacts of digital using AI (INT16). • Onboarding – support new staff through a digital advocates programme (INT14). • Informal institutional social channels e.g. Yammer (INT15).	• Schedule digital teach meets where staff and learners can learn from each other (INT12, INT13). • VLE help pages, including instructional videos as well as aspirational ideas for new teachers to explore (INT13).

HMW Statement / Persona	Internal organisational support	Good practice highlighted
	• Provide a 'safe space' for all departments to use where teachers can experiment with digital before using it with learners (INT13, INT16).	

Table 5: Environment challenges

HMW Statement / Persona	Internal organisational support	Good practice highlighted
How might we work more closely with validating institutions for ITE courses to ensure the digital aspects are more consistently and explicitly stated? (INT6, INT11, INT12, INT13).	•	•
How might we make the learning environment (physical and virtual) more user-friendly and less intimidating for learners who are new to education? (INT8, INT15). Persona: "Zealous" Zeb	• Provide a 'safe space' for all departments to use where teachers can experiment with digital before using it with learners (INT13, INT16).	• Digital platforms that allow conversations to take place (Yammer, Teams, etc) are an effective means of getting learners to collaborate and support each other. Setting up peer teaching practice groups can help to build confidence (INT9, INT13). • In hybrid contexts, optimise the room layout for remote and in person learners by positioning cameras appropriately. Owl cameras (**https://owllabs.co.uk/**) have transformed practice at one college. Check sound quality for everyone (if the sound is poor for the remote people the experience and interaction will suffer). (INT11). • Schedule digital teach meets where staff and learners can learn from each other (INT12, INT13). • VLE help pages, including instructional videos as well as aspirational ideas for new teachers to explore (INT13).
How might we improve connectivity on campus? (INT12).		• Develop digital activities that learners can complete asynchronously, so you are not solely reliant on college Wi-Fi (INT12).

Further resources and support

Mapping the data from the interviews to the challenges is not an exact science and will only take us so far. Although the responses from the interviews provide many ideas and approaches to consider there are still gaps. It would be unrealistic to expect an individual academic or the support within any given institution to have all the answers to such a complex problem space.

We will now look at possible sources of support that can't be found within the interview data but are nevertheless relevant to the themes that emerged.

Tools and frameworks to support pedagogy

Educational theory plays a fundamental role in all ITE programmes. A number of interviewees expressed adopting a range of theoretical models specific to digital modes of learning to foster a critical approach to digital practice.

The tools and frameworks to support pedagogy cited include: -

- SAMR (substitution, augmentation, modification, and redefinition) was developed by Dr R. Puentedura, following research into how the use of digital technology was transforming classroom-based teaching and learning. Jisc has produced an **Applying the SAMR model to aid your digital transformation** guide.
- Diana Laurillard's **conversational framework** asks 'what is the student having to do in order to understand something?' Laurillard identifies six different types of learning (acquisition, practice, discussion, inquiry, collaboration and production) and places the focus on what the learner is doing, rather than the technology. Reflecting on the six different ways of learning also encourages learning designers to build in variety.
- ABC learning design is an approach developed by UCL and builds on Jisc's earlier Viewpoints project. ABC can be used to identify opportunities for blended learning as teaching teams storyboard and reflect on the structure of their courses.
- Gilly Salmon's **5 stage model** – a framework for designing digital activities ("e-tivities").
- Funded by the Welsh Government, Jisc has developed some asynchronous bite-size courses for post-16 teaching practitioners to explore the use of learning technology models and theories to help in developing their blended learning approaches. **Designing and developing your blended learning practice (Jisc)**

Jisc's **Digital Pedagogy Toolkit (DPT)** has also been developed by subject specialists in Jisc's digital practice team in collaboration with feedback from the UK's higher, further education and skills sectors. The DPT supports academic staff to make informed choices about how they use technology to underpin the curriculum.

Individual digital capability

The Jisc **digital capabilities framework** has been used by digital leaders and staff with an overall responsibility for developing digital capability in their organisation. However, it can also be used by staff in any role and by students in any educational setting.

Assessing the digital skills of staff and learners came up as a theme during the interviews. Jisc has developed a **discovery tool**, mapped to the digital capability framework, that has tailored versions for staff and students.

Professional frameworks

There are a number of professional frameworks that can be applied to digital practice. Initial teacher education (ITE) programmes will differ between sectors and nations within the UK, making the requirements within these frameworks nuanced accordingly.

Rooting digital practice into how we develop as professional teachers is key to appreciating the value and relevancy of digital. Appendix A maps the 'How might we' statements identified in this project and the associated solutions to the following professional frameworks:

- Jisc's **Digital Elevation Model** provides statements that allow anyone working within a Further Education and Skills (FES) Provider to review the status of their Digital Elevation in terms of the Foundations they have put in place, the elements to Transform and where possible the Elevate components that ensure a provider is at the forefront of digital best practice.
- The **Digital Teaching Professional Framework** is a competency framework for teaching and training practitioners in the FE and Training sector. It has been developed by the Education and Training Foundation (ETF) in collaboration with Jisc and has been designed to focus on the benefits of good pedagogy supported by technology to enhance learning.
- In Wales, the **Digital 2030 strategic framework** and accompanying **digital standards** provide guidance for post 16 digital learning in Wales.

Accessibility support

Jisc hosts a friendly and supportive online space for everyone, at whatever point you are on with your accessibility journey. There are opportunities to work together to crowdsource useful resources and information. Why not apply to join **Jisc's accessibility community**?

There are several courses available to upskill and develop knowledge about inclusive digital practice and creating accessible and compliant resources. Encourage staff to try Microsoft's **Accessibility fundamentals Training** or the **Web Accessibility Initiative's W3C course**.

Lastly, if you are looking for good advice to encourage ITE students to develop an inclusive mindset when designing their resources the Government have a wealth of guidance such as their **Dos and don'ts on designing for accessibility.**

Appendix A: 'How might we' statement mapping to existing frameworks

'How might we' statement	Jisc's Digital Capability Framework	ETF Digital Standard	Jisc's Digital Elevation Tool	Digital 2030: Welsh Digital Standard
How might we ensure there is a consistency of skills in ITE?	Digital learning and development		Curriculum analytics (F56)	Maintain and update knowledge of my subject(s) and how best to teach and assess them.
How might we reduce the fear of using new tools to allow learners and teachers to experiment?	Digital communication, collaboration and participation	C3 Communication and collaboration with learners and between learners (peer support)	All staff (F34)	Maintain and update knowledge of my subject(s) and how best to teach and assess them.
How might we diagnose the learner's digital skills to ensure they have the required skills for the profession?	Digital proficiency and productivity	A3 Support for learning and support activities including initial assessment - empowering learners through technology D2 Raising learners' digital employability and self-employability skills	Learning/training (F25)	Value and promote diversity, equality of opportunity and inclusion
How might we instil confidence in our new teachers to record sections of lessons?	Information, data and media literacies	A3 Support for learning and support activities including initial assessment - empowering learners through technology C1 Supporting digital capabilities	Curriculum staff (F42)	Plan and deliver effective learning.
How might we upskill all teachers to meet the requirements of the relevant standards framework?	Digital learning and development	D1 Teaching: subject-specific and industry-related G1 Self-assessment and reflection	Staff experience (F34)	Maintain and update knowledge of my subject(s) and how best to teach and assess them.

'How might we' statement	Jisc's Digital Capability Framework	ETF Digital Standard	Jisc's Digital Elevation Tool	Digital 2030: Welsh Digital Standard
How might we help teachers model good digital pedagogy?	Digital creation, problem-solving and innovation	G2 Progression and CPD: strategies to develop digital skills and pedagogy	Digital culture (F4)	Critically reflect on own values, knowledge and skills to improve learning
How might we change the perception of digital being an add-on?	Digital learning and development	B1 Teaching and learning resources C1 Supporting digital capabilities	Digital culture (F4)	Maintain and update knowledge of my subject(s) and how best to teach and assess them.
How might we reframe a prior negative experience of digital to our advantage?	Digital learning and development	E1c Assessment and feedback (including dynamic assessment, peer review, teachback, comparative judgement, cognitive tutoring) F2 Equality and diversity	Digital culture (F4)	Maintain and update knowledge of my subject(s) and how best to teach and assess them.
How might we increase motivation to use recorded media?	Digital creation, problem-solving and innovation	C1 Supporting digital capabilities	Curriculum staff (F42)	Plan and deliver effective learning.
How might we influence learners to appreciate the importance and value of digital?	Digital communication, collaboration and participation	C1 Supporting digital capabilities G1 Self-assessment and reflection	Pre-arrival (F21)	Critically reflect on own values, knowledge and skills to improve learning
How might we mitigate the distraction factor of digital?	Digital identity and wellbeing	G3 Wellbeing: practitioner and learner	Learning/training (F24)	Plan and deliver effective learning.
How might we prioritise the digital tools staff use so they don't feel overwhelmed?	Digital identity and wellbeing	G3 Wellbeing: practitioner and learner	All staff (F36)	Plan and deliver effective learning.

'How might we' statement	Jisc's Digital Capability Framework	ETF Digital Standard	Jisc's Digital Elevation Tool	Digital 2030: Welsh Digital Standard
How might we reduce the fear of phishing scams and online safety for staff and learners?	Digital identity and wellbeing	G3 – Wellbeing: practitioner and learner G4 Managing identity: practitioner and learner	Cyber-security (F64) Learning/training (F24)	Demonstrate commitment to learners, their learning, safety, and well-being.
How might we educate teachers on GDPR and accessibility issues?	Digital proficiency and productivity	C2 Supporting study skills F1 Accessibility G4 Managing identity: practitioner and learner	Pre-arrival (F20)	Demonstrate commitment to learners, their learning, safety, and well-being.
How might we support staff to develop their online learning techniques in order to stimulate participation from learners?	Digital communication, collaboration and participation	A2 Designing and adapting activities A3 Support for learning and support activities including initial assessment - empowering learners through technology A4 Communication and collaboration with and between colleagues and learners enhanced by technology	Digital culture (F2)	Value and promote diversity, equality of opportunity and inclusion
How might we improve awareness of how to find out about good digital practice? (exemplars)	Digital learning and development	A4 Communication and collaboration with and between colleagues and learners enhanced by technology D1 Teaching: subject specific and industry-related G2 Progression and CPD: strategies to develop digital skills and pedagogy	Curriculum (F54)	Critically reflect on own values, knowledge and skills to improve learning
How might we support departments to work together more?	Digital learning and development	A4 Communication and collaboration with and between colleagues and learners	Digital culture (F6)	Build positive and collaborative relationships

'How might we' statement	Jisc's Digital Capability Framework	ETF Digital Standard	Jisc's Digital Elevation Tool	Digital 2030: Welsh Digital Standard
How might we develop critical thinking skills in learners when evaluating online sources?	Information, data and media literacies	A1 Planning and looking for information A3 Support for learning and support activities including initial assessment - empowering learners through technology	Curriculum staff (F39)	Critically reflect on own values, knowledge and skills to improve learning
How might we raise awareness of what support is available to staff?	Digital learning and development	A2 Designing and adapting activities A4 Communication and collaboration with and between colleagues and learners enhanced by technology	Digital culture (F6)	Build positive and collaborative relationships
How might we work more closely with validating institutions for ITE courses to ensure the digital aspects are more consistently and explicitly stated?	Digital learning and development	G2 Progression and CPD: strategies to develop digital skills and pedagogy		Build positive and collaborative relationships
How might we make the learning environment (physical and virtual) more user-friendly and less intimidating for learners who are new to education?		C3 Communication and collaboration with learners and between learners (peer support) F1 Accessibility F2 Equality and diversity	Digital culture (F1)	Demonstrate dignity, courtesy and respect towards others.

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