

Building feedback literacy authentically:

Digital peer feedback approaches to enhance future employability in caring professions



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Executive Summary

This research explored the extent to which a digital platform, IRIS Connect, can foster the range of skills associated with feedback literacy for students at the University of Queensland (UQ). Research suggests feedback literacy has the capacity to enhance students' self-efficacy in relation to giving, receiving and responding to feedback in the context of their discipline, preparing them for practical or clinical settings. This project addressed the University of Queensland Strategic Plan 2022–2025, specifically, targeting strategies in the *Learning and Student Experience Roadmap* domain to 'build a digital and personalised experience' and 'foster a sense of belonging and wellbeing for all learners' by using a digital platform to foster authentic practice in order to develop the skills and dispositions essential for the caring professions (University of Queensland, 2021, p. 12). The research aimed to expand our understanding of how to best scaffold UQ students' learning so they can effectively transition from the structure of university, to supported practicums, and then into their future careers.

IRIS Connect offers providers a digital platform which allows participants to engage in reflective and collaborative feedback either individually or as part of a group. Students film their practice, upload it to the site, and invite others to respond. Within the platform, the iConnect tool allows individuals to pinpoint specific successes and challenges according to pre-set criteria as well as supplying written feedback. This activity allows honed personal reflection and fosters enhanced feedback literacy through collaborative reflection.

Keywords: 21st-century skills; affect and learning; caring professions; digital tools; feedback literacy; graduate attributes; higher education; peer feedback; professional learning communities; self-efficacy; skills acquisition; trust

1



1. Introduction

Positioning the research

Higher education practitioners continue to invest significant time and energy in creating authentic learning experiences to prepare students for their future careers. However, research continues to document that students struggle durina the transition from university to employment (Stahl et al., 2024). Our research sought to investigate what the digital could offer in terms of enhancing students' skill acquisition through foregrounding cycles of feedback and building feedback literacy. The aim was to deliver evidenceinformed practical recommendations on how we can better scaffold students' learning through digital modes designed maximise students' to learning. preparedness. satisfaction and ownership. As practitioners working in higher education with a scholarly interest in teaching and learning, we feel it is important to address the priority area of employability, specifically, giving students the 'employability edge' and finding ways to produce work-ready graduates who are not only 'competent' but also have 'both the disciplinary knowledge and transferable skills they need to have impact and influence in a rapidly changing global workplace' (University of Queensland, 2021, p. 8).

Formative assessment typically involves three agents – teacher, peer and self – and has become ingrained in many aspects of higher education. Feedback Literacy: the ability to understand, interpret, and effectively use feedback to enhance learning and performance.

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Many examples of formative assessment continue to be teacher directed and classroom based, which can often limit its (Schildkamp et al., 2020). scope Therefore, the use of online self and peer assessment is a growing area of research for scholars who are interested in what these forms of assessment may offer students seeking to improve their skills (see Iglesias Pérez et al., 2022; Kulkarni et al., 2015). With this in mind, this project addresses the strategic priority area of the UQ Strategic Plan 2022-2025 of 'Deliver[ing] highly sought-after graduates, who are prepared for future success through rich and broad educational experiences' (University of Queensland, 2021, p. 7).

Background

Research continues to document the relationship between feedback literacy and self/peer assessment as well as the metacognitive processes which allow for deep reflection and critique (Han & Xu, 2020). While research demonstrates that formative feedback promotes higher-level thinking, knowledge acquisition, and aggregated performance outcomes and learning gains, studies of the affective aspects of peer feedback in higher education remain largely non-existent (Stahl et al., 2024). Therefore, we have

structured our study to focus specifically on the affective aspects of digitally mediated formative peer feedback to consider how these affective aspects may inform engagement and motivation, as well as a sense of belonging.

Overview

team-based As part of a teacherpractitioner project, we sought to explore what one digital platform could offer in formative terms of enhancing assessment, specifically in reference to enhancing student feedback literacv (Boud & Molloy, 2013). While the study was multifaceted, the main part involved students utilising the IRIS Connect digital platform to record and share videos of themselves performing specific skills related to their discipline areas. Once these videos were uploaded, students were able to provide and receive feedback from their peers regarding their work. Asynchronous computer-mediated peer assessment has been shown to enhance feelings of ownership and foster mutual trust and a sense of belonging (Larson et al., 2017). Our mixed-methods study was designed to examine the affective aspects of peer feedback as integral to formative assessment, using a

Synchronous vs Asynchronous:

Asynchronous learning allows students to engage with educational content at their convenience, unlike synchronous learning, which occurs in real-time. digital platform across multiple caring disciplines (medicine, dentistry, rehabilitation science and education) and with a diverse group of students (n = 40) in one higher education setting. Working across different discipline areas, our analysis considers the interrelated nature of affect and feedback as well as knowledge and skill acquisition in the student learning experience.

Key problematics to guide investigation

Students are underprepared for future employment.

Students may not routinely engage in authentic learning.

Students may not develop their skills in feedback literacy, which may limit their experience in higher education and hinder their development as learners.

Teaching and learning in the caring professions are distinctive and require personalised approaches.

Students do not always feel comfortable using technology to enhance their professional skills and competencies.

Alignment with The University of Queensland priorities

This research supports The University of Queensland (UQ) 'Toward 2032' goal outlined in the UQ Strategic Plan 2022–2025 to 'deliver highly sought-after graduates, who are prepared for future success through rich and broad educational experiences'. Specifically, this work aligns with strategies set out in the 'Learning and student experience' domain to 'build a digital and personalised experience' and 'foster a sense of belonging and wellbeing for all learners' (University of Queensland, 2021, p. 12).

In the wake of the COVID-19 pandemic, UQ aims to address the need for seamless and flexible learning opportunities by 'develop[ing] our educational model combining online and on-campus learning, in a way that delivers on the "value-add" of our rich campus learning experiences' and 'develop[ing] new digital platforms with industry-leading partners, ensuring we are using the best technologies to deliver flexible, high-quality education' (University of Queensland, 2021, p. 8). Our project aligns with this goal by using the digital platform, IRIS Connect, to structure authentic practice in an asynchronous learning environment to enable UQ students to develop as preservice teachers and healthcare professionals.

The innovative, collaborative and user-led format of this program also aligns with the UQ 2024 *Learning and Student Experience Roadmap key initiatives:*

- Commence delivery of UQ's *Learning and Student Experience Roadmap*, with a focus on **improving student satisfaction** and progression through transformative curricula and pedagogy.
- Lead development and rationalisation of **critical education technologies**, enabling delivery of effective systems and analytics.
- Develop UQ's **lifelong learning** strategy, with the goal of growing our postgraduate coursework enrolments and maximising the use of our CBD facilities and **online options** (University of Queensland, 2024).



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Expanding on the UQ *Learning and Student Experience Roadmap*, our work aligns with a range of priorities across multiple domains of this framework.

Employ student-centred pedagogies that are engaging, interactive, and responsive to diverse cohorts of learners.

- Offer modality of courses at each stage of our students' learning journey designed to best enhance their learning development within disciplinary contexts to balance flexible learning opportunities and student sense of belonging.
- Expand ways to engage and consult students as impactful leaders and partners in shaping excellence in teaching, learning and student experience.
- Connect commencing students to learning communities, enabling opportunities to build a strong cohort experience, strengthening our students' sense of belonging. (University of Queensland, 2024, p. 6)

Evolve a cohesive suite of study options that directly supports continuous lifelong learning, responsive to the needs of the broad community both within Queensland and across the Asia-Pacific.

- Create a lifelong learning framework responsive to varied and shifting market demands aligned to our priorities, resources and capabilities.
- · Co-design credentials and services with industry partners
- Adopt contemporary and innovative curriculum. (p. 7)

Enable students to generate and action novel solutions to current and future challenges across communities through entrepreneurship, creativity, and innovation.

 Engage all students in opportunities to expand their design, scenario, and critical thinking skills throughout their learning journey. (p. 9)

Create safe and welcoming learning environments purposefully designed to facilitate creativity, critical thinking, and collaboration.

- Collaboratively develop safe and welcoming formal and informal learning spaces, ... that ... encourage students to collaborate with peers and educators.
- Support teaching staff to maximise the affordances of physical and virtual learning spaces, driving innovation in pedagogical practice. (p. 13)

The project rationale

Research has continued to investigate ways to mitigate 'praxis shock' as students prepare for employment (see Veenman, 1984). Video annotation and discussion in the IRIS Connect platform has been used in a recent study to mitigate these effects through selfreflection and professional development (Defis et al, 2022). Video annotation is a multifaceted tool and, while it is designed foster learning to more authentic conditions. how it is used in the classroom environment requires careful consideration. Our project is informed by contemporary learning theory, which recognises that effective pedagogy moves the learner from a passive receiver of knowledge to an active participant (Lave & Wenger, 1991; Siemens, 2005; Vygotsky, 1978). We are interested in how digital tools open up spaces for learners to develop.

Capitalising on the IRIS Connect platform, our project foregrounded the role of students in feedback processes, where we considered how different digital approaches within one platform can work to enhance students' agency (Winstone et al., 2017). We recognise a personalised approach to skills acquisition has been documented to improve confidence (Hasbrouck, 1997), encourage students' agency (Winstone et al., 2017). We also recognise a personalised approach to skills acquisition has been documented to improve confidence (Hasbrouck, 1997), encourage reflective practice (Neubert &

McAllister, 1993), and reduce feelings of isolation and uncertainty (Neubert & Stover, 1994). Fostering reflective practice through feedback and promoting a disposition towards ongoing learning and continual improvement remains a powerful dimension of further learning (see Johnson et al., 2014).

We recognise that research continues to document the relationship between feedback literacy and self and peer and assessment the metacognitive processes which allow for deep reflection and critique (Han & Xu, 2020). In the present research, as students recorded and shared videos of themselves performing specific skills on the IRIS Connect platform, they actively engaged in providing and receiving feedback from their peers regarding their work. Asynchronous computer-mediated peer assessment has been shown to foster ownership when there is mutual trust and a sense of belonging (Larson et al., 2017). Overall, the mixed-methods study was designed to examine the affective aspects of peer feedback across multiple caring disciplines (medicine, dentistry, rehabilitation science and education) with a diverse group of students (n = 40) in one higher education setting. Working across the different discipline areas, our

IRIS Connect platform:

a video-based professional learning platform that enhances teacher collaboration, reflection, and development through recorded lessons and feedback. analysis considers the interrelated nature of affect, feedback and knowledge improvement in students' learning experience.

The use of video-based professional development dates back to the 1990s (Trigg et al., 1991; Welch et al., 1992). Prior research video-based in professional development in the caring professions has largely focused on teachers. The majority of these studies found that video formats were effective in improving teachers' knowledge, skills and practice, with greater effects on more instruction as it offers targeted opportunities to tailor feedback to specific aspects of instruction. Additionally, early research positions video formats as a valuable resource for reflective and collaborative learning, where learning from their own and each other's teaching practices was central to the study (Van Es & Sherin, 2010).

Addressing skill development in the caring professions in higher education

Caring professions, such as nursing, physiotherapy, medicine and teaching, require not only knowledge within their discipline but also the development of what are considered 'soft skills' like communication, empathy and professionalism which support interactions with clients or students (Pereira et al., 2015). These skills are closely related to one's professional identity and, while they can be taught, their development also relies on the individual's personal beliefs and



values (Ellis & Hogard, 2020). While there is some belief that tertiary students in a certain program will already align with the identity traits professional of the profession before they begin their instruction, higher education is often criticised for an overemphasis on knowledge development, often neglecting these soft skills as well as the affective dimensions considered crucial to the caring professions (Grootenboer, 2010).

Effective education programs for the caring professions typically encompass a multidisciplinary approach that combines explicit theoretical understanding and practical skills with soft skills fostered implicitly through modelled behaviour, communication and collaborative work (Clouder, 2005; Grootenboer, 2010). By providing students in caring professions with opportunities to simulate or practise their professional conduct, the expectation is that students can develop

these key skills through authentic experiences in the profession. Authentic learning, however, is not limited to placement experiences: through careful design it can be implemented on campus and through digital mediums to allow students to reflect on their abilities before begin to interact with clients they (Almuhsin et al., 2023; O'Neil & Short, 2023). Reflection provides students with opportunities to identify elements of their chosen professional identity and develop this identity throughout their career (Lane & Roberts, 2020; Passmore & Prescott, 2020).

Recent research suggests the digital landscape – while rapidly changing – has an important role to play in enhancing professional skills and allowing opportunities for deeper reflection (Burke & Larmar, 2021). With this in mind, this project used digital technology to offer students' opportunities for self-reflection, provide them with constructive peer feedback, and allow development of professional identities.

Authentic Learning:

student-centered approach that emphasizes real-world relevance, critical thinking, and active engagement in meaningful tasks.



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Great work: Fluid and clear In developing the project, we frame our thinking around three key aspects of how we educate in the caring professions.

Practicum and supervised experience



Hands-on experience is a crucial component of training for caring professions in higher education. Students in the caring professions often undergo multiple practicums or supervised experiences allowing them to apply theoretical knowledge in real-world scenarios under the guidance of experienced mentors. This practical experience is designed to help them foster effective communication and problem-solving skills (Abbot & Meerabeau, 2020).

Professional standards



Internationally, most higher education institutions draw on a set of recognised professional standards which inform the remit of learning to varying degrees. This is part of how the caring professions emphasise the importance of maintaining high professional standards and establishing appropriate boundaries in their interactions with clients. It is via professional standards that students learn to navigate sensitive issues with cultural competence, confidentiality, and a commitment to the wellbeing of those individuals they serve (Park et al., 2014; Taggart, 2019).

Collaboration



While collaboration is part of all learning, it is often considered a key component in the caring professions. Working collaboratively opens up important spaces to combine academic knowledge, practical experience and a commitment to ongoing learning. These collaborative experiences prepare students for their future careers in which they will consult with peers to address the diverse needs of clients without competition or negative affective states (Johnson et al., 2007).

Our Research Questions

The study involved students utilising the IRIS Connect digital platform to record and share videos of themselves performing specific skills related to their discipline areas. To ensure a degree of consistency and comparable data, we used a similar model across the different discipline areas.

Our research questions were:

1. What are the advantages of using digital approaches – specifically video reflection and digitally mediated peer feedback – to enhance students' confidence, preparedness and employability?

2. How does our model of video reflection and feedback cycles enhance the skills and confidence of students?

3. What knowledge do we gain about supporting students to become 21st century learners through considering what the digital offers as a self-directed and collective pedagogic tool?

4. What can we learn from the implementation of this approach in a variety of different discipline areas? And what are the implications for the future of student learning at the University of Queensland?





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2. Theoretical Foundations

The theoretical foundations used to analyse this data were built around four broad themes, adapted from the <u>Higher Education Learning Framework (HELF)</u> (Nugent et al., 2019).

1. Learning as becoming

Embodies the transformational journey of students to become citizens of the world, able to ethically consume, evaluate, create, transform and apply knowledge in their everyday life, as well as their occupation, now and into the future.

2. Contextual learning Exploring content in context makes the learning experience more relevant, meaningful and engaging, and develops students' capacity to apply learning to novel and unfamiliar contexts.

3. Emotions and learning Emotions are essential for and fundamental to promoting or inhibiting learning. The affective aspect exists alongside cognitive skills such as problem solving, decision making, and creative and critical thinking.

4. Deep and meaningful learning

Learning is built on prior knowledge and engages students in deep and meaningful thinking and feeling.

Defining feedback literacy

The development of feedback literacy skills during education and career training is crucial because feedback and review of feedback are integral to most workplace environments. We foreground the particular relevance of feedback literacy to the 'caring professions' (e.g. medical, health, education) (Winstone & Carless, 2020a), given these professions involve an array of what are called 'soft skills' as well as a high level of interpersonal intelligence. Soft skills, in this context, refers to valuable learning experiences not contextualised within disciplinary learning, such as ethical views and interpersonal skills (Nugent et al., 2019).

Within recent research, feedback literacy is defined as the ability to receive, interpret and action feedback (Man et al., 2022). While there are competing definitions and differing interpretations, we are drawn to Carless and Boud's (2018) four key dimensions of feedback literacy, which guided our research. These are the ability to:

 appreciate feedback provided;
 make judgements on this feedback;
 manage emotion or affect created by the feedback; and
 take action to improve.

In order to become feedback literate, learners must comprehend the criteria and processes involved in feedback. This allows them to appreciate it and,

Soft Skills:

Interpersonal attributes that enhance communication, teamwork, and problem-solving, crucial for workplace success and personal interactions.

furthermore, make informed judgements about the quality of their own work through this feedback to inform future behaviours (Winstone & Carless, 2020a). Research suggests that managing affective responses created by feedback is often the most difficult dimension of feedback literacy as emotions can impede cognitive processes and feedback-literate students must avoid defensiveness and be open to feedback (Winstone & Carless, 2020a).

Another significant barrier to becoming feedback literate physical is the environment of synchronous feedback interaction. For example, the social pressures and power dynamics that are classroom often present the in environment can influence the affect of the receiver, as per the ecological perspective (Man et al., 2022). The situational context of a classroom or workplace can either instil an environment of trust, confidence and communication, or create unease in opening dialogue about received feedback (Zhou et al., 2020). This barrier has led to a strong interest in exploring the benefits of online spaces for feedback (both synchronous and asynchronous), without audience or other social stressors (Hardavella et al., 2017). For example, a recent study of preservice teachers found that negative

feedback produced the least positive affect in receivers and impacted their sense of self-efficacy, emphasising that feedback needs to be provided in a way that stimulates positive cognitive, motivational and affective processes in the receiver in order to prevent negative impacts on performance and interpersonal relationships (Prilop et al., 2021). Regardless of where the feedback takes place and the interactions related to giving feedback. fostering effective feedback literacy involves engagement with appreciation, judgement and positive affect. All these components are required in order for learners to thoughtfully apply the feedback received to improve their work and/or professional competencies.

Learning feedback skills

The capacity to take on feedback and adjust to meet the expectations of the profession is crucial to learning effective workplace behaviours and skills.



Furthermore, research continues to highlight that learning feedback skills is maintaining integral to building and interpersonal relationships (Carless & Boud, 2018; Molloy et al., 2020; Winstone & Carless, 2020a). Fostering the skills around feedback literacy through education and training arguably fosters a greater depth of awareness of one's strengths and weaknesses as well as resilience in one's desire to learn and develop (Hattie & Timperley, 2007; Molloy et al., 2020). Furthermore, receiving feedback early in one's professional important for education is learning communication and cooperation skills as course-correcting disciplinewell as specific practices (Ngoon et al., 2018).

Many would argue feedback literacy is integral to the formation of a disposition to lifelong learning. Therefore, how we develop and practise feedback literacy with students has become a key focus in educational research, where fostering feedback literacy is considered integral to effective forms of education. To foster feedback literacy effectively, research suggests, requires not only building skills in receiving feedback but also providing feedback to peers with the same dimensions of feedback literacy in mind (Foo, 2021; O'Connor & McCurtin, 2021).

Within scholarship focused on the education and training of those who seek to work in the caring professions, we have seen a real increase in the last twenty years of studies on how to foster feedback literacy effectively in both the

classroom and practicum environment. Researchers argue that education in professions should include caring consistent disciplinary skill practice in receiving feedback giving and on performance to improve basic feedback literacy before joining the profession (Hardavella et al., 2017). Practicum experiences, which are embedded in the training for the caring professions, are used as opportunities to provide feedback to learners on discipline-specific skills that cannot be authentically replicated in learning institutions. These opportunities to receive feedback from an expert on disciplinary skills and improve through repetition can bolster learners' selfefficacy and sense of identity within the profession (Molloy et al., 2020; Winstone 2017). et al., Likewise, practicum experiences socialise learners into the profession. offering opportunities to observe the accepted social norms of the workplace, which in caring professions often includes appropriate interpersonal relations with patients or students, and receiving continuous feedback from peers (Cope et al., 2000).

Sustainable feedback

Of course. feedback remains а complicated picture. Research on feedback literacy highlights that the quality and style of feedback provided can affect the receiver's response and learning experience. Traditionally, feedback has been perceived as a consequence of performance, rather than the starting point to improve upon an initial attempt, or an opportunity for

continued growth (Hattie & Timperley, 2007; Winstone et al., 2017). However, in more recent scholarship, this monologic feedback process has been heavily criticised as ineffective in developing the feedback literacy skills needed for future tasks and, ultimately, professional experiences in employment (Ajjawi & Boud, 2018). In contrast, Hounsell (2007) describes the features required for sustainable feedback:

- a suitable environment for dialogic interactions
- impact beyond the current task
- development and encouragement of self-regulation of performance.

These features provide a basis for the improvement in future experiences of such tasks (Ajjawi & Boud, 2018). By adopting а new, more sustainable, feedback process, receiving feedback can assessment for become learning (Klenowski, 2009), in which students engage in deeper self-reflection and constructive dialogue regarding their feedback (Charteris & Smardon, 2013).



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The move to dialogic feedback

Researchers have highlighted that to create an environment suitable for dialogue about and reflection on feedback, the social affective dimension of the learning environment must be considered (Ajjawi & Boud, 2018). Uneven power dynamics common in teacher-student relationships can cause discomfort with initiating dialogue about the feedback provided. However, while this tension can be resolved through teacher-initiated communication, positive language and corrective suggestions (Boud & Molloy, 2013; Winstone & Carless, 2020a), we have also seen increased attention in literature to peer feedback, which works to mitigate some aspects of the power dynamics.

A major benefit of the use of peer feedback is that receivers often feel confident questioning feedback with peers without issues of power and finality (Matthews et al., 2024). The use of collaborative or dialogic feedback specifically a discussion of the meaning of the feedback and negotiation of corrective strategies – can provide feedback receivers with a sense of agency over their work while allowing the expectations of the work to be clarified (Carless & Boud, 2018; Matthews et al., 2024). For example, in a study of an academic writing course in Korea, Wood (2022) found that participants felt better able to utilise and feedback after apply discussion and clarification. Dialogue, therefore, fulfils requirement а of feedback by reducing the distance

21st Century Skills:

Essential abilities for success in modern society, focusing on critical thinking, collaboration, communication, and digital literacy.

between the current and desired understanding (Hattie & Timperley, 2007), and shifts the learning experience from a task-specific comment to an opportunity to develop abilities of self-regulation and self-reflection aligned with **21st-century skills** (Ajjawi & Boud, 2018).

To conclude, active engagement in sustainable feedback like activities. dialogic feedback, moves learning beyond the task at hand and informs the building of a greater skill set of critical and reflective capabilities (Ajjawi & Boud, than Rather positioning 2018). the receiver of feedback as a passive recipient, the use of sustainable feedback approaches allows the receiver to identify trends in quality and develop error skills which detection can create opportunities for self-feedback in future experiences (Hattie & Timperley, 2007; Winstone et al., 2017).

Feedback as a 21st-century skill

21st-century skills are a collection of life and career skills deemed important in the modern, globalised world. These skills relate to organisation and judgement of information through technology, effective communication and collaboration, as well as a consideration of the ethics associated with social responsibility (Ananiadou & Claro, 2009). These skills generally engage higher-order thinking such as creativity, critical thinking, empathy and adaptability (McLay et al., 2023). Through the lens of employability, the development of 21st-century skills is believed to increase human capital, as learners gain competence not just in knowledge and skills related to their discipline, but in ways of thinking and processing information (Ananiadou & Claro, 2009; Bakay, 2022). Presently, we see educational systems in a period of transition, working to align with and encourage the development of 21stcentury skills. For example, higher education institutions are transforming course structures and altering the roles within teaching-learning processes to position learners as more active participants in education (Liesa-Orús et al., 2020).

Developing feedback literacy as a 21stcentury skill requires careful consideration. Both the stimulus and the learning conditions need to attend to the affective nature of learning. Feedback is most productive when received with positive affect. This allows for a space where the learner can separate emotions from the feedback, make judgements about enacting the feedback, and then devise constructive solutions to improve practice. This skill transfer may be evident especially in the caring professions, given the role interpersonal intelligence and a caring disposition play.

As one would expect, 21st-century skills are intertwined and research continues to highlight how the development of skills in one area influences the development in others (Bakay, 2022; Kocak et al., 2021). This foregrounds the holistic nature of learning. For example, Kocak et al. (2021) found that communication and critical thinking skills, like those developed through active learning activities, contribute directly to problem-solving skills. For example, a comparative metaanalysis study of academics and HR managers found that both valued communication, co-operation and selfdirection skills; however. academics placed more importance on cognitive while skills, HR managers gave preference to more behavioural skills (Bakay, 2022). These results can be interpreted to imply that it is crucial to develop these less tangible social skills to enhance employability prospects.



21st-century skills are therefore key to employability in the modern world, establishing the importance of developing them before students enter professional spaces.

Enhancing graduate attributes

21st-century skills are recognised in education institutions across Australia as an important component of curriculum. In higher education, these skill sets are referred to as graduate attributes, and they are regulated in Australia by the Tertiary Education Quality and Standards which defines them Agency, as 'transferable, non-discipline specific skills that a graduate may achieve through learning that have application in study, work and life contexts' (Hammer et al., 2021). While these skills may have been perceived as implicit learning in the past, regulatory bodies now recognise graduate attributes as indicators of curriculum quality architecture in higher education. Such a curriculum promotes lifelong learning. provides assessment of educational quality through graduate outcomes, and connects education to future employment (Bowden, 2000; Hammer et al., 2021).

"Graduate attributes are the set of affective skills related to the qualities a particular university would like to cultivate in its graduates..."

Graduate attributes are the set of affective skills related to the qualities a particular university would like to cultivate in its graduates (Grootenboer, 2010). In the context of higher education, these dimensions might refer to the values and beliefs that inform a given career path, or the emotional response that motivates students to continue learning, such as trust, collaboration self-esteem. and interest (Beard et al., 2007; Grootenboer, 2010). These soft skills are often taught implicitly, through modelled behaviour, group work and collaboration, though there is some contention around whether values, beliefs and morals are things that should be taught, especially in higher education settings (Grootenboer, 2010).

The graduate attributes of Australian universities are publicly accessible and a content analysis of the websites of 15 Australian universities found that the most common core skills in graduate attributes are communication, social responsibility, global perspective, critical thinking and teamwork skills (Donleavy, 2012). These attributes are clearly closely linked to the concept of 21st-century skills and they continue the development of nondisciplinary skills in tertiary education. They are embedded into course curriculum accordance with in а university's priorities (Bowden et al., 2020). Each higher education institution curates a selection of skills that the university agrees community are desirable for graduates to develop. primarily to bolster future employability (Bowden et al., 2000).

Important to our study, the graduate attributes of the University of Queensland (UQ) represent a collection of holistic characteristics thought to be desirable in graduates. UQ aims to produce graduates who are:

- accomplished scholars
- courageous thinkers
- connected citizens
- culturally capable
- influential communicators, and
- respectful leaders.

UQ programs are designed with these attributes in mind, alongside specific discipline content.

The importance of peer feedback

The definition of feedback literacy is expanded by contemporary literature to include the ability to compose useful feedback for others. Peer feedback describes communication between two regarding performance learners and standards (Winstone & Carless, 2020b), with socially aligning the situated practices of social constructivist theory (Man et al., 2022; Min, 2005). As a collaborative and social exercise, peer feedback bolster skills can of communication, emotional regulation and higher-order thinking (Man et al., 2022; Winston & Carless. 2020b). As а reciprocal feedback process. peer benefits both the receiver of the feedback and the composer (Molloy et al., 2020). In fact, Carless and Boud (2018) assert that the giving of feedback is more beneficial as it requires more cognitive engagement and higher-order thinking to analyse and provide constructive feedback on another's work. The ability to provide

"... the critical thinking and problemsolving skills associated with peer feedback are aligned with the 21stcentury skills considered crucial for successful employment."

useful feedback to others is central to developing a greater understanding of the processes involved in feedback, such as analysis and evaluation of performance against criteria, and therefore a strengthening of overall feedback literacy (Molloy et al., 2020).

While learners may value the expertise of supervisor feedback (Ngoon et al., 2018), it is often difficult for teachers/experts to provide timely and detailed feedback to large cohorts (Boud & Molloy, 2013). Through fostering opportunities for peer feedback, students can receive larger quantities of feedback and more diverse opinions on their performance. This can benefit their learning, and research suggests there is a relationship between receiving feedback and composing more effective feedback (Winstone & Carless, 2020b). These outcomes align with Vvqotsky's theory of socio-cognitive learning, which places importance on social interactions build thought to development (Min, 2005). Furthermore, the critical thinking and problem-solving skills associated with peer feedback are aligned with the 21st-century skills considered crucial successful for employment (Chong, 2017).

Peer feedback exercises can be used to simulate more authentic professional feedback experiences and build students' self-efficacy in providing feedback. Feedback through social interaction can still occur in a traditional student-teacher feedback exercise, though the power dynamics and pressure involved can impact the learning experience and limit opportunities to perceive and comprehend the processes involved in feedback (Boud & Molloy, 2013; Winstone & Carless, While 2020a). there is research suggesting that students doubt the reliability and value of peer feedback (Chong, 2017; Hardavella et al., 2017; Man et al., 2022), through thoughtful planning and modelling students build both self-efficacy in providing feedback as well as trust in the quality of their peers' feedback (Ngoon et al., 2018). This process allows learners to act authentically as experts, preparing them for professional experiences (Man et al., 2022), strengthening the social aspects of feedback, and reducing the power and stress relationship of teacher feedback (Carless & Boud, 2018; Hardavella et al., 2017).

In addition to the reduction of power differentials and performance anxiety, peer feedback allows for alternate points of view, providing a greater quantity and variety of feedback (Winstone & Carless, 2020b). Min (2005) posits that the greatest success in peer feedback occurs when partners have different strengths in their work, allowing them to assist each other. Cycles of peer feedback exercises within groups also allow increased reliability as learners can compare comments from differing opinions to come to a considered conclusion (Winstone & Carless, 2020b). Winston and Carless (2020b) further posit that group exercises enhance teamwork and communication skills that are directly transferable to workplace environments. Notably, the success of these processes relies heavily on adequate training, positive affect, and a focus on improvement and learning, rather than correctness (see Min, 2005).

In terms of feedback on specific learning tasks, being the composer can sensitise learners to identify quality work and help self-evaluate them more effectively (Carless & Boud, 2018; Winstone & Carless, 2020b). Importantly, the act of providing feedback gives learners insight into the dynamics and processes of feedback and the comprehension of criteria, which builds understanding of how to receive and interpret feedback on their own work (Chong, 2017; Man et al., 2022; Molloy et al., 2020). While in early attempts to provide feedback learners

may feel ill-equipped or lacking in selfefficacy (Chong, 2017; Winstone & Carless, 2020b), experience built through repetition and adequate training can encourage learners to provide feedback not only in educational practices but into future employment (Man et al., 2022, Min, 2005). Building learners' skills in evaluative judgement and attention to detail. as well constructive as communication skills, increases future employability and promotes general social skills (Min, 2005; Molloy et al., 2020).

Exploring the affective dimension of learning

Integral to how we understand feedback literacy is the **affective dimension** of learning. The affective dimension of learning for the most part refers to a large, interlaced spread of values, beliefs and emotions which can dictate a student's experience of learning, through their motivation, engagement and interest (Beard et al., 2007). These affective dimensions are not necessarily specific to the discipline and may vary significantly from learning experience to learning experience.

In considering the affective dimension of learning, we also recognise the professional implications. The affective dimensions of values and beliefs fostered through pedagogical approaches have strong links to students' development of a core 'professional identity' while studying for their chosen

Affective Dimension:

The affective dimension refers to the emotional aspects of experiences, including feelings, moods, and emotional responses.

career (Ellis & Hogard, 2020). Examples of these professional values, according to Grootenboer (2010),are ethical considerations in law professions. conservation in environmental sciences, or empathy in 'caring' professions. It is considered implicit that students in certain tertiary programs will already have the affective beliefs, values and emotions required of that profession, and there is an underlying assumption that those who do not possess the necessary values will not enter that profession in the future (Grootenboer, 2010).

Similarly, employability can be impacted by the affective dimension of emotion, which refers to both regulation of emotions, and the emotional aspects of teamwork skills like trust and respect (Zhou et al., 2020). The emotional state, whether at an individual level or a classroom level, has the power to dictate the progression of learning. For example, communal positive dispositions create environments of interest, engagement and motivation, while negative affect presents as boredom and work refusal (Trujillo & Tanner, 2014). Significantly, in social learning environments like classrooms or universities, a sense of belonging or comfort can foster positive affect, and

coincide with the feelings of shame or pride, success or failure, that build and maintain a sense of identity and selfesteem (Beard et al., 2007). The emotional affect of individual students is heavily dictated by the social context of learning, such as assessment pressure, comfort and power dynamics.

While learners, especially university students, are expected to control their emotional responses. research has highlighted maintaining self-control has an energetic toll - in fact, the effort expended in maintaining a neutral affect in a negative environment can negatively impact the productivity of work (Baker & Zuvela, 2013). Affective experiences are dependent on the individual and the same experience can be perceived differently, and reacted to differently, by people with a different affect or emotional regulation. Situations that evoke confusion, anger, frustration or anxiety can create an emotional or reactive response, which can hinder the learning process (Crook, 2013). Vygotsky's (1978) social cognitive theory suggests that there is a strong human motivation to seek connection and shared experience, and this strengthens learning experiences. Through this assumption. shared experiences like collaborative work and group work with peers should provide a positive affect by others experience a similar seeing 2013). learning journey (Crook, Additionally, with collaborative experiences come differences in opinions and views, which can create cognitive dissonance and cause individuals to

question their existing values, beliefs and identities, which can be emotionally exertive (Muller Mirza, 2013). In the context of the current research, the affective dimension can relate to how the participants view themselves and their abilities, the values and beliefs they hold regarding the study content, and how they respond emotionally to the opinions of their peers. Of particular interest to this research is the relationship between affect and peer collaboration.

Video-based peer coaching

Video-based peer coaching has been a part of the higher education landscape for the past thirty years where it has been used in a variety of ways to enhance student learning. In this report, we focus on two key aspects relevant to our learning design: asynchronous learning and dialogic learning and reflection.

"Vygotsky's (1978) social cognitive theory suggests that there is a strong human motivation to seek connection and shared experience, and this strengthens learning experiences."

Asynchronous learning

In an increasingly digital world, new technologies continue to be developed which aim to provide accessibility within a virtual environment for businesses. individuals and educational institutions (Almuhsin et al., 2023). During the COVID-19 pandemic, educators relied heavily on technology to provide an adequate learning experience. In the time since, these digital tools have been used as an alternative to face-to-face or synchronous learning to provide greater opportunities access information. to with connect geographically distant communities, and provide immediate feedback when not previously possible (Almuhsin et al., 2023; Defis et al., 2022).

Within **video coaching** specifically, recent advances in technology allow for feedback in a more ethnographically authentic environment, unobstructed by physical observers or commenters, due to

Video Coaching:

Video coaching is a method where individuals receive feedback on their performance through recorded video, enhancing skills and confidence

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time-deferred or in-ear feedback methods (Almuhsin et al., 2023; Horn et al., 2021). While these training methods are applicable to all professions in which performance communication or is required, most published research on learning asynchronous in higher education has focused on initial teacher education. This is because video coaching can allow pre-service teachers to conduct a lesson under their current pedagogical practices in an authentic environment of the classroom, while providing opportunities to receive feedback and self-reflect, whether in realtime or deferred (Horn et al., 2021). Holstein et al. (2022) found that, while inclassroom coaching experiences provide more authentic contexts for teaching, micro-teaching settings, or roleplay exercises outside of classrooms, provide skills transferable and offer more flexibility in learning opportunities.

Video coaching is increasingly being used in real time instruction, or in constructed environments. learning to provide opportunities to practise pedagogical skills as part of a hybrid learning model. This approach aims to provide greater opportunities for dialogic feedback, as opposed supervising teacher to commentary during a class where there is little follow-up support (Almuhsin et al., 2023; Horn et al., 2021).

Dialogic learning and reflection

A crucial benefit of video coaching is the ability to open dialogue between trainers

and learners, transforming a subjective performance into an object for examination, allowing both dialogue and self-analysis of performance (Charteris & Smardon, 2013; Davies et al., 2017). Defis et al. (2022) recognise that the video technology itself is not the main factor in improved reflection, but rather the opportunities for development of dialogic environments the technology creates. Research suggests simulated or professional recorded performances provide educational opportunities to reflect and discuss practice, whether with experts or peers, and supports improved performance and awareness of existing issues (Defis et al., 2022; Husebø et al., 2015).

In exploring what video-based peer coaching offers individuals, Defis et al. (2022) suggest that reflection using recorded performances enhances accurate recall of the event, allowing a deeper and more objective reflection. Reflection on performance is important for all professions, though especially within the caring professions such as health care and education where abilities to "perform' or communicate with others are crucial (Husebø et al., 2015). Βv simulating discipline-specific experiences in a virtual context, learners are able to correct mistakes and take on feedback without the risk of misinforming or insulting a client, patient or student (Husebø et al., 2015). The virtual, asynchronous state of video coaching

also allows greater opportunities for peer feedback and collaborative learning free from the constraints and pressures of an educational institution (Defis et al., 2022).

As a socially constructed activity to foster authentic learning, peer reviewing and discussion of video recordings can benefit all involved. Further, open dialogue about disciplinary practices can produce ideas and alternate views, and promote problem solving and constructive feedback skills (Defis et al., 2022).



3. Research Design

Phase 1: Recruitment

This research project delved into peer feedback literacy across four distinct disciplinary domains: education, rehabilitation sciences, dentistry and medicine. Students from the relevant university faculties were enlisted through social media platforms and in collaboration with university staff and student associations. To initiate their involvement, students willingly participated by completing a concise survey that gathered essential information regarding their motivation, confidence, preparedness and goals. Once students were recruited, the research team conducted preliminary 'get to know you interviews' lasting 10–15 minutes, conducted via remote video meetings. These interviews focused on exploring students' resilience and sense of career preparedness while addressing five crucial aspects of student learning, which would serve as guiding principles for the project:

Increased depth of critical reflection concerning deep and meaningful learning Increased confidence, resilience and self-efficacy as a learner

Change in approach to providing and receiving peer feedback

Change in mindset and sense of ownership of skills development

Development of problem-solving skills around capitalising on feedback

These five key areas were identified from literature on digitally enhanced learning in higher education, in order to identify and document how students viewed their progression and development (Molloy et al., 2013).

During this phase, the project's expectations were established, and any questions from the participants were addressed.

Phase 2: Setting the norms

Once recruited, students were organised into small **Professional Learning Communities** (PLCs) consisting of 3–6 individuals within each disciplinary area. In these PLCs, induction meetings lasting approximately 40 minutes were conducted to reiterate the project expectations. Notably, the education cohort differed in that it did not include an in-person induction meeting as part of the research process due to time conflicts. Instead, this session was pre-recorded and made available for education students. During these sessions, students became acquainted with the IRIS Connect technology and its intended use in the project. Students were given demonstrations of how to navigate the IRIS Connect website, including viewing examples of the scenario videos

they were expected to create. Within the PLCs, consensus was reached on how peer feedback would be provided and what indicators of success would be employed. Students were introduced to a student-centred feedback model (Brooks et al., 2021) and established mastery-related goals. They also reviewed prior models of each skill before engaging in self-evaluation and peer evaluation.

Professional Learning Community: A collaborative group of educators focused on improving teaching and student learning through knowledge and shared expertise.

As research suggests that unstructured and unmonitored peer feedback can have detrimental effects on both feedback uptake and affective response to feedback, a crucial element of this project was the guidance provided to participants prior to the project. in order to scaffold feedback interactions constructively (Man et al., 2022; Min, 2005; Winstone et al., 2017). Importantly, this peer-led approach to the activities did not involve tutor or lecturer participation. Participants in related projects appreciated this aspect of the approach, considering it a strength that allowed them greater freedom from the usual constraints (Defis et al., 2022), and, therefore, careful consideration was required as to how to provide guidance for participants with low feedback techniques, including encouragement to provide genuine opinions, how to voice those opinions kindly and respectfully through optional feedback frameworks like sentence starters and 'the compliment sandwich', and advice on receiving feedback with positive affect in order to benefit from it.



Phase 3: Peer review cycles

In a process of contextualised learning, the student participants were actively involved in a series of five distinct cycles across several weeks. Each cycle was designed to concentrate on various skills which were selected by experts within their respective discipline areas. The rationale behind this approach was to commence with skill sets that were easily accessible to the students and then progressively introduce more challenging elements.

During each of these cycles, students had access to a repository of example videos that showcased both successful and unsuccessful demonstrations of the targeted skills. These videos were thoughtfully crafted by seasoned practitioners to serve as instructive references. Students actively participated in the cycles by recording themselves while practising these essential skills or engaging in specific learning activities such as micro-teaching. Subsequently, they embarked on a reflective journey, critically evaluating their own performance.

To foster a collaborative learning environment, students shared their recorded videos within their PLCs on the IRIS Connect digital platform. Within these communities, they sought feedback from their peers, a vital component of the learning process. Participants were supported to provide constructive feedback to their fellow PLC members through explicit feedback teaching.



This collaborative exchange of feedback and reflection occurred asynchronously, with UQ researchers closely monitoring the proceedings. The researchers were primarily focused on assessing students' progress in the five key areas of learning mentioned above, which served as guiding pillars for the project's objectives (see page 24).

After the initial two cycles of the phase, students convened for a Zoom meeting. This virtual gathering provided a platform for students to discuss any challenges they encountered, seek solutions, and build further rapport among the cohort. It was a crucial checkpoint in their learning journey, emphasising the importance of ongoing communication and support within the academic community. After this meeting, the remaining cycles were run as before.

Phase 4: Conclusion

At the completion of the final cycle, students participated in a concluding survey and a second interview. To maintain a comprehensive view of the students' attitudes and perceptions, the same survey used during the recruitment phase was administered once again. This duplication of the survey aimed to capture any changes in attitudes, providing valuable comparative data regarding shifts in students' perspectives over time.

During the second face-to-face meeting of the PLC, which typically lasted for approximately 30– 60 minutes, students actively participated in a focus group discussion. The primary objective of this discussion was to delve into their experiences with the platform and assess their progress in acquiring new skills. The heart of the conversation revolved around student learning, with a specific focus on five key areas previously identified. This in-depth exploration allowed participants to articulate their insights, challenges and achievements within these crucial dimensions of learning.

In addition to the student-focused discussions, an equally significant component was iterative discussion sessions among the research team. These sessions were designed to offer a reflective space for the research team members to discuss the intricacies of the research process itself. They served as an additional source of valuable data, shedding light on the behind-the-scenes dynamics and insights gained during the research journey.

- Survey measuring feedback literacy and confidence as well as student identity.
- Initial interviews to dig more deeply into patterns identified in the survey data.

Pre-Study

Study

- Video data generated through participant students' recordings of themselves performing discipline-specific skills
- Participant students' feedback commentary on one another's video recordings in IRIS Connect.
- Mid study focus group to discuss participants feelings about the process so far

- Participants re-take the survey
- Exit interviews conducted to review themes from the survey as well as participants experiences using the technology.



Data Analysis Overview

Quantitative Approach

examined This study changes in students' feedback literacy, online peer assessment self-efficacy, and motivation in online peer assessment. The survey instruments were based on the Student Feedback Literacy Scale (Zhan, 2022), and the Online Peer Assessment Selfefficacy Survey (OPASS) and Motivation Peer Assessment in Online Survey (MOPAS) (Tseng & Tsai, 2010), employing a Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). These scores were collected pre- and analyse changes post-test to in motivation, self-efficacy and feedback literacy.

Qualitative Approach

Drawing upon the insights of scholars such as Ryan and Bernard (2003) and Nowell et al. (2017), we adopted a research qualitative approach. Qualitative research, as defined by Creswell (1998), is a deliberate and nuanced inquiry process rooted in distinct methodological traditions. It is designed to explore social or human problems by constructing a rich and comprehensive understanding.

According to Ryan and Bernard (2003), one of the initial steps in analysis in qualitative research involves searching for repetitions, as well as metaphors and analogies within interviews. It is crucial to recognise both similarities and differences in participants' experiences, as these can offer vital insights.



Braun and Clarke (2006) and Hammer et (2021) expand on this al. process. emphasising the significance of the discursive component. This means that, while direct references to particular concepts essential, it is are equally attuned important to be to indirect references and 'signifiers'. These are specific words or terms that might hint at or point towards particular concepts, even if they do not mention them outright.

То enhance the analytical process. components of the research question are employed as a guiding lens. However, flexibility is maintained, allowing for the potential discovery of unexpected themes or sub-themes that were not originally anticipated. Our research questions align with the typical trajectory of qualitative inquiries, influenced by Creswell (1998), They often commence with 'how' or 'what', as these initial explorations into the topic aim to illuminate the intricacies of what is occurring within the studied phenomenon.

Moreover, as Hammer et al. (2021) articulate, structuring the analysis involves a series of iterative stages, which means returning to the data repeatedly, refining and reviewing it. After coding the data, these iterative stages help in identifying overarching themes and the finer sub-themes nested within them. This comprehensive approach ensures a thorough understanding of the qualitative data, capturing its richness and complexity.

In our data collection process, we followed the qualitative research practice of conducting a substantial number of interviews, typically ranging from 20 to 30. This approach, as Creswell (1998) suggests, necessitates multiple visits to the research field. Our goal was to gather interview data to the point of saturation, wherein no additional information can be found to further enhance the identified categories.

Furthermore, our methodology placed a strong emphasis on the role of the researcher as an active learner who adopts the perspective of the participants. This approach, inspired by Creswell (1998), underscores the importance of narrating the research story from the participants' viewpoint rather than adopting the role of an 'expert' who passes judgement on the participants. This reflective stance ensures that the research process remains true to the lived experiences and perspectives of those involved.

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Thematic analysis

Using Braun and Clarke's (2006) method of thematic analysis, we aimed is to identify and interpret key themes or patterns within data that are relevant to the research question. The analysis can focusing intrinsic. be on naturally occurring patterns, or theoretical, where researcher's understanding the and interests guide the interpretation.

In the process undertaken for this study, interview transcripts were first the scrutinised by two of the researchers responsible for the interviews. They began the task of identifying preliminary codes. For a more structured analysis, the transcripts and these initial codes were then integrated into a software tool called For NVivo. а comprehensive and unbiased view, another researcher, not previously involved in the interviews, also examined the data.



Utilising the framework proposed by Braun and Clarke (2006), the data was organised into primary categories, termed parent nodes. These primary categories were further refined to provide a nuanced understanding. To ensure the integrity and validity of the emerging themes, the NVivo file was collaboratively reviewed by the research team. This collective effort involved discussions not only centred on the data but also introspectively on the team's own experiences related to the collective subject matter. Once а consensus on the codes was achieved, representative quotations for each code were collated.

Through this systematic approach, the predominant themes emerged without the researchers imposing preconceived notions onto the data.

We now delve into both the findings linked to the key guiding areas and the additional themes of learner development identified in the findings.



2

4. Findings

Thematic findings linked to guiding key areas

Our research highlights the potential of digital platforms for feedback literacy development in Higher Education (HE). These skills can influence self-efficacy and the development of 21st - century skills sought after by future employers. In this findings section, we explore the effectiveness of asynchronous peer-led feedback processes for learning and instruction, and how this effectiveness differs between individual learners and between disciplines.

To ensure a degree of consistency and comparable data, we will use a similar model across the different discipline areas. In an additional effort to ensure a degree of consistency, we will focus on student learning according to five key areas of research which guided the project:



These areas are prominent in the literature on digitally enhanced learning in higher education (Molloy et al., 2013). Then, within each discipline, we documented how students viewed their progression in terms of the development of specific skills.

1. Increased depth of critical reflection concerning deep and meaningful learning

Caleb, Physiotherapy Student

'It gives me **kind of a reflection of things** that I did well, how I can incorporate in the video and some things that I didn't do quite well in placement and give me another try.'

'We can see the before and after. And compare to see what we should pick up on, **what we can refine** even more and improve.'

Georgia, Physiotherapy Student

'the fact that I can just look back at my video from time to time and just understand, like, "Oh, I could have improved here and there", so I think it's, like, the reflection aspect of this whole project that really, like, is the main benefit for me.'

Conor, Pre-service Teacher

'Another [benefit] that I didn't expect, but sort of experienced throughout the progress, was actually being able to view your own practice and catching certain tendencies that you, you wouldn't else know unless you, you're able to observe yourself.'

Aiden, Physiotherapy Student

These extracts reveal that participants valued the capacity to view their own practice via digital recording. Their words suggest they were able to reflect objectively on their performance in hindsight. The affordance of the digital technology to re-examine the performance supported participants in identifying specific areas for improvement. Furthermore, they refined their critical lens as an observer through the opportunity to witness the development of their own skills. In terms of shifting mindsets, it is significant that all these participants referred in some way to how the reflection may inform the development of their future practice. Specifically, they considered how they might improve and refine their approach and 'try again'.

2. Increased confidence, resilience and self-efficacy as a learner

Yuta, Physiotherapy Student

'I feel like towards the end, I've paid more attention to some details as to what can be done better. So I think that's one thing I've improved.'

'one of the potential benefits of this is that it gives me less anxiety where I know how other people are doing, not just comparing myself to the professional standard but comparing myself to other students. Like, I see that we're kind of similar, so that I'm not as anxious about my performance.'



Aiden, Physiotherapy Student

'The individuals who did participate in this study had a lot more confidence coming up to our practical exam, which just passed the week before.

".. what I realised is that I don't wanna spend too much time on doing this, because this is another way of learning ... So yeah, I'm feeling more comfortable from up to a couple of videos. So, yeah, I was quite confident up to that.'

Shaun, Physiotherapy Student

These extracts indicate several ways in which the confidence, resilience and self-efficacy of learners was influenced by their participation in the project. Many participants perceived an improvement in their abilities in tandem with the development of their feedback literacy skills. Some data suggested that this growth in learning was aligned with increased preparedness or reduced performance anxiety. The crucial element of this key area is the students' perception of their own improvement over time, which ultimately supported their confidence, resilience and self-efficacy moving forward.

3. Change in approach to providing and receiving peer feedback



'I think it's definitely beneficial that you get to hear a different opinion of your work, because a lot of the time we are struggling.
We don't know all of you are struggling as well, and we don't want to be the odd one out, so we are too scared to ask as well.'

'[getting] opinions from others, you can kind of see a consistency which is quite nice, that it is clear, and we can put that consistency back to the group.'

Conor, Pre-service Teacher

Georgia, Physiotherapy Student 'I feel like that was an opportunity for me to also check my understanding with what they're doing and **at the same time I can also observe the details** of their technique sometimes.'

'I think it kind of opens up your eyes so then you know that there are people available and that they can give you feedback if you ask for it.'

May, Dentistry Student

In order to develop feedback literacy skills, learners need to develop an aptitude around feedback processes, which includes both giving and receiving feedback. These excerpts reveal an appreciation for feedback through peer interactions. While some participants mentioned the advantage of receiving feedback from a range of different viewpoints, others spoke to the unexpected benefit of providing feedback through witnessing others' work or checking their own understanding before providing feedback. These experiences reveal a move towards sustainable feedback processes, as described by Hounsell (2007), including students experimenting with dialogic feedback, looking at the impact beyond the current task, and developing the ability to self-regulate their own work.

4. Change in mindset and sense of ownership of skills development

Jay, Medical Student '[You] see more variations of how people do things. And then I think that's a better way to get feedback. Also see how other people have different styles, and **how you can kind of apply that with your own practice**.'

'I would say that just being able to view other people's practices and pick up on their positive points and learn **how to integrate those into your own practice was especially helpful for me**.'

Aiden, Physiotherapy Student

'I kind of see myself developing those [feedback] qualities, although it's a very short project, but I can see myself kind of developing those qualities. Like, and then some of the things I haven't really thought about, like, explaining concepts in [a] different way.'

Connor, Pre-service Teacher

'I actually picked up a few [strategies], like, from my other, other group mates. Like, I feel like their communication and their handling of the technique is a lot better than mine, and **that's what I can pick up from them and learn from them.**'



Georgia, Physiotherapy Student

This key area refers to learners' understanding of their own responsibility for learning and skill development. Participants consistently reported having found learning opportunities within the activity that were outside of the discipline-specific skills or peer feedback. Furthermore, participants found themselves learning from their peers by reviewing their performances and identifying techniques or elements they would like to take on for themselves. Research continues to highlight that the development of students' evaluative judgement and attention to detail is crucial to enhanced self-evaluation and self-reflection (Min, 2005; Molloy et al., 2020).

5. Development of problem-solving skills around capitalising

on feedback

Jay, Medical Student

'So we all merge our, like, feedback together and form something that is better than before...'

'If you are not happy with the feedback, you can honestly just ignore it. Then, but then, if there is feedback that you actually probably find quite useful, then cool, it's a bonus... **you can decide whether you want to listen or not.**' Michelle, Dentistry Student

Caleb, Physiotherapy Student 'it's my own decision right at the end of the day I decide what I want to implement... at the end of the day it's still for me to decide how well I want to implement it into my own practice, right?'

Participants displayed confidence in their ability to make a judgement about whether to take on peer feedback, and conviction that it would be their decision whether to act on the feedback. While it is crucial to receive and act on feedback in the process of learning, feedback must also be evaluated for its perceived worth. One benefit of peer feedback is that students feel less pressure than if interacting with an expert; furthermore, this can also encourage them to evaluate feedback rather than implicitly accepting it as fact. These observations align with Carless and Boud's (2018) four key dimensions of feedback literacy, which indicates that making judgements about given feedback is an important element of feedback literacy.

Quantitative findings

Changes in students' feedback literacy, self-efficacy and motivation

The results indicated an overall positive students' shift in perceptions and attitudes towards feedback literacy and peer assessment post-intervention. Notably, students reported an increased appreciation for the benefits of receiving peer feedback (Q30; pre: 3.60, post: 4.30) and an increased ability to judge the quality of feedback (Q22; pre: 3.57, post: 4.0). Additionally, students exhibited a greater propensity to act upon feedback, as evidenced by an increase in readiness to accept criticism of the quality of their work (Q35; pre: 4.2, post: 4.67) and willingness to adopt and change learning

strategies in response to peer feedback (Q2; pre: 3.50, post: 4.20 and Q12; pre: 3.62, post: 4.22). This shift points to a more constructive engagement with feedback and a proactive approach to learning revisions. These findings align with Carless and Boud's (2018) four key dimensions of feedback literacy; appreciating feedback provided; making judgements on this feedback; managing emotion or affect created by the feedback; and taking action to improve.

The post-intervention responses also reflected enhanced self-efficacy in handling peer feedback. Students competence reported improved in identifying key actionable information

Comparison of pre- and post- test survey scale ratings for Q30, Q22, Q35, Q2 and Q12



from comments (Q21; pre: 4.0, post: 4.20) and setting goals for subsequent learning in response to suggestions (Q27; pre: 3.70, post: 4.29). In regard to selfreflection, participants reported an increased confidence in monitoring their own progress in conjunction with peer feedback (Q25; pre: 3.67, post: 4.29), which aligns with the qualitative findings of increased depth of critical reflection.

In contrast, participants maintained that feedback from teachers held more value than that of peers (Q32; pre: 3.62, post: 4.22) which could be expected given the teachers' expert status. However, there was also a slight decrease in students' confidence in interpreting the standards of work required by teachers (Q18; Pre: 3.83, Post: 3.57), suggesting a potential area for further investigation and support.

In conclusion, the pedagogic approach within learning design appears to have positively influenced students' feedback literacy, self-efficacy in online peer assessment, and motivation. The findings underscore the value of integrating structured feedback and peer assessment mechanisms within the curriculum to enhance students' learning experiences and outcomes.

Comparison of pre- and post- test survey scale ratings for Q18, Q21, Q25, Q27 and Q32



Thematic findings of learner development

In addition to the guiding key areas of the study, we identified seven other salient themes in the data connected to professional and personal development of the participating pre-service teachers.



1. Benefits of giving and receiving feedback

One of the main themes identified is the importance of both receiving and giving feedback. Participants discussed how feedback from other members of the team helped them to improve their work and gain new perspectives on their discipline specific skills. They also noted that providing others feedback helped them to identify areas where they themselves needed to improve and provided motivation to continue working on the project. Specifically, may participants refer to the development and refinement of observation skills they will be able to utilise in the future. Overall, participants felt that feedback was an essential part of the project and helped them to achieve better results.



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2. Challenges of managing time and workload

Another theme that emerged from the interviews was the challenge of managing time and workload. Participants discussed how they had to balance their project work with other commitments, such as work and family. They also noted that it was difficult to stay motivated and focused when working on the project for an extended period. Many students posited that this program would be more effective if it were embedded within a course structure rather than as additional workload. However, participants also discussed strategies they used to manage their time and workload, such as setting goals and deadlines, prioritising tasks, and working collaboratively with other team members.

'if it ran in, like, a semester and, like, it
was a part of a course or something
... you'd get different feedback from
people you haven't talked to, so that's
a nice aspect of it.'

Jade, Dentistry Student 'It would be great if there was a regular timeline...so I'll just make sure I upload that practice.'

Caleb, Physiotherapy Student

'For the things that went not so well would be again, time constraint, I feel, even though it was fairly simple and the task was easy to do... I do think, if possible, having this sort of activity implemented into the course, that may be beneficial for students.'

Aiden, Physiotherapy Student 'the only thing I found, not frustrating, but like hard to manage and challenging, because, like, I've got so many deadlines, and I work full time and everything else.'

Isla,

Pre-service

Teacher

3. Usefulness of digital platform

Participants also discussed the usefulness of project management software in helping them to manage their work. They noted that the platform made it easier to collaborate with other team members, track progress and manage deadlines. Participants also discussed the benefits of being able to receive feedback and comments on their work through the software, which helped them to improve their work and stay motivated.

'Having a record of others' feedback on my performance actually helps. Like, in a normal setting, when I'm practising with my friends, they give feedback to me, it's just verbal. I usually don't write that down. **Now, there's a written record.** So in the future, when I'm interested and click back to see what I need to improve on.'

Owen, Medical Student

> 'the timeline timestamp gives you accurately when and what step you were doing and what the comment refers to.'

> > Susie, Dentistry Student

'I think the software was pretty easy to manage. I liked how you can comment on any part of the video... I was interested to see how some people gave them improvements on what they would do. So I think that was beneficial as well.'

May, Dentistry Student

4. Importance of communication and collaboration

Communication and collaboration emerged as another important theme in the interviews. Participants discussed that they had to work closely with other team members to achieve their goals and that communication was essential to the success of the project. They also noted that collaboration helped them to learn from each other and gain new perspectives, which bolstered their interest in peer engagement. Overall, participants felt that communication and collaboration were essential to their learning within the program.

'I also feel like one thing that may be helpful is that this project is sort of done amongst people who may not be too familiar with each other. I feel that maybe in, you know, we create some sort of accountability that you may want to present yourself in a way that's a bit more professional, which could be helpful in in this setting where we are learning professional techniques.' 'A lot of the time we are struggling, we don't know all of you are struggling as well, and we don't want to be the odd one out, so we are too scared to ask as well.'

> Michelle, Dentistry Student

Aiden, Physiotherapy Student

'The platform just provides a way for me to connect with more people, for me to get a different point of view from everyone ... But if you're in a bigger court cohort, it's harder for you to make those connections. **It can be a useful platform that puts you together**.' 'I think it kind of opens up your eyes so then you know that **there** are people available and that they can give you feedback if you ask for it.'

> May, Dentistry Student

Susie, Dentistry Student

5. Potential impact on the wider community

Participants discussed the potential impact of digital tools for peer collaboration, both their current learning community of peers and teaching staff, as well as their future communities of professional colleagues, and clients, patients or students. They noted that the project had the potential to make a positive difference in people's lives and that they felt proud to be a part of it. Participants also discussed how the project had helped them to develop new skills and gain valuable experience that they could use in their future careers through engaging with the digital tools and associated feedback practices. Overall, participants felt that the project was a positive experience that had the potential to make a real difference to learning experiences.

if it's applied to a bigger group of participants, they see more variations of how people do things. And then I **think that's a better way to get feedback.** Also see how other people have different styles, and how you can kind of apply that with your own practice.'

Jay, Medical Student

Daniel, Dentistry Student

'that'd be pretty useful, because I think we're limited in the amount of times that we get in pre-clinic, or before exam, anyways. So, having other people's opinions are good as well.' 'the potential benefits of this is that **it gives me less anxiety** where I know how other people are doing, not just comparing myself to the professional standard but comparing myself to other students. Like, I see that we're kind of similar, so that I'm not as anxious about my performance.'

Shaun, Physiotherapy Student Owen, Medical Student

'There's a certain number of people who are really keen to do study groups. And I also have maybe a couple of study groups in different classes, so I think **those people will definitely love to use this program for sure**.'

6. Comfort of peer-only feedback

Participants showed a clear preference for structured peer feedback and often made mentioned the inherent pressure associated with expert feedback. There is clear anxiety around receiving an expert's feedback on their work, even across the various discipline areas involved in the study. Many participants reported that engaging with peers first allowed them to experiment or refine their practice without the anxiety of an expert's perception.



"...a peer who was invested in it, like I was, I think it really opened my mind to constructive feedback, and realising that, you know, like we're here for the same sort of purpose...'

7. Increased confidence and benefit of using digital tools

Participants described the convenience of an asynchronous learning environment to give and receive feedback and as a means for self-reflection. The tool was described as convenient for both timing and the comfort of the online medium. Defis et al. (2022) suggest that reflection using recorded performances enhances accurate recall of the event, allowing a deeper and more objective reflection.

'So I can see what you've done because sometimes you don't know what you're doing. But then, if someone records you or you herself. Then you can see, like, "Oh, this is how ... how I actually present," yeah.'

Jay,

Medical Student

Caleb, Physiotherapy Student

'So this is more of a digital way and a way that we can practise without being in person. Because to be frank, we are starting to realise, as well, that practical classes are just not enough time for everyone to get feedback.' by with information would be, like, an easier way versus having to do all the steps to go to the clinic and say, "Oh, can you look at how I perform

'Like, just pressing a simple button to share

this examination?" Like,

this would be a much

easier way.'

Owen, Medical Student

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5. Conclusion

Our research aimed to explore the extent to which adopting a digital asynchronous peer feedback improves or tool for enhances university students' selfefficacy in relation to giving, receiving and responding to feedback in the context of their discipline to better prepare them for practical or clinical settings. The study demonstrated that the use of the platform was effective in developing feedback literacy and confidence in both work and feedback (Stahl et al., 2024). This was true across all the disciplines involved in the study. The use of the digital platform also contributed to building stronger connections between students as they appeared to positively impact each other's sense of confidence arowing and professionalism.

In expanding our knowledge of feedback literacy, our research documented the affective and relational elements which needed to be fostered in online self and peer assessment in order for students to progress their learning. Attention to affect is integral to how students learn but it is also particularly important as the cohort of students aspired to work in the caring professions where empathy and interpersonal skills are highly valued. The asynchronous environment of the videobased digital tool allowed students to

address any affect created by either the responsibility of providing feedback or the emotional state of receiving or responding to it. Additionally, digital platforms allowing asynchronous learning open up opportunities for external or remote students to develop these skills.

We feel it is important to address the priority area of employability, specifically giving students the 'employability edge' and finding ways to produce work-ready graduates who are not only 'competent' but also have 'both the disciplinary knowledge and transferable skills they need to have impact and influence in a rapidly changing global workplace' (University of Queensland, 2021, p. 8). There are definite merits in integrating digital platforms into courses that require soft skill development which cannot be explicitly taught. It will allow students to develop these skills in a low-stakes environment.



Recommendations for teaching and learning

The aim of this research was to deliver evidence-based, practical recommendations for future implementation of digital technologies such as IRIS Connect for professional education in the caring professions. The purpose of these recommendations is to maximise students' learning, preparedness and satisfaction, to enhance students' employability.

The recommendations produced by this research are aligned with the UQ Strategic Plan 2022–2025, and more specifically to the priorities of the UQ <u>Learning and Student Experience</u> <u>Roadmap</u>. Therefore, we present our recommendation under the relevant priorities and also identity the research questions to which they pertain.

Within the roadmap domain of **Transformative curricula**, **pedagogies and assessment**, we have found our research to align with two areas:

1. Employ student-centred pedagogies that are engaging, interactive and responsive to diverse cohorts of learners

Primarily, in regard to this area, this work aims to 'offer modality of courses', 'expand ways to engage' and 'connect commencing students to learning communities' (University of Queensland, 2024, p. 6). The purpose of these set priorities is to enhance the learning experience, provide flexible opportunities and strengthen students' sense of belonging by building a strong cohort experience.



- Effective and thoughtful integration of digital peer feedback programs into UQ courses can provide greater access to feedback and cohorts for students studying internally and externally. This also addresses the UQ Strategic Plan 2022–2025 priority of 'combining online and oncampus learning' (University of Queensland, 2021, p. 8) (RQ1, RQ4).
- For these cohorts (medicine, dentistry, physiotherapy, teaching), this peer feedback program provides new ways to give and receive feedback outside of clinic hours or micro-teaching exercises, allowing for a greater quantity of feedback, but also more diverse opinions, and more accurate representations of professional interactions with colleagues (<u>RQ2</u>).
- This program can be used as a collaborative peer exercise by establishing PLCs within the cohort, so that students can build relationships with their groups and develop a sense of accountability and teamwork (RQ3).

2. Evolve a cohesive suite of study options that directly supports continuous lifelong learning, responsive to the needs of the broad community both within Queensland and across the Asia-Pacific

The priorities within this area of 'adopt[ing] contemporary and innovative curriculum' and 'creat[ing] a lifelong learning framework' (University of Queensland, 2024, p. 7) are key to providing graduates with both 'disciplinary knowledge and transferable skills they need to have impact and influence in a rapidly changing global workplace' (University of Queensland, 2021, p. 8).



- The use of a peer-led program replicates skills required in the workforce, including the ability to adapt practice and respond to feedback. Feedback literacy has been established as a 21st-century skill, connected to lifelong learning skills which allow students to continuously grow and adapt within their studies and into their career (RQ3).
- Embedding a digital platform in university courses provides innovative ways for students to connect with their cohort outside of the allotted lectures and tutorials, and provides opportunities for students who may need to learn externally or remotely to take part in cohort exercises and receive timely feedback (<u>RQ1</u>, <u>RQ4</u>).

Returning to the UQ *Learning and Student Experience Roadmap*, our research aligned with one area within the domain of **An enriching educational experience**:

3. Enable students to generate and action novel solutions to current and future challenges across communities through entrepreneurship, creativity, and innovation.

To address this area, this project used discipline-specific skills and dialogic peer feedback to 'expand their design, scenario, and critical thinking skills' (University of Queensland, 2024, p. 9).



- Integrating video-based feedback programs has been seen to build confidence in self-reflection and giving feedback, build positive affect when receiving feedback, create a greater sense of ownership in a team dynamic, and develop problem-solving skills through dialogic interactions (RQ2).
- Students develop their own response scenario to a given professional issue, critically analyse each other's scenario responses and emotionally regulate their responses to feedback (<u>RQ3</u>).

In relation to the domain of **Outstanding learning environments, systems and resources** within the UQ *Learning and Student Experience Roadmap*, our research aligned with one area:

4. Create safe and welcoming learning environments purposefully designed to facilitate creativity, critical thinking, and collaboration

Through the use of PLCs and peer feedback, this research meets the priorities of this idea by 'encourag[ing] students to collaborate with peers and educators' and 'develop safe and welcoming formal and informal learning spaces' for learning (University of Queensland, 2024, p. 13). Additionally, the use of a digital platform 'support[s] teaching staff to maximise the affordances of physical and virtual learning spaces, driving innovation in pedagogical practice' (p. 13).



- Digital and asynchronous learning platforms such as IRIS Connect ease time constraints and geographic restraints of synchronous learning and feedback experiences (<u>RQ3</u>).
- When implemented in courses, appropriate guidance on constructive and sustainable feedback techniques support a constructive and positive informal learning environment (<u>RQ4</u>).

In alignment with these priorities, our recommendations are to embed the IRIS Connect digital platform into existing course structures within higher education. In terms of pedagogy, the research suggests it holds a variety of benefits to enhance the student learning experience. For large cohorts, or courses with external elements, this tool can provide greater access and opportunities for asynchronous learning. Additionally, the asynchronous environment enables students to receive feedback without the pressure and discomfort associated with synchronous feedback and provides time and space to interpret and respond to feedback without displaying negative affect. For those students enrolled in the caring professions, which often involve a practicum placement, scenario simulation within a video-based platform can provide potential for heightened self-reflection through reviewing expert feedback. Overall, whether integrated as peer collaborative activities, formative assessment of skills or as opportunities to receive additional feedback from an expert, there are many potential benefits for embedding this digital tool within course content.

To conclude, our project addresses UQ's 'Toward 2032' goal outlined in the UQ Strategic Plan 2022–2025 to 'deliver highly sought-after graduates, who are prepared for future success through rich and broad educational experiences' (University of Queensland, 2021, p. 8). By utilising a digital approach to structure authentic practice, this project fosters the development of feedback literacy and key competencies in UQ students, enhancing their readiness for professional environments. Specifically, the use of digital tools like IRIS Connect enables students to actively engage in formative feedback, bridging the gap between academic learning and the practical, interpersonal demands of the caring professions.

Furthermore, the project aligns with UQ's *Learning and Student Experience Roadmap* strategies, specifically to 'build a digital and personalised experience' and "foster a sense of belonging and wellbeing for all learners' (University of Queensland, 2021, p. 12). Through this digital platform, students not only refine their discipline-specific skills but also experience a collaborative, reflective learning process that is central to their long-term development. As we move forward, this project sets a strong precedent for how digital peer feedback can be leveraged to enhance both employability and wellbeing, contributing to a broader culture of continuous improvement in higher education.



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