

Research Article - Peer reviewed

From competence to communication: ePortfolios and professional identity in work-integrated learning

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Abstract

Higher education students often graduate with strong disciplinary competence but limited ability to articulate that competence to prospective employers. This study aims to explore how the use of ePortfolios within a work-integrated learning (WIL) programme is associated with students' self-efficacy and their ability to communicate their skills in a career context. The central research question is: How does engaging with an ePortfolio programme influence students' self-perception and ability to communicate their skills in a career context? Grounded in self-efficacy theory and the concept of pre-professional identity, the study was conducted at a Norwegian university through a voluntary pilot study with seven students and data from 14 semi-structured interviews (autumn 2024) and a compulsory main study integrating ePortfolio development for 18 Bachelor of Human Resource Management students (spring 2025). Data was collected through semi-structured interviews, structured field observations, and written student evaluations, and analysed using qualitative content analysis. Findings across both studies indicate that structured workshops combining reflective exercises, peer interaction, professional photography, and simulated job interviews were associated with enhanced students' self-awareness and confidence in presenting their professional competencies. The study positions ePortfolios as pedagogical instruments for developing pre-professional identity and bridging academic learning with professional readiness and offers a replicable model for curriculum-embedded WIL tools. Implications for WIL pedagogy, assessment design, and institutional implementation are discussed.

Keywords: Employability, ePortfolio, Higher education, Pre-Professional identity, Self-efficacy, Work-integrated learning

How to cite

Johansson Nyvoll, C. & Lid Schow, I. (2026). From competence to communication: ePortfolios and professional identity in work-integrated learning. *Current Issues in Work-Integrated Learning*, 2(1) 70-85. [DOI.10.64775/ciwil.2026.64260](https://doi.org/10.64775/ciwil.2026.64260)

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Received: 27 February 2026; Revised: 5 May 2026; Accepted: 12 May 2026; Published: 5 June 2026

Introduction

In today's evolving labour market, higher education institutions face a persistent challenge: students often graduate with strong disciplinary knowledge yet struggle to articulate their competencies to prospective employers. Traditional assessments, as examinations, written assignments and grade point averages, capture academic achievement but rarely develop or make visible the interpersonal and professional capabilities that employers increasingly value (Succi & Canovi, 2020). This gap between academic preparation and professional readiness is a defining concern for work-integrated learning (WIL), which positions authentic, work-relevant experiences as integral to curricula rather than supplementary to them (Zegwaard et al., 2023). Central to this challenge is the concept of self-efficacy (Bandura, 1977; 1997): a student may possess genuine skills yet lack the belief or language to claim and communicate them.

This challenge is sharpened by the accelerating integration of artificial intelligence in the workplace. As AI reshapes HR processes, including recruitment, performance management, and workforce planning, graduates entering the profession will increasingly need to demonstrate not only disciplinary knowledge but adaptive, reflective, and communicative capabilities that AI cannot easily replicate (Mendy et al., 2025; Ecclesia, 2025). ePortfolios, as tools for structured self-reflection and professional self-presentation, are particularly relevant in this context. ePortfolios are structured digital collections of academic and professional achievements combined with reflective commentary. These have gained attention as a tool capable of bridging this gap. Unlike conventional assessments, ePortfolios invite students to curate and narrate their own learning journey, making implicit competencies explicit and supporting the development of professional identity (Bryant & Chittum, 2013; Olstad, 2024). When combined with guided reflection, peer feedback, and deliberate connection to career contexts, ePortfolios can potentially function as instruments for the kind of professional preparation that WIL seeks to achieve.

The aim of this study is to explore how the structured development of ePortfolios within a WIL-oriented pedagogical programme is associated with students' self-efficacy and their capacity to communicate their competencies in a career context. The study addresses the following research question (RQ):

How does engaging with an ePortfolio programme influence students' self-perception and ability to communicate their skills in a career context?

This question has both an individual dimension, concerning how the process affects a given student's self-understanding and confidence, and a pedagogical dimension, concerning which features of the ePortfolio programme design drive those effects. Both dimensions inform the findings, discussion, and conclusions below.

In Norway, ePortfolios have been used in creative disciplines for some years, but their use in business-related programmes remains limited (Olstad, 2024; Skyttermoen, 2011). This lack of research represents an opportunity to explore and specify the usability of it in Norwegian higher education while at the same time considering its limitations in order to develop WIL as field into the future.

After introducing the conceptual and theoretical framework along with the data and methodology, this paper presents a two-part study conducted at a Norwegian university that introduced ePortfolios, in collaboration with an external professional development partner, into a mercantile higher education context. The first part (pilot study) was voluntary involving seven students; the second part (main study) embedded ePortfolio development as a compulsory element of a Bachelor of Human Resource Management (HRM) programme.

On this basis, the study contributes to future WIL scholarships in three ways. It provides empirical evidence from a Norwegian business education context, where ePortfolio practice has been underdeveloped. It offers a theoretically grounded account of how Bandura's self-efficacy framework can guide both the design and the evaluation of ePortfolio programmes. And it illustrates a two-part iterative project model that enables institutional innovation in WIL to develop rigorously. For higher education institutions and WIL coordinators, the findings carry a clear policy implication: realising the full potential of ePortfolios as learning and assessment tools require deliberate institutional investment in digital infrastructure, staff development, and assessment design. Such investment is most effective when embedded within a coherent institutional strategy for quality and relevance rather than delegated to individual course teams.

Conceptual and theoretical framework

Self-efficacy and competence ownership

The theoretical cornerstone of this study is Albert Bandura's (1977; 1997) theory of self-efficacy, defined as an individual's belief in their capacity to organise and execute the actions required to achieve specific outcomes. Within higher education, self-efficacy shapes students' willingness to engage with challenging tasks, their persistence in the face of difficulty, and ultimately their level of performance (Klassen & Usher, 2010). Crucially, self-efficacy is not equivalent to competence: a student may possess genuine skills yet lack the belief or the language to claim and communicate them.

Bandura (1997) identifies four primary sources through which self-efficacy beliefs are built and modified. First, mastery experiences, understood as direct encounters with success, constitute the most powerful source; when students successfully complete a challenging reflective or presentational task, their belief in their ability to repeat that success is reinforced. Second, vicarious experiences enable efficacy beliefs to develop through observing peers successfully navigate similar challenges. Third, verbal persuasion from trusted others, such as teachers, peers, or mentors, can strengthen a student's belief in their own capabilities. Fourth, physiological and affective states, including anxiety or emerging confidence, influence how individuals interpret and regulate their experiences.

In the ePortfolio context, all four sources can be deliberately activated by design. Reflection exercises and structured workshops create mastery experiences; peer observation and collaborative activities produce vicarious learning; feedback from facilitators and peers provides verbal persuasion; and the managed movement from anxiety to confidence through scaffolded tasks attends directly to affective states. The present study uses these four sources as both a design rationale and an analytical framework, consistent with their application in the related institutional report (Schow & Nyvoll, 2025).

Empirical support for this foundation continues to accumulate: Putri & Utami (2023) report a significant positive relationship between self-efficacy and perceived future employability among university graduates, confirming that Bandura's framework retains active explanatory power in contemporary career research.

ePortfolios in higher education

An ePortfolio may be understood as a structured digital platform that documents a student's professional development over time, combining concrete artefacts such as essays, project reports, presentations with reflective commentary. It functions simultaneously as a product and as a process: as a product it makes learning visible to external audiences; as a process it invites metacognitive engagement and the integrated understanding of competencies across subjects and experiences (Bryant & Chittum, 2013).

Internationally, ePortfolios have been used in education for several decades, with particular strength in teacher education, design, health, and technology fields (Bryant & Chittum, 2013). In Norway, adoption has proceeded more slowly. Some institutions have piloted ePortfolios in various disciplines, and a recent doctoral study demonstrated that ePortfolios can be especially effective in enabling students to recognise and articulate competencies they had previously been unaware of (Olstad, 2024). Several studies also point to the portfolio's potential in a lifelong learning perspective: when students can carry their portfolio beyond graduation, it becomes an instrument for continuous professional documentation (Cambridge, 2010; Slepcevic-Zach & Stock, 2018).

The combination of WIL and the portfolio method as a unified pedagogical strategy has been theorised explicitly by Pennbrant and Nunstedt (2018), who propose a six-phase reflective model that moves from pre-reflection through reflection-in-action, reflection-on-action, self-evaluation, and meta-reflection, to knowledge-in-action. Within this model, the portfolio functions as the structural scaffold that makes each phase visible and documentable. Developed in the context of nursing education, the model demonstrates that when portfolios are integrated into WIL rather than appended to it, students develop not only discipline-specific competencies, but the metacognitive and communicative skills required for professional identity formation. Pennbrant and Nunstedt (2018) also connect self-efficacy directly to the portfolio method, arguing that the method's emphasis on self-regulation and instructional scaffolding understood as the provision of structured support while gradually releasing responsibility to the learner, creates conditions for the kind of self-efficacy development that Bandura (1997) describes. This theoretical synthesis resonates strongly with the present study's design and positions the ePortfolio not as a separate digital artefact but as the instrument through which a WIL-oriented reflective

process is organised and made transferable to career contexts.

Challenges are equally well documented. Technological barriers, including platform usability and post-graduation access, can inhibit adoption. Students unfamiliar with reflective practice may struggle initially, and institutional implementation requires sustained investment in pedagogical support, digital infrastructure, and staff development (Bryant & Chittum, 2013; Meyer et al., 2011). From an employer perspective, awareness of ePortfolios remains low and adoption in recruitment processes is limited, with time-cost in reviewing and questions of authenticity cited as the primary barriers (Mitchell et al., 2021). Notably, however, the same systematic scoping review found that when employers do engage with ePortfolios, they consistently value precisely the elements the present project was designed to develop: evidence of professional work, reflective content, photographs, and clear self-presentation skills. This suggests that the pedagogical investment made on the student side has documented potential value on the employer side, even where that value has yet to be fully activated in practice.

Personal branding and employability

Alongside self-efficacy theory, the study draws on the concept of pre-professional identity (PPI) and its relationship to personal branding in contemporary labour markets. Jackson (2017) defines PPI as a less mature version of professional identity, characterising students as 'becoming, rather than being, a professional', a state that encompasses awareness of professional standards and values, self-esteem, confidence, the capacity for self-reflection, and the ability to articulate one's competencies to relevant audiences. In a qualitative study of 105 business undergraduates, including a substantial HRM cohort, Jackson found that WIL experiences can foster the early stages of PPI by exposing students to professional norms, enabling them to appraise their own strengths and weaknesses, and building confidence through authentic professional interaction. Critically, Jackson explicitly validates non-placement WIL, including simulations, role plays, and structured peer learning, as capable of generating comparable PPI development to traditional workplace placements, a finding directly relevant to the present study's design.

Jackson (2017) draws on Baxter Magolda's (1998) self-authorship framework to trace PPI development across four stages: following formulas, where students respond to and absorb cues from authority figures; crossroads, where internal questioning begins; self-authored, where students develop a stable internal voice and professional stance; and internal foundations, where professional and personal identities are reconciled. Most undergraduate students in Jackson's study operated at the following formulas stage where they were not yet challenging the professional world, they were entering but actively building the foundational awareness of it. This staging is important for interpreting the present study's results: students who, after three workshops, describe discovering strengths they did not know they had, or articulating their own professional story for the first time, are exhibiting precisely this movement from pre-reflective awareness toward the early stages of self-authorship.

The concept of personal branding refers to the deliberate process by which individuals articulate their unique professional identity and communicate it to targeted audiences (Khedher, 2019). Jones and Leverenz (2017) show how digital storytelling ePortfolios help students construct persuasive and authentic self-presentations that communicate more than a CV can. Together, these perspectives converge on a shared insight: ePortfolios, when designed to support both structured reflection and intentional self-presentation, simultaneously develop students' internal sense of professional identity and their external capacity to articulate it. This dual function is precisely what the present study's three-workshop design was structured to enable.

Research methodology

Overall design

The study is designed as a two-phase exploratory case study (Yin, 2018) situated within a single institutional context. Phase one (the pilot study) was exploratory and generative: its findings were used to refine the pedagogical design, with three specific modifications implemented before Phase two (the main study). This iterative relationship between phases strengthens the study's internal coherence while remaining consistent with the bounded, context-specific nature of case study inquiry. The two phases can be understood as embedded cases within the same overall case, namely ePortfolio

development as a WIL tool in Norwegian business education, each addressing the same research question under different conditions (voluntary versus compulsory participation).

The ePortfolio programme design

Both studies center on three structured workshops. Workshop One (Identity Mapping) uses Competency Cards, which are physical cards representing different professional skills, to guide students through a structured self-assessment and peer validation exercise, producing a personalised skills profile. Workshop Two (Visual and Technical Expression) involves students creating personalised websites on a digital platform, incorporating professional photographic portraits. Workshop Three (Presentation and Professional Interaction) constituted the study's most direct WIL element: professional recruiters from the labour market were invited into the classroom to conduct individual simulated job interviews with each student. The interviews were based on real, current job advertisements that students had selected themselves, and students used their completed ePortfolio actively during the interview. Following each interview, students received structured feedback from both the recruiter and from fellow students who acted as trained observers. This design brought an authentic industry voice directly into the learning space, providing the kind of employer-connected, practice-oriented experience that WIL frameworks identify as central to professional preparation (Zegwaard et al., 2023). The three-workshop sequence as a whole reflects, in condensed form, the reflective progression theorised by Pennbrant and Nunstedt (2018): Workshop One functions as structured pre-reflection and reflection-in-action; Workshop Two engages reflection-on-action and self-evaluation through building and curating the portfolio; and Workshop Three enacts meta-reflection and knowledge-in-action as students present and defend their ePortfolio in a real professional encounter with industry.

In the pilot study, professional portraits were taken in a rented photography studio. In the main study, second-year students from a photography program at the same institution took the portraits, making the collaboration inter-departmental. Additional guidance time was provided in the main study, including sessions with a student assistant who had participated in the pilot, to support technical development and facilitate a longer maturation process.

In both phases, students translated insights from the workshops, particularly increased self-awareness and newly identified strengths, into their ePortfolios through reflective texts and professional images. This process fostered a stronger sense of ownership over their competencies and enabled more structured, career-oriented self-presentation. The portfolios were hosted on a digital platform accessible after graduation, allowing for continued development and use in job-seeking contexts. In the main study, ePortfolio development was integrated as a compulsory 15 ECTS component within a final-semester module. The three workshops were distributed over a 12-week period, combining guided sessions with independent work on the digital platform.

Pilot study

The pilot study (autumn 2024) comprised seven voluntary participants from business-related programmes. Data collection included: (a) semi-structured individual interviews before the first workshop and after the final workshop, exploring participants' self-perceptions, concerns, and retrospective assessments; and (b) structured non-participant field observations across all three workshops, conducted independently by both researchers to strengthen reliability (Malterud, 2017; Postholm, 2020). Field notes were compared immediately after each session to identify areas of agreement and discrepancy.

All data material, including interview transcripts and field notes, was subjected to conventional qualitative content analysis (Hsieh & Shannon, 2005). Codes were generated inductively without pre-defined categories, allowing participants' meanings to shape the analysis. Field observations were used to triangulate and contextualise the themes emerging from the interviews.

Table 1: Coding and categorisation process: pilot study (qualitative content analysis)

Data source	Data extract	Initial code	Category	Theme
Interview	<i>"The activity with the cards really made me reflect on who I am as a person."</i>	Structured self-assessment triggers reflection	Competency recognition through reflection	Theme 1: Increased self-awareness and confidence
Interview	<i>"I have this soft skill, I understand why it's valuable, and I see how it benefits me."</i>	Naming and valuing competencies	Competency recognition through reflection	
Observation	<i>Students who entered WS1 in a visibly uncertain state showed markedly different body language and verbal fluency by WS3.</i>	Observable shift from hesitation to ease across workshops	Competency recognition through reflection	
Interview	<i>"It helped me a lot — hearing from others what they think about me. I became more confident that I have it within me."</i>	Peer feedback expands self-image	Confidence in self-presentation via peer interaction	Theme 2: Presenting skills
Interview	<i>"I feel more confident now when I must sell myself to future employers."</i>	Increased confidence in professional contexts	Confidence in self-presentation via peer interaction	
Observation	<i>Students who had been reluctant to share cards in the group in WS1 participated actively and with visible confidence in the peer feedback rounds in WS2.</i>	Increased willingness to share and engage publicly	Confidence in self-presentation via peer interaction	
Interview	<i>"After the process, I have much more to show for it, and I feel much more confident in applying for jobs that seemed beyond my reach before."</i>	ePortfolio as evidence enabling career ambition	ePortfolio as career tool beyond the CV	Theme 3: New value for the career
Interview	<i>"I didn't see myself as someone with a lot of concrete experience, but now I have much more to show for it."</i>	Reframing experience as visible competence	ePortfolio as career tool beyond the CV	
Observation	<i>Multiple students commented spontaneously that seeing their professional photographs changed how they felt about their own professional identity.</i>	Professional photograph as identity-forming artefact	ePortfolio as career tool beyond the CV	

The transition from the pilot to the main study reflects a shift toward a more fully embedded Work-Integrated Learning (WIL) design. While the pilot involved voluntary participation from a small, self-selecting group, the main study integrated the ePortfolio process as a compulsory curricular component, aligning with WIL principles emphasising structured, curriculum-based engagement (Zegwaard et al., 2023). This reduced selection bias and strengthened constructive alignment (Biggs & Tang, 2011), but also introduced tensions related to student autonomy and motivation (Jackson, 2017). Key refinements included smaller groups, extended timeframes, and the localisation of materials, including translation into Norwegian and the adaptation of competency cards inspired by OPQ frameworks. While these changes improved scalability and relevance, differences in participation conditions complicate direct comparison. Notably, most students indicated they would not have engaged voluntarily, suggesting that compulsory integration may be necessary to realise the intended WIL outcomes.

Analysis of the pilot data revealed patterns that aligned closely with Bandura's (1997) four sources of self-efficacy, suggesting that the framework had explanatory power for the phenomena observed. This informed the analytical approach adopted in the main study.

Main study

The main study (spring 2025) integrated ePortfolio development as a compulsory assessed element within the final semester of a Bachelor of HRM programme. Eighteen students were enrolled in the module. The primary data source was a detailed written evaluation administered via a digital survey platform (Nettskjema) at the end of the module, combining Likert-scale items with open-ended qualitative questions. Of the 18 enrolled students, 17 completed the quantitative survey, representing a 94% response rate. Open-ended qualitative responses from all participating students are included in the qualitative analysis. Quantitative data were analysed descriptively. Open-ended responses were analysed using directed content analysis (Hsieh & Shannon, 2005), guided by Bandura's (1997) four self-efficacy sources as a theory-driven coding framework, consistent with the analysis in the related institutional report (Schow & Nyvoll, 2025).

Table 2: Directed content analysis process: main study (n = 17)

Data source	Data extract	Initial code	Bandura's source (directed framework)	Finding
Survey – open-ended	<i>"I have learned more about myself. Found more words for what my skills actually are."</i>	Articulating previously unnamed competencies	Source 1: Mastery experiences	86.7% agreed they experienced mastery through module activities; open-ended responses confirm task completion as a turning point in competence awareness.
Survey – open-ended	<i>"After this process I have discovered strengths I thought I didn't have before."</i>	Discovery of unrecognised strengths through task completion		
Survey – Likert	<i>"The tasks in this module have increased my belief that I can handle academic challenges." (86.7% agree/strongly agree)</i>	Structured tasks build academic self-belief		
Survey – open-ended	<i>"Through talking with fellow students about my strengths, I got a useful outside perspective I hadn't had before."</i>	Peer observation expands self-image beyond self-assessment	Source 2: Vicarious experiences	73–93% agreement on vicarious learning items; students consistently cite peer observation as generating insight unavailable through self-reflection alone.
Survey – Likert	<i>"Observing other students has given me inspiration and shown me what is possible to achieve." (93.3% agree/strongly agree)</i>	Peer modelling raises perceived ceiling of achievement		
Survey – open-ended	<i>"Presenting myself in a completely different way and creating a competitive advantage — I think that will be very helpful."</i>	Recruiter feedback reframes professional self-presentation	Source 3: Verbal persuasion	Feedback from teachers (86.7%), peers (93.3%), and industry partners (73.3%) all showed strong agreement; ordering suggests familiarity with source affects impact.
Survey – Likert	<i>"Feedback from industry partner representatives has increased my confidence that I can use my competence in working life." (73.3% agree/strongly agree)</i>	Industry voice validates career-readiness		

Ethical considerations

The study followed established ethical guidelines for research involving human participants. All participants were informed of the study's purpose, their right to withdraw at any time, and the measures taken to protect confidentiality. Written informed consent was obtained prior to data collection. Participant identities were protected through anonymisation and the assignment of pseudonyms. Data were stored securely in accordance with institutional data protection requirements,

and the project was reported to and assessed by SIKT, the national agency responsible for data protection compliance in Norwegian research. Approval to process personal data was granted prior to data collection.

Reflexivity and limitations

A fundamental boundary on the study's claims concerns data coverage:

While the study's WIL design included the participation of professional recruiters in Workshop Three, making industry engagement a genuine feature of the programme, no data was collected from those recruiters about their own experience of the activity, their assessment of the students' ePortfolios, or their views on the tool's value for recruitment. The study therefore captures the student-side perspective on this WIL encounter. The recruiter-side perspective, namely what employers make of ePortfolios developed through this kind of process, and whether participation in such activities changes their views on ePortfolios as recruitment tools, is explicitly identified as a priority direction for future research (see Conclusions).

The researchers occupied dual roles as both facilitators in the institutional context and as researchers. In the pilot, external facilitators were responsible for delivering the workshops, whereas the two researchers attended only as non-participatory observers. Despite this separation of roles, the researchers' institutional affiliations may still have shaped how students responded.

The pilot's small sample of seven self-selecting participants limits transferability. In the main study, 18 students were enrolled in the module and 17 completed the structured survey (94% response rate), which increases credibility, but the single-institution, single-programme context means findings should be treated as indicative rather than generalisable.

As a case study situated within a single institution and programme, the findings are best understood as transferable rather than generalisable (Yin, 2018). Readers in comparable contexts, particularly Norwegian business education programmes considering ePortfolio integration, may find the design replicable, but claims about effects beyond this context require further investigation.

A specific data gap concerns the professional recruiters who participated in Workshop Three: while their involvement as industry partners was an integral WIL component of the programme design, no data were collected from them regarding their experience of the activity, their observations of students using ePortfolios in the interview context, or their assessment of the tool's value. This constitutes a meaningful boundary on what the study can claim about the WIL-system perspective and is identified as a priority for future research.

Results

Pilot study findings

Three principal themes emerged from the thematic analysis of the pilot interviews and observations (Table 1).

Theme 1: Increased self-awareness. All seven participants reported that the ePortfolio process provided clearer insight into their own strengths, and several identified competencies they had not previously recognised or valued. The Competency Cards exercise in Workshop One was consistently cited as a turning point. As one participant reflected:

The activity with the cards, where we had to choose six skills that best described us, really made me reflect on who I am as a person. Now, I think about it this way: I have this soft skill, I understand why it's valuable, and I see how it benefits me.

Theme 2: Presenting skills. Participants reported increased confidence in presenting themselves and their competencies across formal and informal contexts, with peer feedback identified as a key mechanism:

It helped me a lot, both by making me aware of my strengths and, most importantly, by hearing from others what they think about me. I became more confident that I have it within me and that I can talk about it (...) I have gained a clearer picture of how I can present myself (...) I feel more confident now when I must sell myself to future employers.

Theme 3: New value for the career. Students came to see the ePortfolio as a substantive career tool distinct from a CV, capable of evidencing soft skills, communicating professional identity, and providing concrete material for job application processes:

I didn't necessarily see myself as someone who had a lot of concrete experience in various things, but after the process, I have much more to show for it, and I feel much more confident in applying for jobs that might have seemed beyond my reach before. It also made me more self-assured.

Observations during the workshops confirmed these patterns. Students who entered Workshop One in a visibly uncertain state and reluctant to share their cards in the group activity showed markedly different body language and verbal fluency by the simulated job interview in Workshop Three. Observers also noted the affective impact of receiving professional photographs: multiple students commented spontaneously that seeing themselves presented professionally changed how they felt about their own professional identity.

Main study results

The main study findings supported the patterns identified in the pilot and extended them to a larger, non-self-selecting cohort, while also providing systematic quantitative support for each of Bandura's (1997) four self-efficacy sources. Taken together, the findings can be understood as empirical illustration of Bandura's four sources of self-efficacy within a WIL context. Quantitative data are reported from the 17 respondents who completed the structured survey (94% of the 18 enrolled students). Open-ended qualitative responses drawn below include material from all participating students where available.

When asked retrospectively to recall their confidence prior to the course, not a single respondent described themselves as 'very confident' in identifying and communicating their skills and qualifications. 35% described themselves as 'a little uncertain' and a further 18% reported feeling 'neither confident nor uncertain', meaning that more than half of participants (53%) recalled entering the module with a meaningful confidence gap. By contrast, 77% of respondents reported that the ePortfolio workshops had a large or very large positive effect on their confidence in presenting their competencies, with no respondent reporting a negative effect. 82% of respondents said their experience of building the ePortfolio was better than they had expected, with 29% said it was much better, and none found it worse. 94% rated the ePortfolio as a very or quite relevant form of assessment, with no respondent rating it as irrelevant.

Crucially, the survey included items measuring each of Bandura's (1997) four self-efficacy sources directly. Table 1 presents the full distribution of responses across these items. Mastery experiences, vicarious learning, and verbal persuasion each showed agreement rates of 71–94%, while the affective/physiological dimension showed somewhat more variation, with the item measuring emotional resilience in challenging situations attracting the highest disagreement (35% disagreed or strongly disagreed).

Table 3: Main study survey results mapped to Bandura's (1997) Four Self-Efficacy Sources (n = 17)

Bandura Source	Survey item (translated)	Agree / Strongly Agree	Disagree / Strongly Disagree	M	SD
Source 1: Mastery Experiences	I experienced mastery through the activities in this module	88.2%	5.9%	4.35	1.06
	I have learned that I can succeed through my own effort and work	82.4%	5.9%	4.18	1.07
	The tasks in this module have increased my belief that I can handle academic challenges	88.2%	5.9%	4.12	0.99
Source 2: Vicarious Experiences	Seeing other students succeed in their presentations has strengthened my belief that I can also succeed	76.5%	11.8%	4.00	1.17
	Observing other students has given me inspiration and shown me what is possible to achieve	94.1%	0%	4.41	0.62
Source 3: Verbal Persuasion	Feedback from teachers has strengthened my belief that I have competence that is valuable	88.2%	5.9%	4.41	0.87
	Encouragement and feedback from fellow students has increased my belief in my own abilities	94.1%	5.9%	4.71	0.77
	Feedback from industry partner representatives has increased my confidence that I can use my competence in working life	70.6%	5.9%	4.00	1.12
Source 4: Physiological & Affective States	I felt safe and calm in most of the academic activities in this module	64.7%	23.5%	3.71	1.31
	I managed to handle stress and anxiety in challenging situations in this module	70.6%	23.5%	3.82	1.33
	The emotions I experienced in demanding situations (e.g. presentations, interviews) did not undermine my belief that I could manage the tasks	64.7%	35.3%†	3.59	1.42†

Note. M = mean; SD = standard deviation on a 5-point scale (1 = Strongly Disagree, 5 = Strongly Agree). Percentages may not sum to 100% due to neutral responses (neither agree nor disagree). † Lowest mean and highest SD in the dataset.

88% of respondents agreed that the process should be compulsory, with 88% stating explicitly that they would probably not have engaged with it if it had been voluntary. This finding is directly relevant to questions about WIL curriculum design and is discussed below. All respondents (100%) agreed that groups of fewer than ten students are optimal for the Workshop One competency mapping session. Additionally, 82% reported that the process had influenced their goals and ambitions to a large or very large degree, representing an effect that extends beyond the module's formal learning outcomes. The highest degree of disagreement in the dataset is associated with the statement regarding whether emotions in demanding situations (e.g., presentations, interviews) undermined confidence in one's ability to manage the tasks.

The open-ended responses generated rich qualitative material that complements these patterns. The following translated responses illustrate the three main themes from the pilot as they appeared in the larger cohort.

On increased self-awareness and confidence:

I have learned more about myself. Found more words for what my skills actually are.

There are many things you just do without thinking of them as skills, and through talking with fellow students about my strengths, I got a useful outside perspective I hadn't had before.

After this process I have learned a lot about myself. I have discovered strengths I thought I didn't have before this process.

I have discovered strengths I thought I didn't have before this process.

On the presenting skills:

A lot of awkwardness around presenting has disappeared

On ePortfolio as a career tool:

I plan to show it at interviews, add it to job applications and possibly LinkedIn. I'm also considering buying a domain so it comes up when people search for me.

Presenting myself in a completely different way and creating a competitive advantage over other candidates, I think that will be very helpful.

Using storytelling to illustrate yourself, I have clearly improved my ability to talk about myself, especially by connecting my history and journey to the person I have become.

On the overall experience:

The best subject I have had so far.

Very well implemented. Forces you to actually work. There should be more of this in other courses.

I learned to connect my history and journey to the person I have become.

There was also a critical voice, one open-ended respondent described feeling uncomfortable with so much focus on themselves.

Discussion

The findings of this two-parts study align with and extend existing research on ePortfolios as tools for self-reflection, professional identity development, and employability (Bryant & Chittum, 2013; Olstad, 2024; Slepcevic-Zach & Stock, 2018). Several dimensions merit specific interpretation.

First, the critical role of structured pedagogical scaffolding is supported. The strong emphasis on students discovering and articulating their own competencies can be interpreted as mastery experiences in Bandura's theory (1997). The Competency Cards activity in Workshop One provided a low-threat, concrete entry point into self-reflection that proved catalytic across both studies. In the pilot, participants described it as a turning point. One stated that the process gave them "more words for what my skills actually are," and another noted the particular value of outside perspective from peers. In the main study, all three survey items measuring mastery experiences, understood as direct encounters with success through completing the tasks, showed agreement rates between 82% and 88%, representing the highest consistent agreement pattern in Table 1. This resonates with Biggs and Tang's (2011) constructive alignment principle: when students understood that their reflections would populate a real ePortfolio they could present to employers, the authenticity of the task increased its motivational and developmental weight. Effective WIL design requires exactly this, namely learning activities with genuine stakes in the world beyond the classroom.

Second, the transition from voluntary to compulsory participation offers a finding of practical significance for WIL curriculum design. While self-selecting participants in the pilot were likely intrinsically motivated, the main study's mandatory format produced comparable gains, and notably 88% of respondents in the main study agreed that the process should be compulsory, explicitly stating that they would probably not have participated voluntarily. This challenges assumptions that the value of WIL experiences depends on participant self-selection. It suggests that the pedagogical design of the educational component, rather than prior motivation, was the primary driver of outcomes, consistent with the WIL literature's emphasis on structured design over self-selection as the determinant of experiential learning quality (Zegwaard et al., 2023).

Third, the verbal persuasion dimension of the findings deserves specific attention in the WIL context. The survey item measuring the contribution of industry partner feedback, referring to professional recruiters who conducted the simulated job interviews, showed 71% agreement, comparable to teacher feedback at 88% and slightly below peer feedback at 94%. This ordering is theoretically interesting: Bandura (1997) suggests that the credibility and perceived relevance of the persuasive source shape its efficacy impact, a dynamic that in this context reflects not only verbal persuasion but also vicarious experience, as hearing how peers described the participant's strengths provided evidence the student had not self-generated. The fact that recruiter feedback registered strongly, even slightly below peers and teachers, may reflect the unfamiliarity of the encounter, as Workshop Three was for most students their first experience of a professional job interview in any form, rather than a low valuation of industry voice. It also points to an unrealised potential. A recruiter who has conducted multiple rounds of ePortfolio-based interviews and who understands the tool may provide more targeted and impactful feedback over time. This is precisely why the recruiter-side perspective, which this study could not capture, represents a significant direction for future research.

Fourth, the PPI and personal branding dimensions of the findings warrant close attention. Students' repeated references to discovering strengths they did not know they had, finding words for their competencies for the first time, and learning to tell their professional story reflect precisely the PPI development that Jackson (2017) observed in business undergraduates on work placement and that the self-authorship framework (Baxter Magolda, 1998) characterises as the transition from following formulas to the early crossroads stage. In Jackson's study, most students remained at the following formulas stage even after a full placement, whereas the present study's open-ended responses suggest that a substantial proportion of HRM students moved meaningfully within this space through just three structured workshops. Responses such as "I have discovered strengths I thought I didn't have before this process" and "I learned to connect my history and journey to the person I have become" indicate a shift from external awareness of professional norms toward an emerging internal professional voice, which represents a marker of incipient self-authorship. The ePortfolio, in this reading, functions not merely as a presentation tool but as a developmental artefact. The process of building it requires students to make identity claims, reflect on their professional self, and bridge the gap between who they are and how they are perceived by the labour market. This is what Khedher (2019) means by personal branding and what Jackson (2017) identifies as foundational to professional readiness. In Norwegian business education, where this kind of structured self-articulation is uncommon in curricula, the programme represents a deliberate intervention at a critical developmental juncture.

Fifth, the findings are not uniformly positive, and the disconfirming signals in the data deserve acknowledgement because they add credibility and point toward important design implications. The affective and physiological dimension of self-efficacy, identified by Bandura as the fourth source, showed the greatest variability in Table 3. While 71% agreed that they managed stress in challenging situations, 35% reported that the emotions experienced in demanding situations, particularly during the simulated job interview, undermined their belief in their ability to manage the tasks. This is the highest disagreement rate in the entire dataset and is theoretically meaningful.

One open-ended respondent described feeling uncomfortable with so much focus on themselves, and several noted that the ePortfolio platform was difficult to use, and that technical guidance moved too quickly. A further nuance emerged from the qualitative data: a small number of participants raised concerns about the perceived realism of the simulation, experiencing it as useful practice while also noting that real recruitment situations felt substantially different from the classroom exercise (Schow & Nyvoll, 2025). This observation is important and should not be dismissed. A simulated interview before an academic audience may generate a specific kind of performance anxiety that differs from and does not fully prepare students for the dynamics of an actual one-to-one recruitment conversation. It also underscores that comfort zones vary considerably across students and that the appropriate pace and intensity of challenge are not uniform. These responses do not undermine the overall pattern of positive findings, but they indicate that a single high-stakes simulation

may be insufficient for students who start from a position of high anxiety or who require more authentic conditions to feel genuinely prepared. Graduated exposure, involving multiple lower-stake encounters before the final simulation and, where possible, engagement with real rather than internal audiences, would likely improve outcomes for this subgroup and represents a clear direction for programme refinement.

Sixth, the employer-readiness dimension of the findings situates the present study within the broader ePortfolio literature. Ninety-three percent of main study respondents rated the ePortfolio as a very or quite relevant form of assessment, and the open-ended responses on career utility were almost unanimously forward-looking. Students anticipated using the ePortfolio in job applications, at interviews, and on LinkedIn, with one respondent already planning to purchase a personal domain so that the portfolio appears in online searches. This student-side confidence in the tool's labour-market value is consistent with what employers report valuing when they engage with ePortfolios, including professional work samples, reflective writing, photographs, and clear personal presentation (Mitchell et al., 2021). While employer awareness and adoption of ePortfolios remain limited, Mitchell et al. identify knowledge of ePortfolios and years of recruitment experience as factors that increase the likelihood of positive engagement. This suggests that as ePortfolio practice becomes more widespread among graduates, to which programmes like this one contribute, the employer-side conditions for adoption will also develop. The gap between student capability and employer readiness is therefore not a reason to delay ePortfolio adoption; rather, it is a reason to accelerate it.

Seventh, group dynamics and class size appear to matter. The small-group format of the workshops, particularly in the pilot, created the psychological safety that deep self-reflection requires. This is directly confirmed by the main study data, as every single respondent, representing 100%, indicated that groups of fewer than ten students are optimal for the Workshop One competency mapping session. No other survey item achieved unanimous agreement. Research on class size and student engagement supports the view that smaller cohorts promote more authentic participation (Wang & Calvano, 2022), and the present data provide rare student-generated, field-specific evidence for this threshold. Scaling ePortfolio initiatives to larger groups will require deliberate attention to maintaining the conditions of peer trust, safe feedback environments, and personal facilitation that generated the outcomes observed here.

Finally, the study raises questions about institutional sustainability. Both studies benefited from professional facilitation, dedicated photography sessions, and committed researcher involvement. These represent genuine resource commitments. The finding that 88% of students said they would not have engaged with the process voluntarily is directly relevant in this regard, as it means that the gains documented in this paper are entirely dependent on institutional decision-making. If the module becomes elective, the students most likely to benefit, namely those who enter with the lowest confidence according to the pre-course data, are also the least likely to self-select. For ePortfolio initiatives to reach their potential as WIL tools, higher education institutions will need to invest in digital infrastructure, staff professional development, and curriculum redesign, challenges that are well documented in the literature (Meyer et al., 2011). The present study's two-part iterative design provides a replicable model, but the conditions for replication require clarity.

Conclusions

This study provides indicative evidence that ePortfolio development, when embedded in a structured WIL-oriented pedagogical design, is associated with enhanced self-efficacy, self-awareness, and professional identity in students. Across a voluntary pilot study of seven students and a compulsory main study of 18 HRM students, participants reported increased confidence in communicating their competencies, deeper understanding of their own strengths, and a new sense of the ePortfolio as a concrete career asset. In the main study, 77% of survey respondents reported a large or very large positive effect on their confidence in presenting their competencies, a result consistent with the richer qualitative findings from the pilot.

The study addresses its research question, namely how engaging with an ePortfolio programme influences students' self-perception and their ability to communicate their skills in a career context, by indicating that four specific features of the programme design were associated with observed gains: structured reflective activities (mastery experiences), peer observation and collaboration (vicarious learning), structured feedback loops (verbal persuasion), and a psychologically safe learning environment (affective state management). All four correspond to Bandura's (1997) sources of self-efficacy, and all four can be deliberately built into WIL-oriented ePortfolio programme design. In light of the

increasing integration of artificial intelligence in HR practices, these findings also point to the relevance of ePortfolios as tools for developing and making visible the adaptive, reflective, and communicative capabilities that are less easily replicated by AI.

Limitations and considerations

Some methodological limitations should be acknowledged. The study's combined sample of seven students in the pilot and 18 in the main study is modest, and the findings are best understood as transferable rather than generalisable (Yin, 2018), and are most directly relevant to comparable contexts in Norwegian business education. Furthermore, the absence of inferential statistical analysis means that the gains reported, most notably that 73% of main study respondents described a large or very large positive effect on their confidence, reflect outcomes attributable to the specific design of the teaching intervention rather than a statistically established effect in the formal sense. Directions for further research include longitudinal examination of students' use of ePortfolios in job-seeking, investigation of the experiences and perspectives of professional recruiters involved in ePortfolio-based interview simulations, exploration of ePortfolios as an integrated and formally assessed component within degree programmes, and analysis of the pedagogical and organisational conditions required for scaling without loss of quality (Schow & Nyvoll, 2025). The recruiter-side question is particularly pressing: the professional recruiters who conducted simulated interviews in Workshop Three were the study's most direct industry link, yet no data were collected from them. Examining what recruiters observe when students present ePortfolios in job interview contexts, and whether participation alters their views on ePortfolios as recruitment tools, would substantially advance the WIL system perspective that this study was not designed to capture. This is arguably the most important next step for translating the student-side gains documented here into measurable labour market outcomes and connects directly to the employer awareness gap identified in the broader literature (Mitchell et al., 2021).

Acknowledgements

This article builds on and extends findings previously reported in (Schow & Nyvoll, 2025) and in a conference paper published in the Proceedings of WIL'25 (Nyvoll & Schow, 2025). The present article extends the theoretical framing, integrates findings across both project phases, and significantly expands the analysis and discussion for an international WIL audience. We thank the conference reviewers and participants for giving constructive feedback that informed this development. No text has been reproduced without acknowledgement.

Declaration of interests

The authors declare that they have no conflicts of interest.

References

- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84(2), 191–215. <https://doi.org/10.1037/0033-295X.84.2.191>
- Bandura, A. (1997). *Self-efficacy: The exercise of control*. W. H. Freeman & co.
- Baxter Magolda, M. B. (1998). Developing self-authorship in young adult life. *Journal of College Student Development*, 39(2), 143-156.
- Biggs, J., & Tang, C. (2011). *Teaching for quality learning at university* (4th ed.). McGraw-Hill Education.
- Bryant, L. H., & Chittum, J. R. (2013). ePortfolio effectiveness: A(n ill-fated) search for empirical support. *International Journal of ePortfolio*, 3(2), 189–198. Retrieved May 21, 2026 from <http://www.theijep.com/pdf/IJEP111.pdf>
- Cambridge, D. (2010). *Eportfolios for lifelong learning and assessment*. Jossey-Bass.
- Ecclesia, S. (2025). Imagining AI at work: The impact of polarized imaginaries on AI use in human resources

- management. *Journal of Workplace Learning*. 1-15. <https://doi.org/10.1108/JWL-06-2025-0162>
- Hsieh, H.-F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, 15(9), 1277–1288. <https://doi.org/10.1177/1049732305276687>
- Jackson, D. (2017). Developing pre-professional identity in undergraduates through work-integrated learning. *Higher Education*, 74(5), 833–853. <https://doi.org/10.1007/s10734-016-0080-2>
- Jones, B., & Leverenz, C. (2017). Building personal brands with digital storytelling ePortfolios. *International Journal of ePortfolio*, 7(1), 67–91.
- Khedher, M. (2019). Conceptualizing and researching personal branding effects on employability. *Journal of Brand Management*, 26(2), 99–109. <https://doi.org/10.1057/s41262-018-0117-1>
- Klassen, R. M., & Usher, E. L. (2010). Self-efficacy in educational settings: Recent research and emerging directions. In T. C. Urdan & S. A. Karabenick (Eds.), *The decade ahead: Theoretical perspectives on motivation and achievement* (Vol. 16, pp. 1–33). Emerald. [https://doi.org/10.1108/S0749-7423\(2010\)000016A003](https://doi.org/10.1108/S0749-7423(2010)000016A003)
- Malterud, K. (2017). *Kvalitative forskningsmetoder for medisin og helsefag* [Qualitative research methods for medicine and health sciences] (4th ed.). Universitetsforlaget.
- Mendy, J., Jain, A., & Thomas, A. (2025). Artificial intelligence in the workplace: Challenges, opportunities and HRM framework: A critical review and research agenda for change. *Journal of Managerial Psychology*, 40(5), 517–538. <https://doi.org/10.1108/JMP-05-2024-0388>
- Meyer, E. J., Abrami, P. C., Wade, A., & Scherzer, R. (2011). Electronic portfolios in the classroom: Factors impacting teachers' integration of new technologies and new pedagogies. *Technology, Pedagogy and Education*, 20(2), 191–207. <https://doi.org/10.1080/1475939X.2011.588415>
- Mitchell, L., Campbell, C., Somerville, M., Cardell, E., & Williams, L. T. (2021). Enhancing graduate employability through targeting ePortfolios to employer expectations: A systematic scoping review. *Journal of Teaching and Learning for Graduate Employability*, 12(2), 82–98. <https://ojs.deakin.edu.au/index.php/jtlge/>
- Nyvoll, C. J., & Schow, I. L. (2025). Mind the gap: How ePortfolios help students believe in and communicate their skills. In *Proceedings of the 3rd International WIL Conference (WIL'25)*. <https://hdl.handle.net/11250/5325028>
- Olstad, H. A. (2024). *ePortfolios in higher education: Enabling students to recognize acquired competencies* [Doctoral dissertation, Norwegian University of Science and Technology]. NTNU Open. <https://hdl.handle.net/11250/3129366>
- Pennbrant, S., & Nunstedt, H. (2018). The work-integrated learning combined with the portfolio method: A pedagogical strategy and tool in nursing education for developing professional competence. *Journal of Nursing Education and Practice*, 8(2), 8–15. <https://doi.org/10.5430/jnep.v8n2p8>
- Postholm, M. B. (2020). *Kvalitative forskningsmetoder i praksis* [Qualitative research methods in practice] (3rd ed.). Universitetsforlaget.
- Putri, T. H., & Utami, R. H. (2023). The relationship of self-efficacy with perceived future employability in job seekers of higher college graduates in Padang City. *International Journal of Trends in Global Psychological Science and Education*, 1(1). <https://doi.org/10.62260/intrend.v1i1.86>
- Schow, I. L., & Nyvoll, C. J. (2025). *Fra usikker til selvsikker: ePortfolio og eierskap til egen kompetanse*. Kristiania rapportserie, Kristiania University of Applied Sciences. <https://doi.org/10.57933/6k26-0e50>
- Slepcevic-Zach, P., & Stock, M. (2018). ePortfolio as a tool for reflection and self-reflection. *Reflective Practice*, 19(3), 291–307. <https://doi.org/10.1080/14623943.2018.1437399>
- Skyttermoen, T. (2011). Mer enn vurdering? Om digitale kompetansemapper i høyere utdanning. *Uniped*, 34(4), 57-71.
- Succi, C., & Canovi, M. (2020). Soft skills to enhance graduate employability: Comparing students and employers' perceptions. *Studies in Higher Education*, 45(9), 1834–1847. <https://doi.org/10.1080/03075079.2019.1585420>
- Wang, L., & Calvano, L. (2022). Class size, student behaviors and educational outcomes. *Organization Management Journal*, 19(4), 126–142. <https://doi.org/10.1108/OMJ-01-2021-1139>
- Yin, R. K. (2018). *Case study research and design* (6th ed.). Sage.
- Zegwaard, K. E., Pretti, T. J., Rowe, A. D., & Ferns, S. J. (2023). *The Routledge international handbook of work-integrated learning* (3rd ed.). Routledge. <https://doi.org/10.4324/9781003156420>