

Digital Ethics and the Use of ePortfolio: A Scoping Review of the Literature

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ePortfolios have become more than simple repositories for professional development, achievement, and assessment; they now provide opportunities for students to develop an online profile and presence. As ePortfolios become more widely implemented in higher education, some unintended consequences around privacy, consent, and confidentiality have caused ethical dilemmas, particularly with vulnerable communities such as patients and children. This systematic scoping review found a dearth of literature surrounding policies and guidelines for students. While there appears to be guidance on consent with respect to accessing information or images from vulnerable communities, there is limited guidance on how to address the ethical use of information online. When planning, reviewing, and evaluating guidelines provided for students to develop their personal ePortfolios, ethical use of online information requires careful consideration. Such guidelines will prevent negative impacts on vulnerable communities and improve the quality of work produced by students and their understanding of digital ethics when creating ePortfolios.

ePortfolios provide creative opportunities for online profiling of student achievements (Fisher & Hill, 2017; Johnson, Mims-Cox, & Doyle-Nichols, 2010) beyond a simple repository of professional development, achievements, and assessments (Yancey, 2009). Increasingly, disciplines in higher education use ePortfolios “to support self-regulation, build online community and encourage reflection” (Scholz, Tse, & Lithgow, 2017, p. 140) rather than for the sole purpose of assessment (Zeichner & Wray, 2001). ePortfolios can provide deep and sustained learning opportunities that students can adapt to new situations, which demonstrates its importance as a high impact practice (Rhodes, Chen, Watson, & Garrison, 2014; Watson, Kuh, Rhodes, Light, & Chen, 2016). New opportunities to use ePortfolios in online social avenues promote connection and ease of use for students but they can also bring ethical challenges unique to the digital environment including privacy, confidentiality, and data protection (Denton & Wicks, 2013; Kirkham et al., 2010; Tan, 2011).

There are many resources students can use to develop an online presence using ePortfolios while also developing an awareness about how to keep their artifacts safe and private (Fawns & McKenzie, 2010). A number of free and intuitive internet resources are available for students to access and use in showcasing their work such as Google Sites, Carbonmade, and Behance (Smith, 2013). Students can also enhance their online presence by sharing their ePortfolios with other professionals, engaging through social media by posting a photograph on Instagram or Facebook, and sharing links or embedding these artifacts into their ePortfolios. Facebook’s popularity is due to its capacity to facilitate social presence and encourage frequent interaction amongst users (DeSchryver, Mishra, Koehler, & Francis, 2009). Further, by writing blogs

and sharing them on social media sites such as Twitter, Facebook, LinkedIn, Google+, and StumbleUpon, students can develop a comprehensive online presence, sharing links to their personal ePortfolios. LinkedIn can be used to develop a professional portfolio and online presence. A LinkedIn page describes career history, education, and other related content students may want to publish about themselves for a range of purposes. Access to their LinkedIn profile can then be shared by including a link in their email signature or resume header. Access to and use of evidence from educational institutions for job applications tends to be unregulated (Fisher & Hill, 2017; Yancey, 2009). While many universities and professions now have social media policies, it is unclear how these are translated or understood by students in relation to the digital content produced and collected during their course of study (Bennett, Rowley, Dunbar-Hall, Hitchcock, & Blom, 2016; Fisher & Hill, 2017).

Across many professions, ePortfolios may be used to respond to the growing need for students to show proficiency in dealing directly with the public, including work with vulnerable populations such as children, patients, older people, or those with cognitive disabilities. Teacher trainees, for example, may need to demonstrate classroom management skills with young children including evidence that they have followed state and federal curriculum requirements (Fisher & Hill, 2017). However, unlike paper-based portfolios, artifacts and reflections used for assessment can be posted online and access is controlled solely by the student. As such, this information may be shared with a wider online community. This may occur accidentally, through inadequate digital literacy and knowledge about the software they are using. Issues that may occur include the inappropriate sharing of their work, which

often spans multiple systems in the creation of one ePortfolio, or non-ICT related reasons such as neglecting to take seriously the potential impacts of privacy and confidentiality.

In health care education, ePortfolios are used for recording, assessing, and reflecting on learning, which may include the documentation of artifacts such as certificates of competency, video recordings of student and patient consultations, or observations (Nagler, Andolsek, & Padmore, 2009). In teacher education, ePortfolios are used in similar ways for students to capture their learning on practicum placements in schools, working with children, and documenting how they are meeting the National Professional Standards for Teachers. Using ePortfolios in these ways raises many ethical issues around privacy and confidentiality, as well as the protection of personal data across professions with increasingly flexible online modalities (Fisher & Hill, 2015, 2017). How students are prepared for the ethical use of such information in ePortfolios is unclear.

Exploring ePortfolio Ethics

The ethical use of sensitive information in ePortfolios is further complicated by higher education's focus on employability skills designed to be showcased beyond the institution. New graduates and recruiters view ePortfolios as a mechanism for demonstrating examples of work to potential employers (Reardon, Lumsden, & Meyer, 2005; Yu, 2012). By tailoring an ePortfolio to meet industry expectations, students can showcase their work in new and

innovative ways, so that their application stands out to an employer. This requires the appropriate selection of artifacts contained within student ePortfolios related to individual career aspirations. One method to stand out from other applicants and increase employability is to develop an online presence (Bennett et al., 2016).

As ePortfolios become even more widely implemented and used by higher education and employers, the risk of unintended ethical consequences remains. Current digital ethics literature discusses the implications of an ePortfolio user's privacy and data protection (Fawns & McKenzie, 2010; Poot & Austin, 2011; Razavi & Iverson, 2006) but falls short in considering the secondary use of data from vulnerable groups (e.g., children, clients) used by higher education students in professional degree programs. For example, in health and education in particular, higher education students work with patients and school-aged children and are asked to gather evidence to demonstrate mastery of a learning goal, outcome, or professional standard. This evidence collection involves multiple layers of potentially vulnerable groups. The first layer involves the students in the program or course being asked to collect evidence; the second layer involves the school students or patients included in the process of learning, evidence collection, and communication (Fawns & McKenzie, 2010).

This context and others like it across other disciplines can create challenges in terms of confidentiality, access to information, and consent, especially as students begin to share their ePortfolios to

Table 1
Inclusion and Exclusion Criteria

Inclusion criteria	Exclusion criteria
<ul style="list-style-type: none"> • Undergraduate or postgraduate student located in university • Use of ePortfolio (e.g. student experience; lecturer's knowledge of student use) • Considers ethical issues such as consent/rights/dignity • Privacy and confidentiality of vulnerable groups (e.g. children, older people, people with disabilities, homeless people or those in hospital or community centered requiring support) • Professional competence where ethics is a competency being addressed • Peer reviewed papers including published conference papers • Education policy documents relevant to themes • Peak body reports (e.g. HEA, JISC, OLT etc.) 	<ul style="list-style-type: none"> • Trainee in medical education not located at a university • Development of ePortfolio (e.g. technical development) • Students not registered at a university; lecturers or graduate teachers for their own purpose • Privacy and confidentiality of student users • Digital competence • Conference abstracts • Policy documents on development and / or adoption of ePortfolio • Peak body reports on development, adoption and / or utility of ePortfolios

secure work and share their practice. Therefore, this paper reviews the literature to assess what is known in this field. As this is an emerging field of study, a scoping review was used to identify research in relation to how ethical issues are addressed in ePortfolios, identifying any research gaps in the literature. Scoping reviews are most relevant where multiple research methodologies may be used, thus enabling the summarization and dissemination of literature (Arksey & O'Malley, 2003).

Method

This paper follows the five-stage framework for a scoping review suggested by Arksey and O'Malley (2003): "Stage 1: Identifying the research question; Stage 2: Identifying relevant studies; Stage 3: Study selection; Stage 4: Charting the data; Stage 5: Collating, summarizing, and reporting the results" (p. 22). Our research question was "How are the issues of privacy, confidentiality, and consent managed in ePortfolios where students are engaging with vulnerable and/or disadvantaged communities, groups, and individuals?"

Search Strategy

To ensure a breadth of coverage, we searched the following databases up to and including June 1, 2017: Pubmed, Eric, Scopus, and Web of Science. The search terms were intentionally broad to ensure we captured as many papers as possible with Boolean operators "AND/OR" to ensure maximum breadth and included: eportfolio* OR e-portfolio* OR electronic portfolio* AND privacy OR confidentiality OR consent OR vulnerable OR patient* OR disadvantage* OR consequence*.

Reference lists were checked from all papers retrieved to ensure all relevant studies were included. Website searches using the search terms of "ePortfolio" and "Portfolio" were also conducted for the following peak bodies: (a) Post-16 Education: Joint Information Systems Committee (JISC; based in the UK providing digital solutions); (b) Advance HE (formerly HEA; providing international guidance in post-16 Teaching and Learning); (c) Australian Health Practitioner Regulation Agency (AHPRA; for health professional pre-registration education); (d) Nursing and Midwifery Council (NMC), UK; (e) the Australia College of Midwifery; (f) the Australian College of Nursing; (g) Occupational Therapy Australia; (h) Pharmaceutical Society of Australia; (i) Exercise and Sports Science Australia; (j) Australian Podiatry Association; (k) Dieticians Association of Australia; (l) the Nutrition Society of Australia; (m) Australian Health Promotion Association; (n) the Australian Orthotic Prosthetic Association; (o) the Australian

Institute for Teaching and School Leadership (AITSL); and (p) the Australian and New Zealand Association for Health Professional Educators (ANZAHPE). Existing networks such as ePortfolios Australia were utilized to identify grey literature/reports not located elsewhere. Reports meeting the inclusion/exclusion criteria were retrieved for full paper review.

Two members of the team checked titles/abstracts and full text papers independently, using the agreed inclusion/exclusion criteria (Table 1). A third member of the team was available when agreement could not be reached. Individual members also undertook searches of the websites, which were reviewed by a second member of the team. A single researcher using a framework relevant to the review question around the following headers undertook data charting:

- Author, date, country of origin
- Professional group using ePortfolio and sample size
- Vulnerable group involved
- Research methods
- Outcomes
- Issues of privacy/confidentiality
- Other ethical issues identified

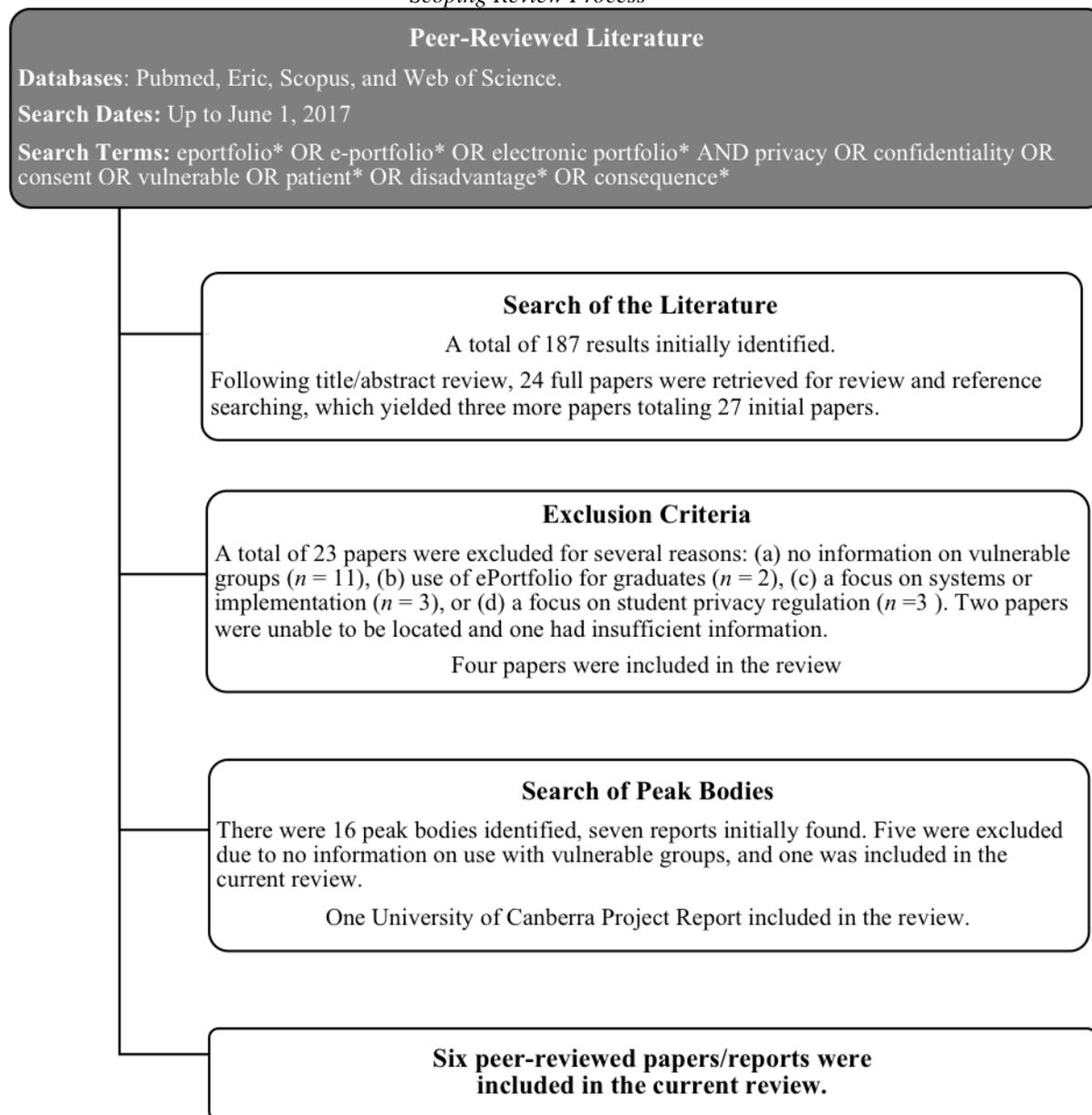
Results

The search strategy identified 187 papers (Figure 1). Following the title/abstract review, 24 full papers were retrieved for review and reference searching. Reference searching yielded an additional three papers for full review for a total of 27 papers. The full paper review resulted in the exclusion of 23 papers for the following reasons: (a) no information on vulnerable groups ($n = 11$), (b) use of ePortfolio for graduates ($n = 2$), (c) a focus on systems or implementation ($n = 3$), (d) or student privacy regulation ($n = 3$). Two papers were unable to be located and another two had insufficient information. This resulted in four peer-reviewed papers included in the review. The search of 16 peak bodies returned seven reports for full review with five excluded due to no information on use with vulnerable groups. One of these reports is included in the current review. Finally, a report written by one of the authors (Nuessler, 2012), was included as it detailed a project at the University of Canberra that met the inclusion criteria. See Table 2 for more information. Due to the limited number of papers included, findings will be reported in a narrative synthesis according to the two key themes that emerged: privacy and confidentiality of vulnerable groups and digital ethics (Denton & Wicks, 2012; Nuessler, 2012).

Table 2
Papers Included in Scoping Review

Author / date	Educational program	Participants, sample size	Research methodology	Outcomes reported	Quality appraisal Low-Mod-High	Privacy/confidentiality or ethical issues
Academic literature						
Denton & Wicks (2013)	Teacher training	33 graduate students	Single cohort case study	Students found this convenient but required additional training on writing entries.	Low: Limited explanation about methodology.	Digital citizenship: Using technology in safe, legal and responsible ways, positive attitude to collaboration and appropriate values.
Kift et al. (2007)	University wide, employability (mentions paramedics), Australia	2,300 active portfolios. Unclear how sample was derived	Description of policy to protect students	In three years, two students had to review their content due to potential risk.	Low: Descriptive implementation, limited explanation about methodology and what cohorts' data was used from.	Self-protection of students Student control over what is published—default system of not published. Access by public to ePortfolio/student use of images.
Martin et al. (2012)	First year pharmacy students, USA	273 students assigned an older person to work with and record health assessments in ePortfolio	Pre/post-test survey in student confidence	Across one year, students supported older people in maintaining active lifestyle and improved attitudes but had a lower score in confidence in maintaining confidentiality.	Moderate: clear explanation of methodology and reporting of data.	Students struggled with understanding of maintaining confidentiality with ePortfolio. Focus of compliance with data protection regulations.
Ross (2014)	Education programs in UK	20 students (postgraduate and undergraduate), 12 teachers	Qualitative semi-structured interviews	Management of digital presence is complex.	Moderate: Clear explanation of methodology and philosophical underpinnings of research- clear identification of participants.	Sharing of personal reflections in online environments, blurring of boundaries between what is expected in assessment and what is considered personal.
Grey literature						
Cowper & Crompton (2010a)	Identify legal requirements of ePortfolios in VET sector	Consultation with key stakeholder, 14 organizations (RTO's)	Literature review and consultation	Code of practice for learners on what to share online; guidelines about what is considered confidential-privacy training for students; privacy protection built into the systems	Comprehensive scoping report—clear outline of methodology and reporting of stakeholders' viewpoints and how these were collected- no specific quotes in data or "stakeholder voice."	
Nuessler (2012)	Not specified	2, not specified	Qualitative interviews	Unintended consequences of using ePortfolios when considering students caring for vulnerable clients	Low: Limited data based on two interviewees, unclear how this constituted action research.	De-identification of data (e.g., pixelate faces or school branding, appropriateness of content, verbal identification of names and places in audio visual content, receiving signed consent from parents to capture images of children).

Figure 1
Scoping Review Process



Privacy and Confidentiality of Vulnerable Groups

Four papers (i.e., Kift et al., 2007; Martin, Porter, Shawl, & Motl Moroney, 2012; Nagler et al., 2009; Ross, 2014) and two reports (Cowper & Crompton, 2010a; Nuessler, 2012) considered the issues of privacy and confidentiality of vulnerable groups. Kift et al. (2007) considered the similarities between ePortfolio use and the operation of social media discussion, raising concerns that many students did not appear to consider the risks to their own privacy in developing an

online presence. For example, some students appeared unconcerned that their published information might be misused by a third party with serious ramifications such as identity theft, fraud, or risk to employment (Kift et al., 2007). However, in a focus group of learners in the post-16 Vocational and Educational Training Sector in Australia, Cowper and Crompton (2010a) recorded how students were mindful of sharing personal information in an ePortfolio.

Researchers in graduate medical education in North Carolina, USA (Nagler et al., 2009) also noted that their

students (i.e., medical residents) were mindful of recording self-reflections while in clinical settings. Some residents worried that their future careers as physicians might be put in jeopardy if some of the contents of their ePortfolios, specifically their self-reflections, were “used as evidence for medical malpractice lawsuits” (Nagler et al., 2009, p. 1523). Teachers and residents alike acknowledged the usefulness of the ePortfolio to document their work and lauded the self-reflections as opportunities for growth and improvement in the quality of medical care for their patients. In graduate medical education in the USA, the use of ePortfolios carries some risk around “disclosure of clinical information, and professional liability exposure of physicians” (Nagler et al., 2009, p. 1522). This raises questions about students’ understanding of the importance of privacy in reflections when students are working with vulnerable groups (e.g., patients, children), which may place them at risk, even if this information is being shared within a closed group (Kift et al., 2007).

Much like Nagler et al. (2009), Nuessler (2012) acknowledged that ePortfolio use in some disciplines (e.g., medicine, teaching) is riskier than in others and indeed is an unintended consequence of implementation. In a small study in an Australian university, examples of how vulnerable groups’ privacy was ensured included the de-identification of reflections or pixelation of faces in images and assurance that individual or place names were not included in audio recordings (Nuessler, 2012). However, Ross (2014) reported students discussing how confidentiality of vulnerable clients was more than simply removing identifying details. They felt unsure about the level of disclosure required for assessment.

Cowper and Crompton (2010a) discussed the need for education providers to balance the importance of allowing students to express themselves, trusting them to make decisions about the inclusion of sensitive material. They acknowledged that this might be influenced by the age, life experience, and cultural background of the student. However, Nuessler (2012) found that existing guidelines in a major Australian university did not cover the variations of existing ethical issues that have emerged as a result of the use of digital media and online spaces. Nagler et al. (2009) posited that until peer-review statutes are reviewed to include privacy of information in ePortfolio documentation, U.S. institutions need to know their particular state’s laws concerning protected documents.

Martin et al. (2012) involved first-year pharmacy students in a U.S. university in undertaking and recording assessments with older adults in an ePortfolio as part of the course assessment. Students were provided with limited information on maintaining confidentiality in their introductory “boot camp” on the use of ePortfolios. In a post-assessment survey, student scores on maintaining client confidentiality were lower than at the start of the course. In explaining these

results, the authors did not consider the use of ePortfolios as a reason for this reduction in confidence.

Indeed, learners may be putting themselves at risk inadvertently through “sharing inappropriate material or permitting wide access to sensitive material” (Cowper & Crompton, 2010a, p. 15). There may also be risks arising from students’ reuse of evidence across contexts over time for different purposes (Nuessler, 2012), with students feeling confused about the level of disclosure and ownership of reflective spaces by a third-party provider (Ross, 2014). This issue was also reflected in concerns about the security of data, particularly in higher education institutions (Kift et al., 2007) and private training organizations responsible for vocational education in Australia (Cowper & Crompton, 2010a).

Digital Ethics

Only one paper (Denton & Wicks, 2012) and one report (Nuessler, 2012) considered ethical issues of digital citizenship. Digital ethics considers the values associated with an online presence using technology tools such as (a) the internet, desktop computers, and related software; (b) ePortfolio hosting systems such as WordPress and Mahara; (c) blogs, discussion boards, and online forums in safe, legal, and responsible ways (Denton & Wicks, 2012). Digital ethics also includes the use of respectful and appropriate language (Nuessler, 2012). The respect of others’ rights is a key aspect of digital ethics which has not been adequately explored in the use of ePortfolios, particularly in the conduct of gaining consent for the use of information and the validity of this consent when using the information in different electronic contexts (Nuessler, 2012).

Discussion

This scoping review investigated how the issues of privacy, confidentiality, and consent were managed in ePortfolios where students engaged with vulnerable and/or disadvantaged communities, groups and individuals. This review revealed a dearth of literature on how these issues were managed when implementing or using ePortfolios.

Student Perception of Digital Information Use in ePortfolio

While students need to understand what an ePortfolio is, how to use it, and how it relates to industries following graduation has been recognized (Tosh, Light, Fleming, & Hayward, 2005; Wetzel & Strudler, 2006), Kift et al. (2007) surmised that many younger students may not be aware of the risks of using online spaces. Razavi and Iverson (2006) suggested that, based on their social media behavior, when

younger people use ePortfolios, they cluster information into certain areas and make decisions about sharing based on the sensitivity of the data and the life cycle of the document being shared. However, Nuessler (2012) hypothesized that existing guidelines and frameworks in use may not always account for the kinds of ethical issues encountered in ePortfolios use because of the ability of students to share potentially sensitive information on a large scale, instantaneously, with an unregulated audience. Damage can be equally instantaneous and control over the content can be lost if artifacts are completely copied.

In order to be successful, universities need to engage students in the design and use of the ePortfolio as well as provide multi-dimensional scaffolding for how to use the technology for both the educator and learner (Chau & Cheng, 2010; Yancey, 2009). For students involved with vulnerable populations, this must also include digital ethics, particularly as many professions embrace ePortfolios as a way to collaboratively share information (Lin, 2008). However, there was limited reflection or consideration in the literature reviewed in this study on how students are prepared to behave ethically in a digital context.

Using ePortfolio When Working With Vulnerable Communities

Learners often use ePortfolios as a central repository of personal artifacts to demonstrate their learning for a wide variety of audiences thus providing a rich view of learners' experience (Razavi & Iverson, 2006). Traditionally, industry partners like to review applicants' skills, qualities, and attributes (Allen, 2016) developed throughout the course of an undergraduate degree. Usually this is provided through the job application, which may include a CV, cover letter, and answers to key selection criteria. A study by JISC (2008) suggested that ePortfolios provide the link between learners' social and personal experiences and their academic and work-related aspirations, to provide multi-dimensional scaffolding for learners beyond that of technology. While many students use digital devices for social networking and in their personal lives, it cannot be assumed that students are familiar with all technologies (Hagel, 2015). Therefore, students might inadvertently share potentially sensitive information with a wider audience than intended (Kift et al, 2007).

Vulnerable communities may give their consent for students to capture their image or record information about them for the purpose of assessment, knowing that their identities may be anonymized (Nuessler, 2012). However, how this information is regulated, stored, and shared is rarely discussed (Cowper & Crompton, 2010a). Students may also inadvertently share sensitive information without

realizing the potential risk to their personal safety, identity theft, or their present and future employability (Cowper & Crompton, 2010a). Therefore, training for students and staff on how to upload, reflect on, and share artifacts must include an appropriate context centered on compliance and articulating possible unintended consequences of their engagement with the ePortfolio hosting system and manipulation of data (Cowper & Crompton, 2010b; Fisher & Hill, 2015, 2017; Xu, Gao, Sorwar, & Croll, 2013).

Implications

Although there appears to be guidance on consent with respect to accessing information or images from the vulnerable communities with which students may be working, there appears to be limited guidance on how to address the ethical use of information online or in more than one context. This is particularly relevant as "the networked and public nature of the internet requires the capacity for thinking more abstractly about the effect of one's actions on unknown others or at the level of community" (Flores & James, 2012, p. 838). To address these issues, external organizations (e.g., the International Society for Technology in Education; ISTE) in the US have developed standards to guide children and teachers in how to behave responsibly in a digital environment developing legal, safe, and ethical practices (Greenhow, 2010). However, Flores and James (2012), in interviews with young people aged 16-25, found that ethical decision-making was most evident when that effect was individual. Amoral decisions were more often made by the same young people when their behavior had the potential to negatively impact those who were unknown to them. This raises questions about the guidance provided by higher education institutions and how such guidance might be developed to consider digital ethics when operating in an online context in relation to the use of educational tools such as ePortfolio.

One of the most significant challenges in using ePortfolios in the university and vocational education and training (VET) sectors in Australia is how to design, develop, and deliver a uniform strategy that enables ePortfolio service providers, typically referred to as *registered training organizations* (RTOs), to keep personal information contained in a hosting system secure from threats (Cowper & Crompton, 2010a). It is important for students, staff, and vulnerable people to work together to inform the development of a set of guidelines and procedures that incorporate privacy laws that protect client data, images, private reflections, and related documentation that could be compromised if electronic evidence records were accessed by unauthorized people such as hackers (Cowper & Crompton, 2010b; Fisher & Hill, 2017).

Conclusion

This paper reports on a systematic scoping review of the academic and grey literature following evidence-based guidelines, which is the first review of its kind in this field. The review considered how the issues of privacy, confidentiality, and consent were managed in ePortfolios where students engaged with vulnerable and/or disadvantaged communities, groups, and individuals and found a dearth of literature. The findings from this review are limited by the amount of literature included. Although every effort was made to keep the search terms very broad, other papers might have been missed or excluded due to publication in languages other than English. Equally, many of the included studies only considered issues of privacy, confidentiality, and consent with vulnerable communities as peripheral to the main issue of implementation and/or assessment. In this study, we found a dearth of literature on how the issues of privacy, confidentiality, and consent are managed in ePortfolios where students engaged with vulnerable and/or disadvantaged individuals and/or communities. Although there is a growing body of work on digital ethics related to business delivery, there is limited work on how digital ethics might be conceptualized in professional education. Furthermore, little is known about the guidance currently provided by educators in relation to the use of sensitive information in ePortfolios or how students make decisions about what to share using technology in an educational context. This suggests the need for more focused research in how students in professional education courses—who routinely engage with vulnerable individuals and/or communities—use the guidance currently provided and investigate how these students make decisions and how educators support them in the decision-making process when using ePortfolios.

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