



What leading educators say about Web 2.0, PLEs and e-portfolios in the future

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Over the last decade and a half concepts around portfolios have gone through many transformations influenced by the evolution towards an increasing digital world. More recently Web 2.0 technologies have appeared. These have afforded shifts in our constructs of learning spaces: Blended-Space, Virtual-Space, Social-Space, and very recently the emergence of the PLE or personal learning environment. This paper presents results of a survey that is one element in a broad environmental scan of the e-portfolio field set against the blooming of Web 2.0. The survey probes the perceptions of New Zealand educators who lead; how they see e-portfolio trends, Web 2.0 integration, and their views of teacher education in a digital society in the context of e-portfolios. Critical perspectives around learner agency are explored. Questions are raised about the location of knowledge production and validation. Results indicate that Web 2.0 technologies are just coming to the attention of teacher-educator leaders, and are seen to offer potential to future e-portfolio practices. However the vision in respect to Web 2.0 and the PLE appears constrained in the main. A gap is identified around conceptualizing this as an integrative relationship. Further research into the alignment of e-portfolios within these emerging learning spaces is suggested.

Keywords: e-portfolios, teacher education, educational futures, Web 2.0, PLE.

Introduction: Background questions to an environmental scan of the field

The question of where e-portfolios are heading in tertiary settings was the starting point for this study. It drove the initial interest in conducting an environmental scan of the field. A comprehensive review of the research literature around e-portfolios did not provide the full breadth of debate in the area. Extending the search to respected web based sources, reports from conferences, and blog commentaries on contemporary developments, revealed emerging relationships between our conceptions of e-portfolios, Web 2.0 and PLEs (Wilson, 2004). This paper adds to the literature on perceptions of these relationships and their potential to enable transformative shifts in learning spaces. The argument presented is that there should be more integration between these concepts in the future. Central to this argument is understanding what impact digitalisation may have on learning and the institutions of education.

At least one conception of e-portfolios has by definition features that manifest themselves in the evolution from print media to digital media (Yancey & Weiser, 1997). In this respect they are coupled to contemporary web-based technological changes. Evolving digitalisation of information and communication alters many social and cultural practices (Lankshear, 2003). This is not so in education it is widely claimed (Lankshear & Knobel, 2003; McWilliam, 2005; Roder & Hunt, 2008). Whether e-portfolios as a contemporary initiative have the potential for transforming our traditional view of education is contestable. As part of the wider e-learning phenomenon they are often associated with critical theoretical perspectives in learning (e.g. Dysthe & Engelson, 2004; Attwell, 2007). Will e-portfolios however take on an important catalysing role in democratising curriculum and disrupt it through the creation of transformed learning spaces? How is it that learning with e-portfolios might alter our image of the learner, and of learning and teaching in the future? In what ways do e-portfolios connect to issues around power in our educational systems? How is it they might influence greater personal

agency, more democratic engagement and sharing of that power? It follows that the issues around e-portfolios are very complex.

Questions about curriculum and purposes of education appear widely amongst those who lead e-learning related change in higher education settings. A significant site for e-portfolios development in higher education is teacher education. Teacher educators have strong views about curriculum and education. As part of this environmental scan a survey was conducted into the perceptions of educators who lead, predominantly in teacher education, or those who lead in respect to e-learning, or in some cases those who fit both categories.

Locating the Web 2.0 focus in the environmental scan: Changing relationship to data

The review of literature began by establishing what was being conceived as an e-portfolio. Stefani, Mason and Pegler (2007) illustrate how many definitions saw them as specific technological tools to support learning, assessment and credentialing purposes, as well as showcase one's competence. They highlight the lack of common understanding around e-portfolios, their use and purposes in education. Feng's (2006) sampling of the literature, and Butler's more extensive review (2006), show the dominant focus has been on definitions, application and implementation of e-portfolios. Such a focus favours insights into conceptions and challenges as they are currently understood, but does little to extend our vision of e-portfolios and how they might look in the future. Adopting a critical stance Feng (2006) argues for e-portfolio research that focuses on the implications of technology over its application and implementation. He notes a gap in the e-portfolio literature in respect to implications and presents a case for "remapping the field around the changing ways we are learning to interact with information around e-portfolios" (p. 218). How peoples' relationships to data is evolving, and what impact this might have on the sociocultural practices involving e-portfolios, is not well understood Feng believes.

Stefani et al. (2007) suggest a similar agenda to Feng's. They observe that changes around e-portfolios are linked with cultural changes to learning brought about by digitalisation. They suggest that three Web 2.0 technologies now being incorporated into education: blogs, wikis and podcasts, are worthy of inclusion in a scenario building approach that could help to understand future visions of e-portfolios in higher education. The claim authors like Stefani et al. (2007) are making is that "how we add the 'e' so we get 'e'-learning" (p. 7) is likely "to determine much of the use e-portfolios are put to in the future" (p. 5). Scenario building models invite a critique of how different views of e-portfolios, and of technology, could affect learning spanning both formal educational contexts and informal lifelong learning contexts (Stefani et al., 2007). Informal learning and lifelong learning take account of learning that spans time, and includes long term vocational needs, citizenship and other dimensions to our social lives beyond formal education (Attwell, 2007). The notion of 'a preferred vision' is also a key aim of the environmental scan in the Australian e-portfolio Project (Hallam et al. p. 11). Furthermore scenario building begs the question as to whether multiple futures would be desirable. Milojevic (2005) and Brown (2005) for instance, caution that universal notions of benign technological futures are both risky and deterministic. Developing a critical view of technology related educational visions, these authors argue, is essential when researching the future. Accordingly, critical theoretical perspectives underpin the conduct of the environmental scan reported on in this paper.

Historical perspectives: The challenge of ownership digitalisation and what technology changes

Much of the literature debates the benefits of e-portfolios for reflection, relating this to the conditions under which ownership and control varies. This history extends back to the early period of written portfolios in education in the 80s and 90s (Yancey & Weiser, 1997). The tension between assessment purposes and e-portfolios as enablers of learning and reflection is widely debated (see Butler, 2006 for an extensive review). Barrett and Wilkerson (2004) suggest this can be resolved by being more specific with what e-portfolios refer to. They propose calling what is associated with assessment and accountability the 'Assessment Management System' and leaving the term e-portfolio to that which is associated with planning and reflective processes in learning and how one showcases their learning. This position arose out of Barrett's experience as a leader in the field initially supporting federal initiatives involving the use of e-portfolios in U.S. teacher education institutions to meet reforms around graduating teacher standards. E-portfolios were becoming increasingly database driven in order to bring some technological efficiency to how the institution's credentialing requirements were met. The image here is of sophisticated software-templated processes that ease the use of eportfolio production to the point where their potential for reflection is seriously compromised (Kimball, 2005). Hence there have been numerous debates over the

last decade whether institutionally controlled systems whilst clearly being electronic, are not necessarily utilising their conceptual digital affordances in ways consistent with learning portfolio goals. Initially solutions to students maintaining control were found by using generic software tools (Gibson & Barrett, 2003). In recent years, Barrett has found further solutions to these tensions involving the degree of learner control and amplifying spaces for reflection and transformation through engagement with Web 2.0 social media (Barrett, 2006).

Whilst Barrett emphasises the separation of the learning and accountability purposes, Dysthe and Engelsen (2004) believe there is a potential for a combined 'learning and assessment portfolio' which draw on social processes enacted within a community of practice (Lave & Wenger, 1991). They argue that "portfolios are mediating cultural tools, and the physical and cultural aspects of them are important, as well as the rules and routines and processes the portfolios are surrounded by and embedded in" (p. 243). Their study, although drawing from institutionally created e-portfolio systems, was concerned with how the technology had the potential to both reflect and disrupt dominant discursive practices. Their work on computer supported collaboration, and on understanding how meaning around identity and eportfolios are negotiated across communities of practice offered a taste of what impact Web 2.0 social networking tools might have if put to similar uses. Dysthe recognised this herself in the years following and began to draw connections between Web 2.0 and e-portfolios in more recent conference presentations (Dysthe, 2007).

E-portfolios role in transforming higher educational pedagogy

Sharing control as imagined in an ideal co-construction of e-portfolios, can be viewed as a form of democratized curriculum (Dewey, 1916; Doll, 1993). Critical theory when related to education represents the view that power is the central defining concept in matters of the curriculum, drawing attention to the political agenda (Doll, 1993; Freire, 1972; Illich, 1973). Few authors in the e-portfolio literature express a critical view in such a radical way. Exceptions are more common where discussions of e-portfolio and e-learning meet Web 2.0 and PLEs (Attwell, 2007; Stephen Downes, 2007; Fiedler, 2006).

Issues around accountability and credentialing by the institution have presented dilemmas in ownership and e-portfolio use. This includes the challenges in balancing their intended multiple purposes; similarly complex is understanding who is the audience (Gibson, 2006). Dilemmas are widely believed to have stifled e-portfolios potential for transforming higher educational pedagogy (Batson, 2007). Plater (2006) proposes a more contemporary and radical version of e-portfolio ownership that challenges the traditional notion of assessment and who owns the 'record of learning' (p. 73). He posits that advocacy and agency in respect to e-portfolios could be operationalised through the concept of co-ownership of the record. It is in this space which is open to the unexpected, and where students can affect the shape, content, meaning and use of the record, that Plater believes e-portfolios afford a catalysing potential for change.

Increasingly it is believed e-portfolios will meet PLEs in virtual social space; networked learning spaces that cross institutional boundaries and time, and where it is accepted "learning will take place in different contexts and situations and will not be provided by a single learning provider" (Attwell, 2007, p. 3). There is a tension though in how technological tools and services associated with the need to support learning are often seen as needing to sit inside institutional walled gardens (Fiedler, 2006). This tension begs questions about the relevance of the institution as it is currently understood. In contrast to heavy institutional ownership associated with credentialing purposes, it is progressively being seen more as it is the individual who needs to own their e-portfolio, using different dimensions that they develop to prove their record of learning, as they adapt and make constant shifts throughout what is expected to be a lifelong journey (Attwell, 2007).

It is widely acknowledged that the power and control associated with the assessment and credentialing face of e-portfolios can drive practice in both desirable and not so desirable ways, (Barrett & Carney, 2005; Ledoux & McHenry, 2006). In the conduct of this environmental scan insights have come from examining power in light of what emerging technologies afford, especially what opportunities there are for developing curriculum engagement through increased ownership and authenticity. Also being illuminated are the nature of connections to richer personal and social learning conditions. The research question that arises from these considerations is 'What possibilities do educators see digitalisation offering to education, especially Web 2.0 technologies, and their potential to support e-portfolio initiatives?' In addressing some of the issues of power identified in the literature, this research also asks if leading educators have a sense of how it might look like when shifting from institutionally situated e-portfolios into a Web 2.0 view.

E-portfolios or PLEs: mediating tools and learning spaces

It is only in the last half decade that research is beginning to appear around the use of Web 2.0 technologies. It would appear that as yet very little has been framed around the concept of PLEs as an extension of the e-portfolio concept. It is clear that Web 2.0 enables the learner to 'pull' from multiple feeds, whether web dialogues (i.e. blogs), wikis, Facebook, library or course feeds, the content and dialogues that they see as useful to follow and contribute to in their own learning. From an evolving vision of e-portfolios perspective, what is important is how this opens up possibilities for engagement in curriculum of a different form; for example, the development of self and professional identity through authentic participation across distributed communities of practice (Dysthe & Engelson, 2004; Attwell, 2007). This suits a more integrative view of curriculum, and presents challenges for institutions who wish to follow more of a 'push' only curriculum based on the collection of tightly prescribed course outcomes (Roder & Hunt, 2008).

Despite the democratised promise of the early days of the Web much of the first wave of web digitalisation had the opposite effect, offering knowledge producing institutions more way to control their students, learning and curriculum (Roder & Hunt, 2008). As has been discussed, efforts in digitalising the use of portfolios in higher education have risked similar institution centric controls and subsequent loss of engagement. Tosh, Light, Fleming and Haywood (2005) argue relevance, participation and ownership are the key challenges. They posit that if students do not "agree or wish to use the e-portfolio as an integral part of their educational experience, then the potential impact the e-portfolio will have on learning will not be realised" (para. 1). Drawing from the literature on ownership and engagement in learning the researchers found that students felt "the e-portfolio did not feel like 'theirs' but rather the institutions." (Tosh et al., 2005, Sampling, para 6).

Tosh collaborated in other research that investigated concepts of ownership, life-long and life-wide learning engagement reconceptualising e-portfolios (Tosh & Werdmuller, 2004). This project saw alternative exploratory frameworks for e-portfolios being constructed as part of 'online learning landscapes'. It was an early move in the evolution of what is now widely described as the PLE or 'personal learning environment'. Likewise Siemens (2008) also links e-portfolios with PLEs. He argues that the two elements provide an opportunity to pull formal and informal learning together in a manner that can still provide accreditation as in traditional educational models. He adds that "E-portfolios have great potential, but little uptake. Personal learning environments have similar potential, but the concept is a bit difficult for educators to grasp" (Siemens, 2008, para. 1). A key to Tosh and Werdmuller's concept is the match between contemporary sociocultural views of learning and the ethos behind emerging social Web2.0 technologies. Arguing for spaces that invite community, personal connection and feedback, they suggest that "the e-portfolio should follow the philosophy behind social networking tools such as LiveJournal and Orkut2" (p. 2). In 2009 more contemporary examples would be Google Blogger, YouTube, WikiSpaces, and Facebook.

Carmean and Christie (2006) make the case for ownership by way of more public / private containers for e-portfolios. This would enable them to be accessed across curriculum, time and spatial boundaries, and to be used as tools and spaces for knowledge creation. Although not directly commenting on Web 2.0 affordances or PLEs the potential match is there. It suggests an emerging pattern resulting from the ubiquitous nature of digital computing production tools and repositories. Several authors recognize it as reaching a critical tipping point for not only e-portfolio futures but also broader e-learning futures (Roberts et al., 2006; Stefani et al., 2007).

Attwell (2007) adds to the debate on engagement arguing "ownership is a complex issue" (sec. 3.1, para. 2). To be responsive towards increasing student-centric forces in higher education Attwell believes that there needs to be more than "just the personalisation of learning but a relaxing of control of institutions" (sec3.1, para. 1). In linking e-portfolios to standards and credentialing Attwell locates the means of verifying, moderating and accrediting with the institution whilst the learner retains ownership of the processes that involve recognising, reflecting and presenting or showcasing learning. He proposes that the processes of "planning, validating, assessing and recording learning may better be seen as a partnership between the learners and teachers, mentors and institutions." (2007, sec. 3.1, para. 3). Adopting this view Attwell sees the e-portfolio as a mediating tool between the institution and the student. As discussed previously, there is concern that institutional systems constrain in ways that are at odds with the goals of developing learner flexibility and autonomy leading to lifelong learning. Agreeing with Attwell it can be seen that the mix of e-portfolios with Web 2.0 technologies offers learners opportunities to bring their outside digital lives into their formal education. Attwell advises caution though. The potential in bridging this gap is more than learning the new technology. He argues for institutions to research the underlying

shifts in pedagogy required. What beliefs New Zealand educators hold around these sorts of principles has been a key concern of this research?

Fiedler contends the mainstream landscape of institutional approaches to e-learning technologies can “offer only a very limited range of possibilities for the design of authentic, challenging situations that could be described as open-ended and ill defined” (2006, Competencies, acquisition and advancement, para. 15). The solution Fiedler proposes is a reconsideration of the approach to centrally managed institutional tools and services. The strategy would be to reorganise and re-design the institutional landscape so that it is seen more as an equal player alongside the more informal external world of loosely-coupled social networking and media technologies (currently thought of as Web 2.0). It is this form of e-learning scenario that Fiedler promotes as having potential for learning in higher education and which enables the PLE, referring to it as the learner’s personal landscape of tools and services. Although appearing somewhat tool-centric Fiedler elaborates on this vision in a critical manner where beliefs about identity, the agency of the learner and the nature of curriculum are made visible. Fiedler predicts however that:

It is quite likely that centrally managed institutional landscapes of tools and services and their proponents will try to assimilate and thus largely neutralise the practices that have emerged around social software applications outside of formal educational settings. (2006, Concluding remarks, para. 3).

This review of the literatures suggests that there is a gap in the research around the development of e-portfolios in higher education which considers PLEs and the integration of Web 2.0 technologies. A starting point then for this research is to understand more about how leaders in teacher education and in wider e-learning circles perceive the future of e-portfolios in relation to changes brought about by digitalisation? Are leaders seeing connections to; futures that include evolving ideas of identity; emerging learning spaces that cross the formal / informal learning divide; new relationships to information, knowledge and knowledge production. Hence the survey was carried out of perceptions about about trends in digitalization, Web 2.0 and e-portfolios in the future.

Method

The mixed methods employed in this research adopted a pragmatic approach. The underlying strategy to the broad environmental scan this survey was part of involved methods that were both inductive and deductive. The search of the literature and wider scan of blogs, wikis and other websites took place throughout 2007 and early 2008. An adaptation of the author’s own PLE utilizing many Web 2.0 technologies was organized to collect and analyse RSS feeds from multiple sources. The environmental scan when seen as a whole could be considered as a form of critically informed bricolage (Steinberg, 2006) utilising both quantitative and qualitative methods. Themes that emerged from the literatures, including the web based environmental scan, helped determine the construction of the e-portfolio survey. Interpreting responses to the survey takes account of the context New Zealand lead educators are part of, how they perceived e-portfolios, locus of control, insitutional priorities, trends in digitalisation and links with Web 2.0. (n.b. not all elements are reported on in this paper).

A purposive sample was used which targeted two groups of people. The first group identified were educational leaders primarily responsible for teacher education programmes, or those coordinating large segments of teacher education courses. The second group selected was an attempt to access ‘knowledgeable people, i.e. those who have in-depth knowledge about e-learning, and possibly e-portfolios. A four page survey mixing Likert scale items with open-ended responses was posted to 80 potential New Zealand participants (N = 80). Returned surveys were converted to digital form and then coded. Space does not allow for a full copy of the survey. A brief summary of the questions and their form is offered here:

Page 1 - an open ended demographic section that offered participants the opportunity to identify their positions and responsibilities. Rating scales followed allowing participants to self-rank their experience of eportfolios, knowledge of the literature and maturity of use in their institution.

Page 2 – asked for participants to rate where the locus of control should sit on a continuum from learner to institution, in respect to various forms of portfolios: i.e. showcase; reflective / developmental; and credentialing Graduating Teacher Stds. (n.b. This section is not reported on here and forms the basis of a forthcoming paper).

Page 3 – rate how useful a list of thirteen Web 2.0 tools and functions would be contributing to e-portfolios, followed by a general self-rating of experience with Web 2.0.

Page 4 - an open ended section that asked four questions:

- *Item 7:* What are the three main benefits made possible by the digital nature of an e-portfolio?
- *Item 8:* What are the main imperatives you see for teacher education arising from living and learning in an increasingly digital society?
- *Item 9:* What is your personal view for e-portfolios in teacher education?
- *Item 10:* What major trends do you believe will appear over the next 3-5 years in the use of e-portfolios in teacher education?

Analysis of findings

Total number of respondents providing usable data (N = 34) representing a return rate of just over 40 per cent. From the demographic information it was established that there were some respondents not currently working in teacher education but had worked in the field (N = 1) or were in the discipline of education and had links with teacher educators and had made it into the sample because of strengths in e-learning and e-portfolios (N = 2). A small number of surveys were filled in anonymously. (N = 4), where only one of these had minimal supporting background information. Three broad categories that describe the nature of each respondent's current leadership roles and focus were derived from the information provided and from a web search of staff profiles, research interests and institutional responsibilities: Gp.1 coordinator/programme leadership (N = 13); Gp.3 e-learning and / or e-portfolio leadership (N = 10); Gp.2 playing a mix of both roles in their institution (N = 11). The overall sample split in half in response to the question of whether they had anything to do with e-portfolios in their current responsibilities: Yes (N = 17) No (= 17). It is acknowledged that there is a degree of subjectivity in maybe 2 or 3 of the classifications, particularly in respect to Gp.2.

Table 1: Experience of e-portfolios, of the e-portfolio literature and maturity of the institution

Qn	Criteria	Low						High
		0	1	2	3	4	5	6
1b	Experience of e-portfolios	3	8	12	9	0	2	0
1c	Knowledge of e-portfolio literature	1	10	7	7	7	2	0
1d	Maturity of e-portfolio use in your institution	4	10	10	4	5	0	1

Personal experience and knowledge of e-portfolios and maturity within institution

Only a very small group had no experience of e-portfolios (N = 3). Approximately one third self-rated either 0 or 1, and similarly close to one third rated themselves as 2 (N = 12). Closer to one quarter rated 3, neither low nor high (N = 9). Of note is that only a very small group believe they have experience of e-portfolios in the higher range (N = 2). It is clearly early days for most respondents. Analysis of Qns 1b, 1c and 1d was also cross referenced to roles of the respondent. The lowest means in regard to both experience with e-portfolios and knowledge of e-portfolio literature was for Gp.1 the Coordinators, ($M = 1.54$) and ($M = 1.92$) respectively. This could be expected. What is worth noting is that Gp.3 the E-learning leadership group are not necessarily strong in experience of e-portfolios or knowledge of the literature ($M = 1.80$) and ($M = 2.30$) respectively. Considerably higher ratings are reported by the intersecting group Gp.2, ($M = 2.80$) and ($M = 3.20$) respectively. One explanation is that the interest in e-portfolios grows if the respondent has a programme coordination role as well as having developed an e-leadership role.

The criteria for usefulness has been given a scale from 1 to 5 for the purposes of calculation. The category "Don't know what this is" is treated as missing data for purposes of calculation and representation in tables. Conducting a discussion around each item is not seen as helpful here. There are however a number of features that stand out. Firstly, relatively few items have high "Don't know" ratings (N = 3). They are items 5g (N = 9), 5h (N = 9) and 5m (N = 9). Many of the rest of the items are either self explanatory or can be connected with well known examples given of the technology, e.g. Facebook, whereas item 5g for example deals with social bookmarking, and could be said to be more obscure.

Secondly, the criteria have been grouped according to three constructs developed from the literature and the broader environmental scan:

Table 2: Web 2.0 experience and how useful it is seen for future utilisation of e-portfolios

Qn 5.		Indicate how useful the following tools and functions would be when utilising e-portfolios. If you are not clear about what is being referred to please tick the 'Don't know' column.					
	Don't know what this is?		not useful	slightly	moderately	most-ly	strong-ly
5a	2	Authoring wiki space like Wikipedia to collaborate on the creation of group artefacts	1	4	12	10	5
5d	1	A community space similar to Facebook or MySpace to critique, share and discuss	1	2	17	5	8
5g	9	Social bookmarking features as with Del.icio.us to share websites found along with sharing of personal notes and organising tags	0	7	11	3	4
5j	0	Ability to determine who sees different artefacts & elements of e-portfolios – audience view	1	1	7	4	20
5b	2	Tools for capturing links to digital material and adding own notation – e.g favourites, bookmarks, and clipping tools like Zotero	1	0	10	8	13
5e	3	Ability to create tags, group together and categorise artefacts	0	3	10	5	13
5h	9	Conceptual mapping tools to create and reveal relationships between artefacts and one's sorting - e.g. visual folksonomies like 'Tag clouds'.	0	0	6	7	12
5k	4	An ability to create and annotate a search record of one's research strategies	0	4	8	8	9
5m	9	An aggregating tool like iGoogle, Net Flakes or MyMoodle for collecting RSS feeds and updates from libraries, journals, blogs and other sources	0	4	6	9	6
5c	2	Integrated personal media organiser to aide reflection on artefacts, and processes for utilising artefacts	0	1	9	4	18
5f	0	Personal blog or e-journal – could be either private or public	1	0	9	7	17
5i	4	Digital narrative and storytelling tools	0	1	6	14	9
5l	2	Personal development planning tools – graphic organisers for linking goal-setting and reflection	0	1	6	9	16

Group A: 5a, 5d, 5g, & 5j - have a stronger sense of a social collaborative dimension.

Group B: 5b, 5e, 5h, 5k, & 5m are technologies that enable personalization and connections to be made with resources; they include analytic tools, and the ability to keep records of the processes used or learnt.

Group C: 5c, 5f, 5i, 5l include journals, narrative spaces, planning and personal media production tools.

The robustness of these categories is contestable particularly in the distinction between Groups B and C. All the same, the collaborative nature of the items in A is featured in the description and a pattern seems to emerge separating this group. Group A as the more obvious collaborative and social side of social media is seen as less useful ($M = 3.60$, $SD = 0.59$) than Groups B ($M = 3.96$, $SD = 0.72$) and C ($M = 4.18$, $SD = 0.67$). What makes this pattern more striking is that item 5j is largely concerned with individual control and as such does not fit what was originally intended in these groupings. Ratings for this item have one of the highest means of all ($M = 4.24$). If this item were to be removed from Group A then the mean of the remaining categories which are definitively collaborative would be lower again ($M = 3.37$). This appears to suggest that an understanding of knowledge as distributed, or learning as socially enacted, is not seen to afford as many benefits for e-portfolio use as the more individualistic face of Web 2.0 technology. Even so the learning potential from social interaction is still clearly recognized.

Item 6. How would you rate your own experience of Web 2.0?

'No experience' is given as 0 and 'Very experienced' as 6.

Table 3: Experience of Web 2.0

Rating scale	0	1	2	3	4	5	6
Experience of Web 2.0	9	2	7	6	5	3	0
Experience bands	Nil or almost nil		Moderate user		More experienced user		

Approximately a third have rated as no experience or very little. More than a third have chosen the lower middle ratings 2 and 3. The remaining eight respondents, less than a quarter of the respondents, have chosen upper middle ratings, with no one seeing themselves at the maximum level of very experienced. These bands have been employed for some exploratory investigation on whether experience makes a difference to how useful varying mixes of Web 2.0 tools and functions might be seen. Experience overall

is not high ($M = 2.18$, $SD = 1.66$). However, if 'Don't knows' are taken out, and aggregating the list of Web 2.0 technologies into a single whole, there is a strong perception that they are useful when utilising e-portfolios ($M = 3.92$, $SD = 0.66$).

The final page of the survey explored perceptions of digitalisation, e-portfolio visions and future trends. The first notable observation is that there was very little explicit reference to emerging Web 2.0 influenced e-portfolio practices. This is despite the respondents' generally strong perception of Web 2.0 technologies being useful in this context. One explanation is that the nature of the Web 2.0 relationship has not yet reached a level of consciousness where it can overcome concerns such as the risk of technicist approaches to graduating teacher standards. Another reading of this might be that the question of Web 2.0 and PLE trends could have been signalled more explicitly in the survey, although this was also identified for participants in the covering letter.

Item 7 sought participants understanding of what the digital nature of an e-portfolios affords. Responses picked up on: "ease of accessibility;" "transportability;" "ease of organisation;" "potential for more crafting and editing." Utilising the digital feature of editability was also seen as affording repurposing as seen in these comments: "Able to rejig for different audiences e.g. employer view". The perception that digital affords richer media options is evident in comments like "Inclusion of multimedia, hyperlinks etc".

Digital accessibility also took the form of what it offers in the social learning sense as shown in these comments: "Capturing, linking and sharing"; "Community engagement that set up a sense of teaching as a shared practice"; "Connectedness with other group members and professionals enriching communication. And as a refinement on ownership and community audience it was stated "The ability to share (and to control sharing)." These are dimensions that show potential shifts towards virtual social spaces for learning.

Connectedness, portability and the notion that activities involving e-portfolios can be lifelong and cross beyond institutional borders over both space and time appeared in responses like these: "Web presence for life;" "A more global approach to information generation."

Related to PLEs the notion of community space and networks is picked up in this response: "The ability to develop a network." There was one connection explicitly made to a form of digital space that stressed the link between e-portfolios, ownership of a personal learning space and which promotes more control of learning:

An individual student learning space – that is - a space which is entirely managed by the student. Where a student sets up her own learning environment and is able to develop her own portfolio over the length of study.

The focus in Item 8 was to determine linkages around changes in society brought about by digitalisation and what this might mean for our views of education, and more specifically teacher education. Responses to this question fell into some half a dozen themes with variations reflecting different understandings of the nature and impact of digitalisation. Themes that appeared in more than a third of the respondents' comments included the move towards more skills with the technological tools: "Being adept with the tools." A variant on this was the call for more integration of e-learning into programmes: "To actually use ICT! In most teacher education programmes I am aware of ICT is an add on, not an integral, integrated, essential part."

The notion of cultural difference was conveyed in a response that gave the sense that children and young people might have skills and knowledge their teachers (and future teachers) may not be very aware of, and that this needed addressing now: "To get with it! To help reduce the lag between digital natives (chn we teach) and the teachers we prepare (digital immigrants)." "Understanding children / students & their worlds." A call that applies as much to tertiary students as younger learners was made for teachers (tutors and lecturers) to understand the world through their learners' eyes and develop experience of the digital world as they know it:

It can't be ignored. Our children don't differentiate between what we have now and the past. Our teachers need to be part of the children's "known society" to capitalise on learning / teaching opportunities.

From an e-learning specialist came this comment which questions our image of learner and teacher roles: "Keeping up! Accepting that students can know more about technology than the teacher in some areas

and students can learn from each other.” A similar comment seemed directed at teacher educators as much as preservice teachers: ? “Open-mindedness about “the new.” It could be argued that these calls for student teachers to engage in this rapidly transforming world reflected a moral imperative to shift in order to know our learners. Only a very few went on to stronger critical perspectives. The following comment being a strong example of a critical literacy take on knowledge production in emerging networked social spaces:

The increasing globalisation of knowledge means that ‘knowing’ is never fixed – it is shiftable and contestable. Students may be able to comment on, draw links with or critique others’ ideas and work.

Other examples of critical pedagogy appeared in some third of the responses: “Modeling reflective & critical approaches to technology and its use.” Dialogical perspectives were also expressed: “Being part of the global educational world to make a difference in student learning.” Personal agency and the nature of such a curriculum also appear in the connections made by this respondent:

The influence that a digital society has on the nature of teaching and the increased independence learners will have. To ensure that a digital society works to empower individuals and serves to provide a critically informed and liberated society rather than a mechanism for deprofessionalisation, regimentation and prescription.

Further critique of educational systems called into question the means of production in teacher education suggesting digitalisation had a potential to affect the status quo:

A shift from the production / ownership / outcomes / assessment / evidence-based modes of teacher education to flexibility; dialogue; attestation and mentoring. Rollover Beethoven.

A final comment from this item cautions the need for insight into the problems that often accompany utopian visions of technology. Their list included some understanding of these tensions:

Technoliteracy (Lankshear, Knobel et al...) ... avoiding a technology is neutral thesis. Not over valorizing the past, present or future. [Reference is in respondent’s comment].

Item 9 asks for personal views of e-portfolios appeared to be read as a chance to say how positive or not respondents felt about e-portfolios. It was intended to open up space for the respondents’ vision. In a few cases it achieved this. In two cases it drew attention to e-learning and the benefits of Web 2.0., talking about blogging as part of reflective practice and opportunities for peer feedback. The strongest link between e-portfolios, Web 2.0 and PLEs was made in this comment “I encourage all teachers to try various web 2.0 tools and find what works for them and for each of their students (note that this will not be the same).”

Item 10 which asked for predictions around trends, largely missed its visionary opportunity. Instead responses leaned towards the clear perception of an increasing e-portfolio presence, and caution around accountability tensions and graduating teacher standards. One of the more interesting comments appeared in a response about identity spaces suggesting more “Links between personal & professional material and audiences but not a complete overlap. Review of concepts like ‘public’ & ‘private’.” There was the deceptively simple proposition that sums up much of what we don’t know and what we can’t know yet... “E-portfolios – new uses!!!”

Concluding remarks

An important goal of an environmental scan is to enable informed predictions about the future. Pedagogical shifts in the role of the teacher and in the role of the learner have all made their appearance in both the survey and wider scan of the e-portfolio and ‘e’ landscape. What new tools, learning spaces, communities, ways to communicate, relationships with information, views of self and personal identity, are impacted by our engagement with these digital forms of technology? How do we see and understand what recent developments in Web 2.0 really change? How do we see past the technology to the cultural practices that are being transformed by their use, for better or worse; important questions in the context of the ‘e’ness of e-portfolios.

Overall those surveyed are seeing, and wanting, forward movement with e-portfolios. Most respondents have begun developing their own experience and knowledge. Some are well advanced. It also appears

that most institutions have initiatives in place, though many of these may only be pilots at this stage. Overall it seems that respondents see themselves at relatively early stages of their own growth. There are exceptions. Most appear aware of new possibilities for creating and authoring that have changed as an effect of moving to digital media. Responses indicate Web 2.0 technologies only now appear to be coming to the attention of teacher-education leaders. When specifically asked there is relatively strong support for contemporary uses of Web 2.0 and their place in future endeavours involving e-portfolios, although for some what this entails is clearly unfamiliar.

What about those who had high levels of experience? Those respondents with strong e-learning roles are already utilising Web 2.0 technologies. The small presence of respondents rating themselves at the high end suggests a pattern of 'innovators' and 'early adopters' that is common in technology related innovation (Rogers, 1995, as cited in Sherry, 2002, p. 214). The 'late majority' (p. 213) Rogers posits are unlikely to adopt a new innovation until a critical mass builds. This would include perceptions of how e-portfolios and Web 2.0 innovations align with other systemic factors, particularly conditions for implementation. As Feng (2006) argued implementation issues with e-portfolios have overshadowed consideration of implications. Although the intention of this study was to envision e-portfolio futures in terms of digitalisation and curriculum change, Rogers's diffusion of innovation theories help explain why many respondents found it difficult not to talk about standards reforms, manageability and institutional capacity constraints when discussing their visions of the future.

The tension between e-portfolios used for gatekeeping, and a student teacher's need to drive their own learning, signalled some of the complexity in respect to the moral and ethical nature of education and curriculum. Was this widespread? It was certainly evident throughout numerous comments that showed some questioning of what knowledge is being validated. The desire is there for students to be able to situate themselves in the centre of these processes. Overall though for most respondents, it did not seem to go very far in shifting the traditional view of the teacher, the learner or the institutional role. There were some calls for development of students' personal learning spaces and for teacher educators to get 'with it'. References to PLEs using related terminology were not very evident. Deeper comments on what was being transformed by Web 2.0 were only made explicit in a few cases, despite Web 2.0 technologies generally being seen as having potential. Making connections in a critically informed way about Web 2.0 technology was evident in a handful of cases but not strongly evident across the sample. Many acknowledged the newness of these arenas, their own experiences in e-learning, e-portfolios and Web 2.0. Perhaps a constraining factor in thinking about opportunities to develop new pedagogical practices involving technology is the tendency for cultural practice to be obscured by the technology itself. This also reflected limitations in the survey in trying to capture and articulate complex phenomenon and relationships.

The initial environmental scan convincingly demonstrated that our relationship to data has changed. For one author digital access through his own PLE was a stark reminder of how academic life has turned digital and it has everything to do with e-portfolios. The answers to the future are happening around us as the ways of developing and representing self, and interacting in community, are not just evolving, but are facing a digital revolution. The border between real and virtual is blurring and there are crucial roles for educators in negotiating these changes. Both the survey and the broader scan found that there is a constricting dualism around e-portfolios. The dominant framework in which arguments for increasing learner agency and their counterarguments are located is somewhat narrow, and should be challenged in order for it to move beyond limiting conceptions of e-portfolios. Web 2.0 offers tools and transformative learning spaces that fit well with more ambitious notions of e-portfolios as narratives, dialogues and sites for identity formation. In the scan of web sources and literature, a new guise for enabling agency appeared which involved learners who engage both with and through social media, and are connected by their social networking sites. The scan pointed towards the notion of the PLE made possible by rapidly evolving Web 2.0 technology that is transforming our relationship to information and communication. It is also in these spaces where the means of knowledge production is shifting and more open-ness is valued, and thus our conceptions of agency and control are being challenged.

There is a risk that being more connected to information, more able to participate in multiple communities, more able to capture and subsequently revisit the archive of one's experiences, and becoming more instant will lead to just being more overwhelmed. This was a small theme echoed in the concerns of one respondent who worried how critical students are as 'neophytes'. This may however be the basic difference between informal learning in a Web 2.0 world, and current approaches to formal educational structures. The wealth of access and connectedness could act as a catalyst for educational transformation in formal education. Students through their own social media experience may take a stronger part in the vanguard leading change. Much social networking experience however does lack

critical perspective and this creates risks. Acceptance of these changes requires a defining of alternative roles where educators support through co-participation a level of criticality in which students (and lecturers) navigate these spaces. It would both require and enable new ways for faculty to engage and facilitate the learning potential of Web 2.0. The goal would be to stimulate pedagogy, dialogical depth and more critically reflective experiences of community. Space to develop pedagogies involving PLEs sits at the nexus of Web 2.0 technologies, digital cultural practices and the e-portfolio endeavours of lifelong education.

Within the survey the theme of responding to ‘digital kids’ and ‘digital natives’ (Prensky, 2005) was articulated by a number of leaders. The limits of this concept were not critiqued strongly by respondents. There were however both inferred and explicit messages that we needed to prepare teachers for this generation (and by association lecturers), and that the traditional paradigms have already changed. E-portfolios it would seem will play a part in these futures. It is not clear though whether this will be in ways that acknowledge the potential for transformed learning Web 2.0 brings. Will these futures bring curriculum and pedagogical change that bridge the disjunct between formal / informal learning as in what is happening with Web 2.0 social media? As one of the survey respondents expressed it, this will require “flexibility in development, amendment and [even the] sharing of distinct multiple personal identities”. It seems it would also depend how much the purpose will be to replicate existing social order and forms of knowledge production, or how far educators are prepared to open up these spaces. It has been argued in this paper that integration of e-portfolios with democratised Web 2.0 practices, and as part of a broader PLE connecting both personal and professional identities, would be a strong move towards increasing openness and flexibility in education.

The development of professional identity is already taken seriously in teacher education, but just how well it is understood through digital eyes is not very clear. Web 2.0 technologies and their future iterations will be integral to social life in the professional sense, just as documentation with word processing and communication by email are understood now. Technological transformations themselves however may not lead very quickly to shifts in educational paradigms. How will leading educators determine when the digital world has arrived to such an extent that is no longer seen as an alternate reality?

In answer to the question “How do educational leaders perceive the future of e-portfolios in relation to changes brought about by digitalisation”: It is clear respondents sense this change. It is also clear that whilst acknowledging their potential, they largely understand the need to be critical. There are responses that demonstrate New Zealand leading educators have deep roots to draw from when engaging with change, as would be expected. If looking for alignment with the conference theme ‘Same place different spaces’ there are largish numbers in this the sample of educators who lead programmes and core professional papers, who do not have strong experiences of Blended-Space, Virtual-Space, Social-Space or Mobile-Space. There are some with no insights into what these spaces look like. It seems likely this will have biased their perceptions. It also begs the question of how possible it is to critique e-portfolios in forms which are evolving towards Web 2.0, or those built around the concept of a learner’s own PLE if we are yet to take part in the revolution. This could be direction for further research where more detailed demographic data is collected around variables such as age, years as a teacher educator and experience in leadership positions. Understanding more about the kinds of Web 2.0 experiences that are being enacted personally, and whether anything similar is being engaged with in the context of e-portfolios, would be useful in illuminating issues. A further recommendation arising from this study is the promotion of future leadership activity where teacher educators feel more able to identify as learners and participants within these emerging learning spaces.

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