E-nabling e-portfolios for skills recognition of Aboriginal Artworkers in Central Australia

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Abstract

Recent research by Hallam, Harper et al (2008) identifies the need to develop standards and pedagogy to effectively integrate e-portfolios into teaching practice. However, there continues to be wide discussion about the role for, place, use and management of, and standards needed for e-portfolios. Investigation into issues such as interoperability, user and assessor training, support, access and privacy remain ongoing (Curyer, Leeson et al, 2007).

This paper will provide an overview of a year-long journey with Desart, the Association of Central Australian Aboriginal Art and Craft Centres and an initial cohort of twelve Aboriginal Artworkers in investigating the potential for using electronic tools for skills recognition with Aboriginal Artworkers in Central Australia. This opportunity comes as a Northern Territory Flexible Learning Innovations Project funded by the Australian Flexible Learning Framework. With the Federal and Territory governments' focus on creating sustainable Aboriginal employment and economic futures, Art Centres are an important part of the agenda. A significant outcome of this project has been the industry-wide adoption of these tools from what has traditionally been the domain of training providers and some individual employers.

This paper will present a review of the key determinants for such an outcome and provide some insights into working with Recognition of Prior Learning, Recognition of Current Competency, Employability Skills and e-portfolio software and the practical issues this project has raised for their use. Project outcomes have suggested ways an e-portfolio

approach to skills recognition and evidence/artefact collection can contribute to improved industry engagement in gap-analysis and training negotiation.

Introduction

E-portfolios have the potential to advance and enhance the formal recognition of lifelong and lifewide learning of Aboriginal people. Advanced multi-media technologies afford e-portfolios a range of benefits beyond those of traditional paper-based portfolios. Efficient and effective maintenance, storage and accessibility, ability to present artefacts using a range of media and a multiplicity of organisational modes are just a few of their characteristics. However, issues of reliability, validity and authenticity, storage, security and privacy, interoperability, and the need for the access to technology and the literacies and skills to use it, remain inherent concerns.

Current practices and trends in e-portfolio systems and implementations were recently reviewed by Curyer, Leeson et al (2007). Similarly, the current use of e-portfolios by university students in Australia has been presented in the final report of the Australian ePortfolio Project (Hallam, Harper et al, 2008). However, very little is known about their application in the context of Aboriginal learners.

This paper presents an application of e-portfolios in an Aboriginal context, and in the context of the Central Australian Aboriginal arts and crafts industry. However, its broad findings have applications across other industry sectors. The paper provides an overview of a year-long journey investigating the use of electronic tools for skills recognition with Aboriginal Artworkers in Central Australia. The Federal and Territory governments' focus on creating sustainable Aboriginal employment and economic futures puts Art Centres 'centre stage' in this agenda. Traditionally there have been very few Aboriginal people employed in administrative positions in Central Australian Art Centres. As late as September 2007 there were 13 in an area involving 43 Art Centres and as many as 2,500 artists.

A significant outcome of this project has been the industry-wide adoption of these tools from what has traditionally been the domain of training providers and some individual employers. A review of the key determinants for such an outcome is presented. Practical issues and insights are provided as they relate to Recognition of Prior Learning, Recognition of Current Competency, Employability Skills and e-portfolio software. Project outcomes have suggested ways an e-portfolio approach to skills recognition and evidence/artefact collection can contribute to improved industry engagement in gap-analysis and training negotiation.

Background

Young, Guenther et al's 2007 report '*Growing the desert: educational pathways for remote Indigenous peoples*', provides the most comprehensive overview of the state of vocational education and training (VET) and adult and community education (ACE) for Aboriginal people across desert Australia. Desart, the Association of Desert Aboriginal Art and Craft Centres (http://www.desart.com.au), was showcased as an example of innovative practice, implementing an information technology training and support initiative that not only provided a framework for e-commerce activities for art centres, but facilitated online access for a range of education and training purposes.

In August 2008 the Australian Government released its response to the senate enquiry into Australia's Indigenous visual arts and crafts sector (http://www.arts.gov.au/indigenous/senate_inquiry). The second recommendation highlighted the need for continued development of work skills linked to employment opportunities and the need for tertiary institutions to work in partnership with the industry to ensure flexible opportunities for training are available to current and prospective Art Centre Managers and employees.

The Desart Strategic Plan 2008-2010 lists under the goal 'More jobs for Aboriginal people: increasing the employment of Aboriginal artists and Artworkers in the industry', the introduction of the new initiative, the Aboriginal Artworkers program. Desart's goal

is to have a minimum of 60 participants engaged in this program within 3 years. Desart acknowledged that before any new training initiatives were developed and/or commenced as part of the 'roll out' of the Aboriginal Artworker Program, previous formal and informal training needed to be captured in the form of Recognition of Prior Learning (RPL), Recognition of Current Competencies (RCC) and Employability Skills. Prior project experience led Desart to seek to work with the author on the development of appropriate skills recognition processes, including recording and storage of artefacts/evidence for assessment of Aboriginal Artworkers against a Certificate III in Art Centre Administration. A decision was made to use e-tools to support skills recognition, evidence/artefact collection, storage and assessment, and to assess the suitability of these for Aboriginal Artworkers in Central Australia.

Literature review

E-portfolios

Artists were most probably the first people to create portfolios of their work - photographs, work samples and supporting documents to showcase their skills and abilities to others. Since the mid 1990s, technology has facilitated the advent of the e-portfolio (also known as by such terms as electronic portfolio, ePortfolio, efolio, digital portfolio and webfolio). Technology can facilitate improved storage and accessibility, increases the capacity for self-assessment and reflection, enables the explicit documentation of the development of student knowledge, skills and attributes, facilitates communication between creator of the portfolio and teachers/trainers/lecturers, peers, mentors, employers, family and friends, and, promotes lifelong career development.

Many authors have suggested typologies for e-portfolios. Greenberg (2004) proposed the 'Showcase', 'Structured' and 'Learning' e-portfolio. The IMS Global Learning Consortium has identified six major types of e-portfolio; Assessment, Presentation, Learning, Personal Development, Multiple Owner and Working (IMS, 2005); whilst the UK based Joint Information Systems Committee (JISC) outlines four main types:

Supporting application; Supporting transition; Supporting learning, teaching and assessment; and, Supporting personal development planning (PDP) and continuing professional development (CPD) (JISC, 2007).

McCowan, Harper et al (2005) provide an overview of the field of e-portfolio development in Australia and in particular the development of the Student e-Portfolio developed by the Queensland University of Technology (QUT). Butler (2006) undertook an extensive review of the literature at the outset of a project funded by the New Zealand Tertiary Education Commission's e-learning Collaboration Development Fund that has been charged with the development of an electronic portfolio application for the New Zealand tertiary sector. On review of the literature, Chou and Chen (2008) found that it remains unbalanced, with most research articles about e-portfolios based on application in teacher, medical and nursing education. They also reported that empirical studies are few, even on review of the recently published Handbook of EPortfolio Research (Jafari and Kaufman, 2006).

Current practices and trends in e-portfolio systems and implementations were recently reviewed by Curyer, Leeson et al (2007). They summarise that although their use is growing, there remains varying views on what e-portfolios are and should be used for. Butler's (2006) review of the literature on portfolios and e-portfolios suggests a similarly diverse range of perspectives. Although suggesting a national approach is required to realise the interoperability goals of e-portfolio approaches, Curyer, Leeson et al (2007) note that this may also reduce the speed of their development. Their findings support a standard approach to RPL and suggest that e-portfolio services could facilitate this outcome. The case scenarios presented in this report place the learner as the owner of their e-portfolio. Similarly, the current use of e-portfolios by university students in Australia has recently been presented in the final report of the Australian ePortfolio Project (Hallam, Harper, McCowan et al, 2008). The recommendations presented in the report recognise that e-portfolios can contribute to the implementation of government policy seeking to stimulate integration between VET and Higher Education in order to support increased innovation and productivity. E-portfolios can support an engaged and

productive workforce through the drawing together the different elements of school and tertiary education, graduate attributes, employability skills, professional competencies and lifelong learning. However, there remains disparate understanding between potential 'end-users' of just how all the elements can be effectively articulated whilst having real meaning for the e-portfolio owner. Interoperability issues and the skills and knowledge required to conceptualise, integrate and support effective e-portfolio pedagogical practices remain challenges to the Australian education system.

Skills recognition

Recognition of Prior Learning (RPL) is both ubiquitous as policy and marginalised as educational practice (Smith, 2008). RPL is understood by educators, administrators and employers to be and do different things. Ultimately it has the ability to translate informal, non-formal and prior formal skills and knowledge into current National Competency Standards that can be expressed as part or complete Qualifications. Although a range of definitions do exist, most recently, Smith and Clayton (2009) defined *formal learning* as learning that takes place through a structured program of instruction and which is linked to the attainment of a formal qualification or award. *Non-formal learning* as learning that takes place through a structured program of instruction, but does not lead to the attainment of a formal qualification or award. *Informal learning* is learning that is not intentionally accessed by the learner, and thus is neither structured nor institutionalised. Whilst using similar definitions for formal and non-formal learning, Misko (2008) refers to informal learning as that acquired through everyday work and life.

Smith (2008) suggests that it is in the translation that we can find the key reason for the continuing low levels of reported 'upfront' RPL of national VET training delivery effort. Young and Guenther (2008, p.183) state that 'in desert regions successful VET delivery models depend upon embracing a suite of initiatives in which formal VET is just one aspect of the intervention'.

Confusion still surrounds the terminology of skills recognition. Recognition of Prior Learning (RPL), RPL as Recognition of Accelerated Progression, Recognition of Current

Competencies (RCC), Recognition of Informal Learning (RIL) and Credit Transfer are all part of the discourse. ANTA (2007), Hargreaves (2006), Mason, Perry et al (2007) and Smith and Clayton (2009) all provide definitions of these terms. For the purposes of this paper definitions given in Hargreaves (2006) apply.

> *'RPL is an assessment process that assesses the individual's non-formal and informal learning to determine the extent to which that individual has achieved the required learning or competency outcomes.'*

> *'RCC Is a term particularly used by industry and employers who regard the process as assessing and recognising a person's current capacity to perform.'*

> *'Credit transfer is an administrative process whereby, based on previous successful studies and qualifications, credit is allocated towards a new qualification.'*

In May 2005, the National Quality Council (NQC) agreed to support the incorporation of employability skills into Training Packages making employability skills explicit within Training Packages (Allen Consulting Group, 2006). The 2006 Department of Education, Science and Training guide for trainers and assessors reminded practitioners that assessment, like delivery, can occur in the workplace, classroom or via flexible arrangements. Unlike delivery, assessment can also occur through RPL.

The Allen Consulting Group (2006) report also suggests that students should be encouraged to voluntarily develop their own portfolios of employability skills to supplement the formal integrated descriptive reports of their achievements. 'Learners could continue to update their portfolio throughout their working lives, as they continue to develop different facets of employability skills in new contexts' (Allen Consulting Group, 2006 p.7).

A study by Mason, Perry et al (2007) was motivated by the potential for developing a national approach to supporting RPL with electronic tools such as e-portfolios. A summary of the key findings associated with the use of such tools for RPL in the Australian training system identified that current RPL practice had limited use of technology, that there were numerous impediments to the adoption of technology in RTOs and that there are jurisdictional differences between RPL systems and processes.

Smith (2008) cites that it is the recurring barriers and constraints identified in research reports that prevent 'upfront' RPL from exceeding four percent of the national VET training delivery effort. As evidenced in the recent report by Smith and Clayton (2009), the issues of complex and confusing language, complex and time-consuming processes, lack of awareness and the nature of the relationship between the institution and the applicant remain common themes to succeeding in the recognition of informal or non-formal learning.

Although Recognition of Prior Learning has been identified as an important means of engaging people with the VET system (Bowman, Clayton, et.al. 2003), Kemmis, Brennan et al (2004) identified that Indigenous clients still continued to access RPL and RCC at rates lower than non-Indigenous. Cumbersome and time-consuming procedures, lack of flexibility (timing and location), and poor attention to the cultural appropriateness of strategies and models of engagement on offer were identified as reasons for low uptake. Eagle, Woodward et al's (2005) paper, one of the few reporting specifically on the context of RPL and Indigenous learners, highlights the success of trialling online voice technology to record evidence for skills recognition and the use of the web to house the interactive space.

Case Study – E-tools for Artworkers

The industry-training provider partnership required for successful skills recognition was facilitated through the securing of 'E-tools for Artworkers' project funding through the NT Flexible Learning Innovations Program. This funding effectively enabled individuals

with skills and knowledge of the VET sector, training packages, institutional processes and e-skills to work side-by-side with those with skills and knowledge of the people, processes and operations of the Aboriginal Art Centres in central Australia.

Initial conversations were held with Artworkers from Irrkerlantye Art Centre and Tangentyere Artists in Alice Springs, Titjikala Art Centre and Gallery in Titjikala (1½ hours south east of Alice Springs), Keringke Art Centre, Santa Teresa (1 hour east of Alice Springs), Desart (Alice Springs) and Papunya Tjupi Art Centre, Papunya (2½ hours north west of Alice Springs). From these conversations we began to collect information about the prior formal and informal learning, work experiences, practical art skills and other art industry related expertise of the Artworkers.

Charles Darwin University (CDU) had recently purchased a licence to use Competency Navigator, an online RPL support tool (http://www.theworklab.com.au/index.php?option=com_content&task=view&id=126&Itemid=280), and individual logons were created for Artworkers and a picture began to emerge of the types of skills that many currently possessed or used every day in their job as we mapped learning against the Certificate III in Arts (CUV03). Using the Enterprise Version of Competency Navigator enabled the creation of a standardised job role for Aboriginal Artworkers, whilst still allowing the flexibility to customise the Units of Competency within this role. A key strength was to be able, for each Unit of Competency, to choose from an extensive list of evidence/artefact types to support each unit for which RPL/RCC was being sought (Figure 1). Competency Navigator provides a relational database that can be used to generate a number of useful reports. For example, we found most useful the ability to generate an editable version of the Recognition Report. It was this report that formed the basis for our second round of conversations with the Artworkers.

Figure 1: Identifying evidence for recognition (Competency Navigator Screen)

During this time we started to build individual e-portfolios for Artworkers and to upload the evidence/artefacts that we were collecting during our visits. We chose to use Skillsbook http://www.theworklab.com.au/index.php?option=com_content&task=view&id=113&Itemid=301, an open-source e-portfolio as it is free, relatively simple to use, and provided outstanding user-support. The project team designed a common template for information storage that would suit the current purpose and made the decision to centralise the management of the e-portfolios, at this stage, with Desart (Figure 2). We have also stored the evidence in a similar file format for each Artworker on a memory stick.

Figure 2: A standard Artworker e-portfolio format in Skills Book

Compiling Competency Navigator Recognition Reports provided us with the opportunity to cross check the evidence we had been able to collect with what was required for RPL/RCC (Figure 3). Where we did not believe that we had sufficient evidence, specific documents of the additional evidence required were compiled for the Artworker and Art Centre Manager and for Desart. Desart project staff then focussed on locating and/or collecting the additional evidence.

Figure 3: An editable skills recognition report in Competency Navigator

Substantial time was taken sourcing results and course outlines and Certificates from the range of providers/organisations with whom the Artworkers had previously studied. We sourced artist profiles, digital portfolios of art work and third party reports. We captured

all our conversations as MP3 audio files, took digital photos and videoed general Art Centre activities and role plays. We created an 'Art Worker Group' space on Skillsbook, a private email and communication space for those invited to join by the Group Manager, Desart. In the future, this space can be used by anyone involved in the Aboriginal Art Worker Program to talk to another Art Worker or to Desart.

The Competency Navigator software has the ability to generate training plans from the data entered for the skills recognition process. We edited these templates for each Art Worker, generating training plans resulting from our conversations and evidence collection. Desart used this information as the basis for putting together a 5 day Artworker residential conference in Alice Springs, during which training was provided in such areas as occupational health and safety, sales and customer service, credit card transactions, public speaking, and taking and editing digital photos. Twenty-eight Artworkers registered for this Conference, over twice the number of Artworkers we had been directly working with in the project. Future training will have a focus on upgrading Artworker computer skills. Although many are skilled at using their respective Art Centre databases (Artist Management System (AMS) and FileMakerPro), they have all expressed a desire to increase their knowledge of using email, the internet and advanced word processing functions. Personal and group e-portfolio spaces provide extensive opportunities for supporting the development of such skills.

Findings and implications

From an Artworker perspective the key benefits were the opportunity to share their stories with people who were genuinely interested in assisting them to have their skills and knowledge recognised and to be able to 'talk up' about the new skills and knowledge they want to learn in the future, a key point also identified by Smith and Clayton (2009). Collecting evidence on-site in the Art Centre with people and in the place that they knew was preferable to having to work through these processes in an institutional setting. The evidence gathered for their e-portfolios gave them an updated record of all their prior

formal, non-formal and informal learning collected in one place and the process provided them with an opportunity to move from training at the Certificate I and II Qualification levels to Certificate III. Using a range of media, including multimedia, for skills recognition avoided the need for large volumes of work written in English, and further provision of on-the-job training can be tailored to each Artworker's specific needs in their Art Centre.

> *"My qualifications were not fully completed but the units that I had finished were worth something. It feels really good to know that the work I do now can count towards a real qualification"*
> Aboriginal Artworker

In one of the few published papers on RPL specifically in Indigenous contexts, Eagles, Woodward et al (2008, p.9) state: 'It is clear from the responses of these learners that this model [using voice tools and webspaces] has significant potential to improve access to RPL for Indigenous people. It may well remove some of the barriers identified by Bowman et al (2003) for a range of learners'. Although no single barrier was identified as significantly affecting the implementation of RPL, Bowman et al (2003) identified poor client awareness and understanding, including confusing language, of RPL, poor RPL processes, particularly clarification of the evidence required and its assessment, perceptions of its relevance, and resourcing arrangements as problematic.

From an Art Centre Manager perspective the key benefits were that conversations and evidence collection were undertaken on-site thereby minimising the time Artworkers were away from their job. The process assisted to clarify and confirm the skills and knowledge of their Artworkers and any new training requested by Artworkers was identified in their training plans.

> *"Having Desart come out and regularly visit us on-site to listen to what we need in terms of training for our Artworkers is terrific, they can also see what is happening in our Art Centre and what training is possible for me to do on-site.*

Working together to collect the evidence that Artworkers need to show their skills makes in much easier than doing it on our own."
Art Centre Manager, Central Australia

From Aboriginal Artworkers and Art Centre Managers we learnt that Aboriginal Artworkers are interested in telling you what they know and what they can do, but it takes time to hear all the stories and get all the information they have to share and they prefer to do this in their own Art Centre. Artworkers need assistance to locate and deliver all the necessary evidence. Art Centre Managers are exceptionally busy and need the support offered by the Aboriginal Artworker Program and RTOs to realise their goals for their Art Centres and their staff. Similar levels of satisfaction with these types of support have previously been identified in a report investigating skills recognition and implementation practices within Australian enterprises (Blom, Clayton et al, 2004). It is essential to provide a copy of all the evidence collected in electronic form on a memory stick for the Artworker to review and to upload additional evidence as it is collected in the future.

From Desart's perspective the key benefits were the opportunity to work side-by-side with people who knew the Vocational Education and Training (VET) system and could listen to what they wanted and customise all aspects of the skills recognition process to their requirements. Involvement improved their understanding of the skills recognition process, evidence and evidence collection, online RPL and e-portfolios and how they can be used to support the Aboriginal Artworker Program. And importantly, it supported the implementation of a key goal in their Strategic Plan.

"This project has established an effective framework for Desart's Aboriginal Artworker Program to continue training and collecting evidence, knowing we are heading in the right direction to achieve outcomes that are relevant to people working in Art Centres."
Trainer/Mentor, Desart Inc

From an RTO perspective the key benefits were that working with an industry partner ensures that the VET solutions are demand-driven. The process provided time for RTO staff to focus on such tasks as customising qualifications according to the packaging rules, indentifying the requirements for skills recognition, evidence identification, customisation of the online RPL tool, report generation and troubleshooting problematic aspects of the e-portfolio software.

Desart was able to identify skills gaps for which they could support and/or facilitate appropriate training. This was on-going throughout the project with on-the-job training being undertaken by Art Centre Managers, Desart staff and during the week long Artworker Conference held in Alice Springs. In this way, Artworkers had the ability to provide additional evidence for their skills recognition leaving only whole Units of Competency to be gap-trained.

Desart will continue to be able to provide RTOs with a larger cohort of students requiring training in a few Units of Competency. Coordinating delivery in this way is much more effective and efficient from an RTO's perspective. Skills recognition is able to be undertaken by staff from the RTO at their desk without the need for repeated long distance travel to Art Centres. Desart staff are working with the RTO to support them as they navigate their way through the broad range of evidence collected for each Artworker. In time, this type of support will be minimal.

From the industry (Desart) and RTO perspectives we learned that working in partnership with industry in a project that is driven by industry and is supported by industry, takes much of the non-training related negotiation work away from the RTO so they can focus on what they do best. Key findings in the Guenther, Falk, Arnott et al report (2008) clearly support findings in this project. However, for this type of partnership to be successful, RTO staff need to work side-by-side with industry for at least one year and preferably two, to assist with the understanding of VET language and navigating and using the VET system. Staff must be prepared to visit and revisit to gain respect and trust. This can be a shared role between both industry and RTO, although an effective side-by-

side working relationship in the early years will ultimately mean that the industry can take on this role. Aboriginal Artworkers need their own web-enabled computer workspaces in Art Centres for both work and skills development.

The sustainability of such a program relies on an ongoing relationship with an RTO and a commitment by RTO staff , Desart staff, Art Centre Managers and Artworkers. All stakeholders will need to develop a better understanding of each others' worlds and their continue to develop skills for evidence creation, selection, recording, collection, storing, and assessment. Ultimately, if it is meeting their aspirations, it is the Artworkers who will ensure its sustainability.

Competency Navigator (http://www.theworklab.com.au/) as an online RPL support tool is useful to create standardised reports for RTO and industry staff. The tool needs up-front customisation to create flexible job roles and associated appropriate Units of Competency. Although this is informed by industry, it is a key role that needs to be undertaken by RTO staff. Once these job roles have been created the basis for the RPL is similar and is extremely efficient and effective. However, self-management of skills recognition by Aboriginal Artworkers is not a reality in the short to medium term.

Skillsbook (http://www.theworklab.com.au/) and other e-portfolio tools are useful repositories for information, evidence/artefacts, assessment, reflection and communication. We found Skillsbook relatively easy to use, although many of the features did not automatically work in some browsers and one-on-one support by the Skillsbook support team was required to make the necessary adjustments. As with many other open-source e-portfolios, multimedia files containing audio and/or video need to be stored and accessed from external sites, such as YouTube, SlideShare, MySpace, Podomatic and other personal storage spaces. Although this means that the individual is empowered to manage their own information, it does present a range of problems, made more obvious in regional and remote locations and where individuals require additional training and support to create personal spaces, upload information and then embed it in their e-portfolio.

Uploading files is bandwidth, file size, format and system dependent. Time, patience and persistence is required to make things work. The incredible array of file formats, characteristics, size/upload limits, html editors, browsers, media players and the associated incompatibilities of each does make using e-portfolios particularly frustrating. Access to good equipment is equally important. In addition, you need to have access to a range of software that includes audio and video conversion and editing software; quite often, the free to download software is fine to use standalone, but there are interoperability issues without a range of conversions. Uploading to web 2.0 is not difficult, however once again, it is important to be aware of the audio and video format and size. Not using these skills on a regular basis will often require a long and painful emergency re-learning process.

Skillsbook has the facility to manage individual pages in terms of their privacy and access. However, management of this, although simple, requires a clear understanding of what it means to have information about yourself available online for everyone to see. Initially they will be able to share their e-portfolios and communicate with each other through the Aboriginal Artworker Group space we have created in Skillsbook.

Conclusion

Skills recognition conversations were shared with 15 Aboriginal Artworkers from 6 Aboriginal Art Centres during this project. The Artworker Conference, a week-long residential skills and professional development workshop in Alice Springs attracted 28 registrations from Artworkers, travelling from as far away as Warakurna in Western Australia to Tennant Creek in the Northern Territory. Speaking with Art Centre Managers and Artworkers after the Desart AGM, they indicated that there is both support and demand for the continuation of both the Aboriginal Artworker Program and the complementary e-tools project.

One Artworker will complete a Certificate III in Art Centre Administration this year, and a further four who will complete early in the new year as opportunities for final evidence collection arise. Another six of the Artworkers we have been working with this year will undertake further training next year and will be joined by a much larger group mostly coming from Western Australia and the Barkly Region. In recognition of the suitability of e-tools for online skills recognition and portfolio preparation and presentation, Desart have recently advertised a new position for an Aboriginal person to assist them with a range of project-related tasks, including the collection and management of digital evidence for skills recognition. This outcome recognises not only the role and opportunities these tools present, but the requirement for time and space to both collect and manage the evidence and to work with Artworkers as they learn new skills to manage their own e-environments for their own purposes.

There is still more to be done to improve e-portfolio tools for Aboriginal Artworkers in terms of appearance, functionality and ease-of-use. Web 3.0 applications are an avenue to explore, as is the need simplify and/or ensure interoperability of, the acceptable multimedia formats and to simultaneously develop simple 'how to' and troubleshooting guides that are easily accessible to the user.

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