ARTEFACTS: MANAGING CHILDREN'S ART PORTFOLIOS

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ABSTRACT

Increased access to tablet and mobile technology within the early childhood classroom can allow for new approaches for creating, capturing and presenting children's art. Not only can the use of iPads in the early childhood classroom allow young children in the pre-literacy stage of development to engage with the devices, it can also offer a robust and flexible 'ePortfolio' option of children's learning. A digital collection of children's work – including examples of literacy, numeracy and visual art works – can be collated in clearly navigable and shareable folders which can be added to over the teaching period.

In this paper, we present one example of a syncing service, Evernote, and how it can become an easy-to-manage repository for various types of learning artefacts. These artefacts can be gathered during children's participation in less formal, exploratory free play, intentional teaching moments, or more structured lessons. Artefacts can be created directly by the child from other interactive iPad apps or through using the iPad to record images, audio or video, of more traditional forms of art and creative play. An ePortfolio of children's work can show progress throughout the year, and be an opportunity for reflection by the children, parents and educators. It can also be added to during future years while the child remains at the service. In this example, technology can help create a sense of belonging and community within the classroom and a sense of ownership by the children over their own work and the way in which their progress is captured and presented.

INTRODUCTION

In this paper, we present one example of a low-cost digital ePortfolio system, in this case utilising Evernote, to explore how educators may collect and document children's artworks in a more holistic and authentic way. Evernote contains shareable folders that can be allocated to each child, where examples of literacy, numeracy and visual art works can be stored. Educators can then easily add their interpretations and links to theory or learning outcomes. Children can then be grouped in classes, and observations can be shared with multiple children. We presented Evernote as one option, with a comparison to other frequently used early childhood apps and programs. The use of digital ePortfolios allows the children's artworks to build up over time, creating an ongoing, visual representation of a child's achievements, learning and development. We also present examples of how other apps and their artefacts can easily be synced with Evernote and how each artefact can be tagged, making finding particular examples easy. This structure to approaching ePortfolios is scalable and would work similarly with a

range of digital technologies available. However, the program presented within this paper fits our particular criteria; being available offline, having a free version and being easy to use.

LITERATURE

In the age of technology, more and more early childhood settings are investing in devices for both the children's use and for programming effectiveness. Devices are used in a great variety of ways and the field is still exploring how children engage with these devices in imaginative play (Bird, 2017), for literacy learning (Wohlwend, 2016; Thiel, 2015), learning mathematical concepts (Goodwin & Highfield, 2013), in social experiences (Arnott, 2016), and of course, in art and creative ways (Huang, Li & Fong, 2016; Price, Jewitt & Crescenzi, 2015). For instance, Marsh, Plowman, Yamada-Rice, Bishop, and Scott (2016) posit a new classification for digital play and Fleer (2017 p. 3) explores "the new psychological conditions" that are created through digital play. Canning, Payler, Horsley, and Gomez (2017) present the app 'Our Story' (The Open University, 2015) as a way for children to capture their voices and opinions. One thing that is acknowledged is the need to prepare children for their place in this digital society (Palaiologou, 2016; Plowman, Stephen & McPake,2010) and to create an accurate portfolio of their experiences along the way.

One under researched area of early childhood education is the use of technologies in children's art making. Terreni (2010) suggests the use of technologies by children in their art making can be enhanced when educators have an understanding of art mediums and of technological processes. Bird (2012) disagrees, stating educators can assist children to become mentors for their peers, especially when their knowledge is greater than that of the educator's. In Sakr, Connelly and Wild's (2016a) study of children's digital art making, they found that some children were labelled expert, while others were labelled incompetent; with each group being treated differently. These labels contradict the beliefs and aspirations of early childhood classrooms around the world. Instead, the idea that some children are more skilled using technologies than others reinforces the role children can play in assisting and guiding their peers when it comes to their engagement with technologies. The Sakr, Connelly and Wild study did "highlight the imaginative ways that children approach digital resources" and the types and themes of artworks they created (p. 139). The children's interests in digital technologies can be harnessed in constructive ways that not only allow for their creative expression but can be used for encouraging concept learning.

TECHNOLOGIES IN DOCUMENTING CHILDREN'S EXPERIENCES

On the other side of the provision of technologies in early childhood educational services is their use in documenting the learning and experiences taking place in each classroom. In Australia, the Early Years Learning Framework (Department of Education Employment and Workplace Relations (DEEWR, 2009) encourages the ongoing cycle of "planning, documenting and evaluating children's learning" (p. 17). Educators look for appropriate ways to collect meaningful data to illustrate children's learning, ways to identify children's current skills and document their progress towards skills that will soon be achieved (Rintakorpi & Reunamo, 2016). This is where digital technologies can help this process. Photos can be taken of constructions that need to be dismantled at the end of the session, keeping a permanent record of what children have achieved. Digital evidence

can also be used to support recommendations to outside agencies or when a child needs some additional support. Recording video evidence can assist with making assessments and supporting claims being made and can provide a more complete picture than a written or verbal report.

Digital cameras have become the norm in early childhood settings and educators use them in formative assessments (McLachlan, Edwards, Margrain & McLean, 2013) and to capture children's creations, artworks or social activity (Kline, 2008; Kocher, 2008). With the use of digital cameras came many ethical questions (Quinn & Manning, 2013) that still largely go unanswered. For instance, when and how do we "ask children for permission to photograph" (p. 275) and what happens to the digital copies of the photographs taken? In recent times, there has also been a movement towards allowing children to control the camera and capture impressions of their own learning, experiences and artworks (Bird, 2012; Plowman, 2013), with children seen as "equally competent as documenters as the teachers" (Lindgren, 2012, p. 334). Having an easy to use system for collecting documentation means that children can also be shown how to add their own stories and artworks and becoming more involved in documenting their own learning.

Part of recording children's learning is authentically presenting their voice about their experiences and artworks. Children's own narratives while digitally creating artworks provide insight into their thought processes as they are involved in creating and the feature of many apps is that they can capture children's verbal explanations as they create their art (Sakr, Connelly & Wild, 2016b). For example the app Doodlecast (https://itunes.apple.com/au/app/sago-mini-doodlecast/id469487373?mt=8), which creates a video of the child drawing their picture, also includes the child's voice during the creation process. One underutilised device in early childhood education is the interactive whiteboard. Educators often use them for whole class learning (Kearney & Schuck, 2008), story reading (Burnett, 2010) and researching topics of interest (Morgan, 2010). Just like painting on an easel, an interactive whiteboard with an art program installed can allow the children to create artworks using their whole body. Children also enjoy seeing their artworks on a large screen. Once shown how to create art on the interactive whiteboard, children can become quite proficient in creating digital art.

BACKGROUND TO THIS PAPER

This paper is based on a workshop the authors conducted at the Art in Early Childhood Conference 'What is Art For?' in Paro, Bhutan. The participants were early years' educators from a variety of countries who brought with them a range of experiences with iPads, from never touching one to using one regularly in their daily lives. The benefit of the apps and programs we presented at the conference and outline in this paper, is the easy way in which inexperienced iPad users could navigate and master the process of creating digital art and then capturing it in a digital portfolio.

Like many early childhood services, Bhutan has many obstacles that make digital technology use and documentation at times challenging. These include intermittent internet connectivity, limited web access, slow download speeds, multiple devices needing to access the same content, and the need for collaboration between educators.

Before presenting in Bhutan, the authors researched several digital documenting tools and selected Evernote as a reliable, scalable option.

Many digital portfolios are available (often for a fee) that simplify the documentation process. What can happen is that these programs or apps actually limit the educator's control or creativity in designing the portfolio, as information is limited to photos or notes taken within the program itself. These programs also remove the possibility of children taking control of documenting their own learning and experiences (Terreni, 2010), something that is increasingly becoming more popular. This paper will show how easy it is to 'send' a photograph or digitally created artwork to the digital portfolio and how easily the programs link with Evernote will present. Evernote also works offline and then automatically syncs when the device is connected again to the internet.

TERMS USED THROUGHOUT THIS PAPER

Throughout this paper we use several terms interchangeably. For example, teacher and educator refers to all those who work with children and we acknowledge all do so in a teaching capacity, regardless of their title or qualifications. For this paper, early childhood refers to children aged from birth to eight years of age and early childhood services include preschools, child care centres, family day care, home based care and the lower grades of primary schools. Many of the ideas presented here will also be transferable to other age groups and other contexts.

HOW EVERNOTE WORKS

Evernote has been used by educators in a variety of ways, such as organising lesson plans and classroom resources. We have utilised Evernote to document children's learning in various media. To understand the way we have utilised Evernote as an assessment documentation tool for educators, it is perhaps best to liken it to a concrete analogy without digital technology. Often educators will make notes of their observations of a child's learning experience on a piece of paper, as well as collect or photograph the child's work sample. These documents are then placed in a child's folder that is then placed in a filing cabinet along with all of the other children's individual folders.

This concept of a collection of individual folders, which contain pages of information about their learning, is the precise structure we have adopted within the Evernote application, but with potentially significantly more benefits than the concrete analogy. These benefits will be addressed in a later section that describes Evernote in detail. When we align our non-digital analogy of pages, folders and filing cabinets with the terminology used by Evernote, we have a page called a note, a collection of child notes are kept in a notebook, and a class collection of notebooks are kept in a notebook stack (Figure 1).

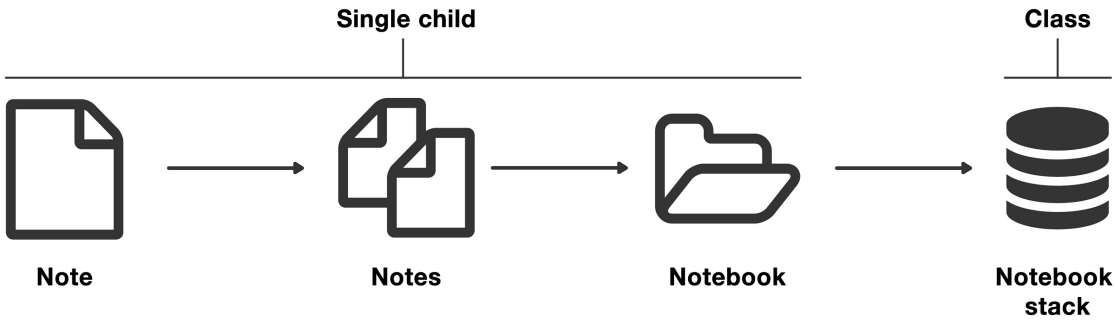

Figure 1 - Evernote's structure for organising notes

In this paper, we present Evernote as a program to bring together and maintain a child's ePortfolio. Evernote can capture children's technological art, but can also be used to collate recordings of physical artworks plus the children's thoughts and ideas behind them. Educators can then tag the artworks and include comments or observations related to each piece. These can then be sorted into each child's folder and shared with families. While presenting Evernote, we use the example of three iPad™ apps and functions: Puppet Pals HD (https://itunes.apple.com/au/app/puppet-pals-hd/id342076546?mt=8), Doodle Cast (https://itunes.apple.com/au/app/sago-mini-doodlecast/id469487373?mt=8) and the camera function, to show the ease and compatibility of Evernote.

The use of Evernote is twofold. On the one hand, it can collect children's creative works in one place to be revisited and explored, and on the other, it can be used by educators as a documentation tool, where notes and observations can be extended and included in each individual child's portfolio. The ePortfolio can then be easily shared with parents, who can add their comments and provocations to the data.

EVERNOTE

In looking for potential apps or programs to use to capture and record artefacts of children's learning, there were several key considerations. Primarily, that the program should not become the focus of the lesson or require significant time away from task, but rather an unobtrusive way to capture learning as it occurs within the day to day environment during both structured, scaffolded lessons, and free play. It should also be flexible, scalable, and ideally, affordable.

	Evernote	Dropbox	Google Drive	Seesaw
Basic price	Free to 60mb p/m	Free to 2gb	Free to 15gb	Free to 2 classes
Ongoing cost	AU$7.49 p/m	AU$11.58 p/m	AU$12.49 p/m	AU$10 p/m
Platform	Web / iOS / Android	Web / iOS / Android	Web / iOS / Android	Web / iOS / Android
Structure	Folders, embeds	Folders	Folders	Folders, embeds
File types	Notes, files	Files	Notes, files	Notes, files
Sharing	Folder	Folder / Files	Folder / Files	Activities
Tags	Yes	No	No	Yes
Cloud backups	Yes	Yes	Yes	Yes
Multiple devices	Yes	Yes	Yes	Yes
Offline support	Yes	Limited	Limited	No
Interoperability	Yes	Yes	Yes	Yes

Figure 2 - Part of comparison of suitable Eportfolio tools undertaken

Of several programs trialled, Evernote, a low-cost cloud-based note taking app stood out on these points, even more than purpose-built ePortfolio applications such as SeeSaw (https://itunes.apple.com/au/app/seesaw-the-learning-journal/id930565184?mt=8). This was due to Evernote's flexibility, availability, and ease of use. Evernote's use of a simple notebook analogy allows a clear and familiar parallel to real-world portfolios, where artefacts of learning can be gathered and presented per child. A notebook can be created within Evernote for each child and text, images, audio, and video of activities can be captured allowing for a more holistic artefact of the learning experience than simply including the final product, as in traditional portfolios.

Continuing this analogy, photos or videos of a task can quickly be sent to a note within the child's notebook, which can then be later annotated and commented on as required to add more detail. Tags and keywords can similarly be included to allow quick searching and gathering of particular activities, learning outcomes, or notes, even across multiple children, an advantage over traditional linear portfolio approaches. These notes and any additional changes are then synced online to the class Evernote account and become accessible across devices and backed up, as the internet is available.

The ability to collate this learning without the need for constant internet connectivity was a feature Evernote had in advantage to many others, including similar file syncing services such as Dropbox and Google Drive. Artefacts captured in, or sent to, Evernote would stay safely on the device and wait for connectivity to become available, even allowing additional edits, tagging and comments during this time. This was significant for flexibility in the early childhood learning environment, where play may not just occur in the classroom space while the internet is available, but commonly during outside play. It also has usability benefit for capturing evidence of learning in early childhood centres with low internet connectivity, a common issue across Bhutan where internet is not always readily available, slow, intermittent, or consistently reliable even within the centre itself. Through providing a way of collecting and annotating this learning while offline, which can then be synced later once internet is available, helps to keep the focus on learning rather than the technologies used to capture learning. It also prevents interruption of the flow of learning.

Evernote also provided a quick way to capture digital artefacts, as well as evidence of real world learning, created by the students using other apps on the iPad or device. Many educational apps provide the option to send an image or video of the child's work to another program, in this case Evernote. Through this method, apps for digital art, for example, can be used to document as well as create children's artwork. Their final product can be then sent to the child's Evernote notebook, as can a video of the creation process or an audio explanation by the child of their thought processes and reasoning behind their art. These multiple artefacts around the one learning experience provide a rich and multimodal piece of documented evidence of learning. Ease of use, and integration with familiar iPad apps such as the camera to record an image or video, also helped allow capturing these learning artefacts to become part of the lesson itself. Children can in turn use these iPad features to record their own learning, or that of their peers, improving their own digital mastery and engage collaboratively in new ways.

These gathered artefacts within the child's notebook can be used reflectively within the classroom, and as a showcase of the child's learning and growth throughout the year.

Sharing functionality within Evernote can be used at multiple levels; sharing a particular note for individual lessons, a notebook to share a child's progress with a parent (all relevant permissions and privacy considerations and policies willing) to share progress of just that child, or entire class stacks across multiple educators or to supervisors. Children themselves can review prior learning or artwork across the year to see their own progress and reflect on how their experiences and thoughts may have changed over time, and allow them to revisit and expand on prior learning with new understandings.

EXAMPLES

The following section will look at examples of the use of Evernote to collect children's creative works and educator's documentation of, and reflection on, children's learning. Each example will show the variety of media available to an educator to record different aspects of the learning experience. It is hoped that this will increase the depth of meaning in the documenting of learning and potentially benefit the quality of reflection and planning by educators for children's learning.

The first example is of a child's hand-drawn artwork. With the use of an iPad, the educator was able to add multiple aspects of the child's learning experience using various type of media. This included (1) a video of the child while they were drawing, (2) a brief audio segment of the educator talking with the child about their artwork, (3) a photo of the final artwork and finally, (4) text based on the educator's observations, shown in Figure 2. Afterwards, the educator then added tagging to the note, such as #art and #video, to assist with searching at a later time (Figures 3a and 3b).

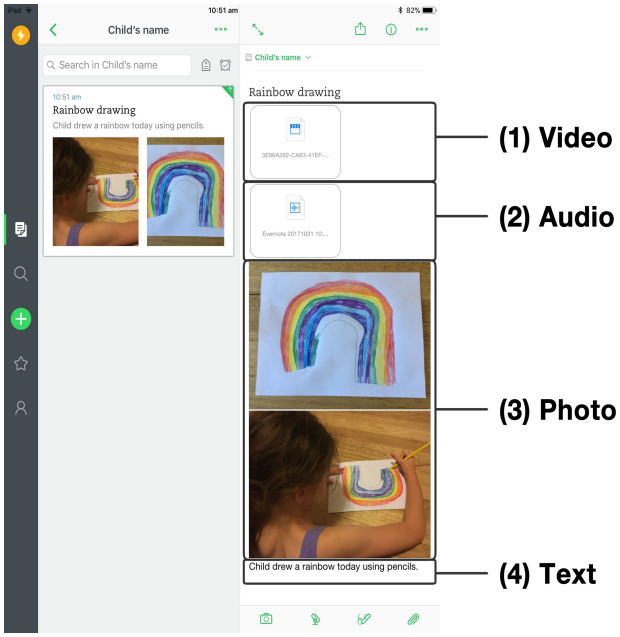

Figure 3a - An example of using Evernote to document various aspects of the learning experience

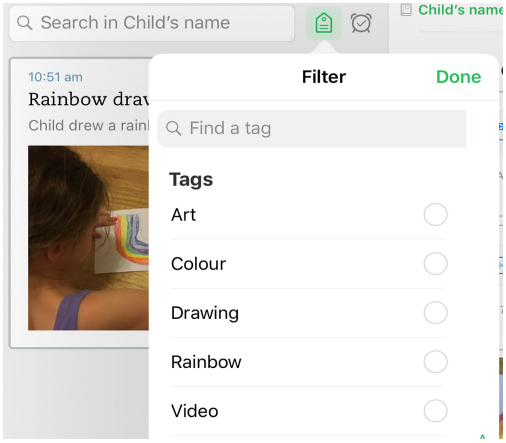

Figure 3b - An example of tagging in Evernote

The next example utilises the in-built functions of a children's art application on the iPad, called Puppet Pals HD. In this application, children are able to create and record their

own animated puppet shows using different characters and different scenes. They are able to include people and backgrounds from their own photos, which offers a connection to their local environment. The child then downloads a recording of their show, saving the movie to the iPad's Photos application. The educator then started a new note in Evernote and inserted this video from the Photos application. The educator then annotated the work sample based on their observations and included tags for simple searching.

Open the camera roll on the iPad. Click arrow icon. Select 'Evernote' icon.

Evernote popup – give name, pick 'notebook', add tags – save.

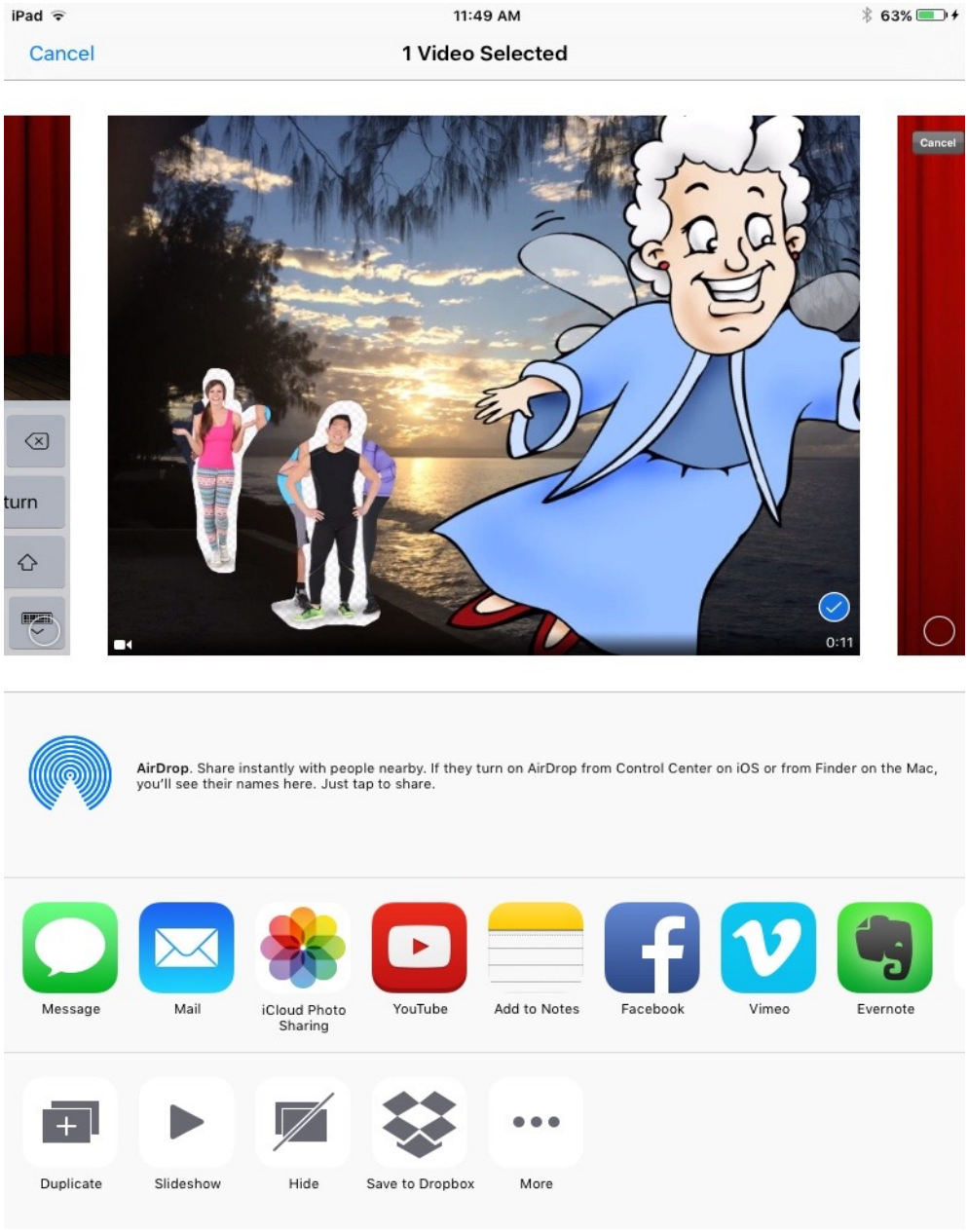

Figure 4 - An example of importing a child's creative work from Puppet Pals into Evernote

THE ETHICS BEHIND DIGITAL PORTFOLIOS

The technological changes seen in early childhood services has required a rethinking of the ethical considerations around what is documented about children's learning and how

this documentation is captured and shared. Previously, educators may have taken photos and written about what they saw. This was then placed in each child's portfolio. If other children were present in the photos, permission was sought to ensure parents allowed their child's image appearing in other children's hard copy portfolios. With the increase in digital portfolios, permissions are now needed that acknowledge that a child's digital image may appear in a portfolio that is then shared with others. This is where services need to have conversations with families and educators about what this means for children who are below the legal age to consent to their image being shared. The conversations that are required could be another whole paper. This is raised here purely to encourage thinking about these considerations when educators are investigating apps and programs to use for this purpose.

With Evernote, it is possible to share 'notes' with multiple participants. This makes the documentation process quick and easy, with notes being shared with a click of a button. This is useful for educators taking group observations and not needing to reproduce it for each individual child.

WHERE TO FROM HERE

The paper is part of a larger project that will explore digital portfolios and the use of apps to assist in this process. There are a number of areas for additional research around the use of Evernote as a documentation tool for children's learning and educators' assessment data and reflective insights. These include evaluating the use of Evernote by educators and how it compares to other possible applications, taking into account the following.

1. Evernote was chosen for this project for a variety of reasons, but there does exist other applications that are designed for a similar purpose. Research could further explore the comparison of those applications and how, in different ways, they each support the educator.

2. It would be helpful to qualitatively capture the experiences and perspectives of educators and the way they use Evernote for the purposes previously discussed.

3. With the potential to collect a wider range of media, including video and audio, what data do educators tend to focus on and look to document? How do educators use these new media opportunities for assessing, planning and reporting on learning?

4. Does the use of Evernote change the practice of educators? Does the use of the digital environment offer insights of greater depth about children's learning? How does it impact educators' beliefs about assessment and learning?

5. What are the long-term impacts of documenting children's learning using digital technology?

This paper is based on one presented to a workshop at the biennial International Conference Art in Early Childhood 'What is art for?', Paro, Bhutan 15-18th April 2017. The programs and applications reference were developed in an Australian context, the home country of the authors. However, the applications referred to are available world wide over the internet, although the costs may vary depending upon location.

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Biographies

Jo Bird is a lecturer at the University of New England, Armidale, Australia. She has just submitted her PhD which explored children's use of digital technologies in imaginative play and the educator's provision of these devices. Her research interests include children's play, the use of technologies by both children and educators and early childhood leadership.

Stephen Grono is a Learning Designer at the University of New England. His role focuses on facilitating use of educational technologies in the classroom, with experience from the Early Childhood space through to the university online learning environments. Stephen's role enables him to apply high quality contemporary pedagogical practices and design as it relates to online education, drawing on his background in both education and technology, to provide contextualised support and solutions for the individualised needs of staff and teaching contexts.

Martin Schmude is a mathematics education lecturer at the University of New England and has been in that role since 2007. He completed his PhD thesis in 2016, which considered pre-service teachers attitudes and mindsets towards mathematics education. Prior to his position as a lecturer, he qualified as a high school Mathematics teacher and worked in both private and public schools in NSW. He has a keen interest in helping people learn and teach mathematics through exploration, technology and attention to affect. Martin has created apps which aim to inspire students in mathematics and help teachers extend their strengths in teaching mathematics.