Preface

INTegrating DIGITAL TECHNOLOGY INTO THE K-12 CLASSROOM: ARTS EDUCATION INSIGHTS

Introduction

Among all the fields of study in our schools, the arts are the forefront in the celebration of diversity, individuality, and surprise. (Eisner, 2002, p.235)

The arts are seen to encompass different things in different contexts. Commonly in the K-12 educational environment the arts include but are not limited to dance, drama and theatre, media arts, music and visual arts. The integration of the arts in education is an internationally recognised form of inter-disciplinarity that contributes to expression, meaning making, and a part of the curriculum that can be integrated in imaginative ways as well as stand alone (Aaron, 1994; Barrett, 2001; Burton, 2001; Chrysostomou, 2004; Hauptfleisch, 1997; Klopper, 2004; Lemon, Garvis & Klopper, 2014; Russell-Bowie, 2006; Snyder, 2001).

Digital technology is also an area that challenges social impact for the arts. Today, not only are the tools and modes of artistic practices, processes and products in arts changing, so too are the ways we participate in art education planning, collaborations, and networking (Gauntlett, 2011). Peppler (2012) in her literature review about new opportunities for interest-driven arts learning in a digital age noted that online content creation for the arts and arts education has changed considerably. Never before has emerging and developing technologies so rapidly and radically changed new ways to express ideas (Bamford, 2006; Roy, Baker & Hamilton, 2012), and the “impact of these changes has been profound as we see both advantages and disadvantages for arts education and children (Roy, Baker & Hamilton, 2012, p.26).

Substantial evidence is being gathered to provide cases of research (Bamford, 2006; Lemon & Garvis, 2013; Lemon, Garvis & Klopper, 2014; Peppler, 2012; Roy, Baker & Hamilton, 2012) and classroom practice where technology in arts education is having significant impact, particularly where indications of “a strong connection between arts-rich education and extensive and imaginative use of ICT” (Bamford, 2009, pp.138) are present. The arts have an intrinsic value and a higher purpose to ensure children can flourish and evaluate the world they live in. “Arts education needs to be able to be given greater access to technology” (Bamford, 2009, p.137) and thus to be in turn be able to impact the growth in young people to present, research, process, and communicate their arts making and responding. As new pedagogies emerge and conscious decisions in meaningful use that assists young people to “move away from the consumption of artists ‘products’ …to engagement in the arts through active and meaningful
participation” (Roy, Baker & Hamilton, 2012, p.27) it is important to consider how we approach both arts and technology. Underpinning this is the importance for young people to think and act as artists to genuinely understand what and how the arts can contribute their meaning making and development as a human being.

Arts and Technology to Engage Learners

There are many K-12 arts educators, in the fields of dance, drama, media arts, music, and visual arts, who integrate digital technologies into their teaching to support creating and making or exploring and responding with innovative purposes. There are however, just as many who do not consider digital technologies a part of arts education or know how to meaningfully consider the appropriate digital technology to enhance the learning experience. For each of the fields within arts education, and indeed for arts education itself, innovative practices are occurring as well as challenges emerging in productive pedagogies, self efficacy, resourcing, time, and ability to access a community of peers and colleagues who can inspire, motivate and engage our practices. Observations can be made internationally about K-12 arts education being undervalued, cut or margenedized yet much innovative practice is being undertaken to promote and in many ways validate arts. Integration of technology is one of the contributors to supporting shared visions, innovative arts practices and high levels of engagement for learners with arts and indeed the bigger picture of being able to explore meaning making to understand the world.

This book disrupts the discourse of questioning surrounding the place of arts in K-12 education and celebrates the innovative partnership between arts and technology to engage learners. Highlighted are the unique and innovative practices that promote engagement with creating and making as well as exploring and responding through, with and in the arts in partnership with interdisciplinary skills such as thinking, reflection, metacognition, communication and problem solving. Each chapter shares insights into one way, but not the only way, of how arts and technology can be considered by arts practitioners across a variety of contexts. This sharing provides the reader with an opportunity to be reflective on own practice, while to also celebrating possibilities.

The use of digital technology is expanding the learning and teaching possibilities of arts education for both areas of creating and making, and exploring and responding. Opportunities for extension in innovative practice are available, whereby curriculum design and good pedagogy underpin new tools existing for arts educators. These technologies provide new opportunities and changing roles for art teachers in the 21st century (McCann, et al., 1998). A shift, however, does have to occur in the uptake; a different way of looking and transferring pedagogical skills and designing curriculum. Technology itself will not deliver or support innovative and meaningful learning. Rather, the why, what, how as well as purposeful application needs to be considered and planned for.

An understanding of technology is central to young people’s preparedness for life while empowering individuals to participate appropriately in understanding the impact technology has on their lives, and how it contributes significantly to the personal, social, professional and cultural lives of everyone (Groundwater-Smith, Ewing & Le Cornu, 2007; Tapscott, 1998). Building students’ capacity to engage with technology in the arts classroom supports the development of young peoples’ understanding of personal, social and global contexts. Building capacity also scaffolds the understanding of technology in different contexts (Key & Stillman, 2009). In order to think about digital technologies in the arts classroom, teachers are required to think about and address their own use, beliefs and skills. But, in regards to application in the art classroom, what does this actually mean? New communication technologies
open up new possibilities for use in the classroom but to keep up to date is an onerous task. Not only must there be consideration for how to use the digital technology but then there is the transference to personal use and then of course the extension of this for use in the classroom for meaningful learning experiences. These experiences in turn not only enhance young people’s learning but also take into account their previous experiences with this technology.

INTRODUCING THE CHAPTERS

This section of the chapter introduces each chapter while highlighting key questions for the reader to consider in the context of digital technologies and the K-12 arts classroom.

Internationally many young children under the age of five years engage with both arts and technology in their home environments. This engagement becomes a form of meaning making and communication for the young child. When children enter early childhood educational settings, the same access to digital technology may not be visible. According to Yelland (2011), despite 30 years of research, digital technologies with young children are still not fully integrated with pedagogical perspectives on play. Part of the problem exists with curriculum documents separating play as a basis for learning from the use of technologies (Edwards, 2013). In Chapter 1, Susanne Garvis illuminates the importance of narrative meaning-making to promote arts and technology communication by young children. The question is posed for the reader: how can narrative interactions allow children’s voices to be at the center of decisions by the educator regarding arts and technology engagement?

Visual arts teachers are constantly engaging with learners (human) and materials and resources (non-human) to create and engage with the visual arts (Mathewson Mitchell, 2013). Donna Mathewson Mitchell in Chapter 2 examines the integration of digital technologies to enhance teaching and learning in visual arts classrooms. It draws on a participatory action research project conducted with 7-12 teachers in schools to explore the distinctive nature of secondary visual arts teaching practice. The author raises fundamental questions around: what does it means to be a visual arts teacher, how does visual arts teaching occur, how does visual arts teaching experienced, and what kinds of skills and knowledge visual arts teachers utilise in relation to the various geographic places and educative spaces they encounter? In addressing these questions Mathewson Mitchell draws on the theoretical resources of ‘practice theory’.

The importance of a digital pedagogy in museum education as well as the adoption of a new learning theory for the digital age, within a museum educator’s pedagogy is being highlighted in current research. Embracing emerging technological innovation is one means of providing young museum patrons with immersive opportunities to become part of the K-12 curriculum. In Chapter 3, Purnima Ruanglertbutr, demonstrates how the theory of connectivism (Siemens, 2005) can be applied to strategies that enable museum educators to embed the iPad in museum learning and support the development of General Capability and Visual Art specific skills. International case studies are drawn upon to demonstrate the increased levels of interactivity, engagement and positive feedback from museum educators regarding the use of iPads in the museum environment. The reader is invited to consider the question: how can iPads promote discussion and verbal dialogue about artworks, communication, personal and interpersonal skills while supporting the delivery of the visual art curriculum?

The use of digital technologies and digital content continues to change the educational role of the gallery. Various digital technologies such as online collections and interactive experiences can build student knowledge, meaning making and experiences prior to a visit. In Chapter 4, Kathryn Hendy-Ekers
reviews the strategies art galleries are using with digital technologies that deliver content and pedagogy addressed in the curriculum. The way in which these resources and strategies link directly to curriculum outcomes and the values and pedagogies that they cover are discussed. From the perspective that resources with digital content are available to teachers, but they have to understand and acknowledge their value and relevance to the curriculum (Baker, 2009), this chapter invites the reader to think about: 

how can teachers and gallery educators collaborate to scaffold learning and teaching experiences for K-12 students in the gallery setting?

The confidence of generalist primary teachers is informed by beliefs about their own confidence. These beliefs are formed during pre-service teacher education and once made, are resistant to change (Garvis & Pendergast, 2010). If we want to explore ways to improve the provision of arts education in K-12 classrooms, it is important to explore theoretical understanding of beliefs, known as self-efficacy beliefs. The authors, Narelle Lemon and Susanne Garvis, in Chapter 5 explore the perceptions of pre-service teachers currently studying to become primary school teachers (P-6) in three Australian universities. In particular the chapter discusses future teachers self-efficacy associated to both arts (dance, drama, music, media, visual arts) and technology. This chapter helps to fill this void by providing information on the importance of understanding pre-service teacher beliefs about the arts and digital technology. These beliefs will inform future implementation of arts education in generalist primary classrooms in Australia, and can be used as a model for international cases. The reader is invited to consider: how can we support and develop beginning teacher self-efficacy beliefs for arts education and digital technology within teacher education and schools?

A study conducted at the Boston Children’s Museum invited children to play a game in which algorithmic thinking was introduced through the manipulation of physical geometric shapes. By teaching students how to create algorithmic rules and schemas in their art process, the educators provided a more flexible and intuitive entry point to integrate technology in art education. In Chapter 6, Derek Ham discusses an expanded perspective on what it means to “calculate.” The chapter introduces key ideas from the field of shape grammars (Stiny, 2006) and present how visual calculation can be a valuable way to introduce children to thinking algorithmically. This chapter builds on the question of how we can integrate technology into K-12 arts education? And invites the reader to further consider: how can Algorithmic thinking in the arts present a way to calculate, a way to create art and talk about art, and a way to think reflectively about what you are doing for inspiration to move forward?

Bianca Power and Christopher Klopper in Chapter 7 present an argument that unique and innovative pedagogical practices of arts and technology education are occurring in primary schools and classrooms, however for many teachers identifying such occurrences in their practice appears to be obscure. This chapter presents a “tool for practice” with the purpose of stimulating pedagogical decision-making in the design, delivery, and evaluation of primary school learning experiences that integrate technology with arts education. The aim of this tool is to highlight the unique and innovative practices of K-6 arts and technology education currently occurring classrooms. The tool has the additional potential to support on-going professional development through the application of the tool to act as an evidence-based scaffold for reflexive practice. It encourages users to work collaboratively and collectively to look at their practice from multiple points of view, with careful and calculated consideration of the nine domains of Bamford and Glinskiowska’s (2010) Effect and Impact Tracking Matrix (EITM) – catalytic, negative loss, social, ethical, cultural, economic, educational, innovation, and personal. The authors invite the reader to consider: how can identification provide a foundation from which teachers can begin their journey
and conversations around the planned, meaningful integration of technologies into and throughout their arts teaching?

Emerging technology in gallery and museum spaces are sometimes reconnections to ways of working with pre-existing technology. It is in this case that the collaboration between the technology and the gallery space that offered innovative ways of working, celebrating learning and challenging new ways of listening to young people. In Chapter 8 Narelle Lemon explores how the introduction of the digital camera into gallery-based learning program can enhance the engagement with art knowledge, understanding, meaning making and the gallery as an art space. The digital camera enables young people to photograph their lived experiences of educational programs delivered on site at the gallery and generate visual narratives. This enables a sharing of voice. Listening to the young people’s voices explicitly can be seen as vital in being able to gain better insights into the impact of education programs. In the chapter the photographing of the lived experience ran parallel to a teacher designed program back at school, not instead of or in place of. This embedding was seen essential to truly capturing the perspective(s) of the overall experience. The author invites the reader to consider the question: how can we engage K-6 students in their gallery education experiences further through the sharing of their voice to impact those who work with them, that is the K-6 teachers and gallery education team?

Revolutionizing the disruption of art education classrooms through technological integration needs to include digital learning spaces that support identity development as artist and demonstrate the need to explore the self in art making and publication in the new learning era. In Chapter 9 Kathryn Coleman explores the traditional notions of the portfolio and its place in documenting learning outcomes as an artist. Each portfolio that an artist presents to an audience has a different story to tell in their selection, collection and curation of artifacts and the narrative that they explore. In this chapter the reader is invited to consider a changing and adaption in the teaching of contemporary folio thinking skills. Coleman proposes that by looking and learning from the artworld, and role of museum curator we can scaffold approaches to learning curation in a digital portfolio rather than asking students to reflect on their own can support identity formation and develop self efficacy skills. In claiming the role of curator to self-curate one’s own work to publish and present practice is an important aspect to understanding what it is that portfolios offer to art education. This innovative way of thinking in art education is not revolutionary in relation to new forms of technology or new ways of teaching ‘tech skills’, but the learning to see, think and present oneself through the act of conscious digital curation is. As the reader we can consider the question: how can we revolutionize arts education classrooms by focusing our learning and teaching on digital reflection, curation, and presentation to an online audience in a digital learning portfolio?

Chapter 10 invites the reader to consider how K-6 art teachers can engage with technology to assist inquiry into curriculum. Narelle Lemon presents a project that invited 10 primary school visual art teachers to consider how they could integrate digital technology such as an interactive whiteboard and mobile devices while exploring an inquiry topic of public art. Case studies are presented that share insights and highlight the teacher voice with narratives that focus on building capacity to meaningfully engage with digital technology while exploring visual art. The narratives provide insight into gaps in how some primary teachers engage with digital technology in the classroom, that is focusing more on the tuning in and evaluation stages of an inquiry unit. Throughout the chapter the reader is encouraged to consider the question: how can K-6 art teacher capacity be developed and extended to integrate digital technology throughout all stages of creating, making, exploring and responding?

Social media has become interwoven into our daily routines, offering a new and exciting perspective of the world (Castro, 2012). Utilizing social media is, though, still a relatively new concept especially
in regards to pedagogical decisions that engage student centered practices in the K-12 context. Kristi Oliver in Chapter 11 invites the reader to consider how iPhoneography and Instagram can act as tools for visual expression and enable young people to share their photographs. Through the use of an Apple iPhone, digital imaging options are highlighted as all the images are shot and processed on the device. Instagram and iPhoneography have proven to provide students and photographers alike a way to capture life experiences and instantly share them with the world. Accessibility and ease of use is a key factor in the popularity of this technology. As the reader we are invited to consider how adolescents use iPhoneography to document and share their daily lives. Based on qualitative interview data this chapter identifies, key themes in relation to digital identity construction, image sharing and social media, the perception of public versus private. As the reader we can consider the question: how can educators utilize the advancing of technology to enrich opportunities for students in classrooms to engage with social media?

In preparing future 7-12 teachers effectively new ways of engaging with teaching practice are being explored. This includes how to prepare pre-service teachers who connect with higher education in an online environment. Donna Mathewson Mitchell in Chapter 12 outlines an innovative program undertaken in two secondary visual arts curriculum subjects delivered in distance mode in a graduate-entry teaching course (degree). This innovation uses the affordances of online and digital technologies to provide a simulated experience of practice that inspires pre-service teachers to understand and use cultural sites within their future teaching. In this way, teaching visual arts involves a quite distinctive set of teaching practices. Thus, in taking this into consideration, it is imperative that the online space supports the modeling, illustrating and engaging with those practices in ways that prepare pre-service teachers who are studying by distance for classroom contexts. The author invites the reader to consider the question: what considerations must be made when teaching 7-12 visual arts method in regards the teaching practices that might form the basis of teaching and learning in the distinctive distance education mode?

Carol Ng-He in Chapter 13 invites the reader to consider how museums are leveraging the power of digital tools and social media to reach out to their audiences. This chapter addresses how digital inter-activities can engage students in the classroom as they explore archaeology and related interdisciplinary themes, ranging from global awareness, environmental literacy, economic literacy, and civic literacy. The voice of the perspectives of the museum educators and a teacher from the K-6 classroom is shared to illuminate the pedagogical decisions made when an online platform of learning is engaged with. Especially an educational website that requires students to excavate artifacts from ancient Mesopotamia, present-day Iraq, as they discover archaeological objects and works of art chosen from the Oriental Institute Museum, which tell the story of ancient civilizations is discussed. The author asks the question: how do teachers support students’ learning and engage them in the study of past cultures and people that captures students’ interest while developing essential skills for the twenty-first century?

The final chapter of this book looks beyond K-12 learning contexts and invites the reader to consider the transition to the university studio and the later transition into art and design portfolio careers. The importance of the high school art teacher in the decision for many students to further their studies at art school is highlighted. Through inviting the voice of art and design students to reflect upon who influence their decision to study fine arts, insights are provided about how arts pedagogies and the use of technology in K-12 education can support students choosing and transitioning into the university art studio and then into a professional artist practice. We are reminded that how artists self manage their career is informed by how they contextualize themselves in the art world – this includes how they reflect, evaluate and make decisions (Bridgestock, 2013) as too the relationship between art and technology is one aspect of this critical progression. Specifically in this chapter discussion occurs about the pedagogic
relationship with the graduate capabilities of artists and designers and their portfolio careers as a way to contextualize art pedagogies and technology use. The impact and value of arts education and technology are demonstrated to have a pivotal role in helping students develop transitioning skills, graduate capabilities and portfolio careers. The author, Megan McPherson, invites the reader to consider the question, what are the graduate capabilities that students now need to cultivate to become artist and designers in the K-12 learning environment as they transition into the university studio and beyond?

CONCLUDING REMARKS

While reading this collection of research undertaken by international contributors, you are invited to consider how arts and digital technology can be integrated, enacted, or supported within the K-12 classroom and beyond. Revolutionizing Arts Education in K-12 Classrooms through Technological Integration is a research text that promotes examples of best practice within the K-12 learning context. All the chapters address aspects of considering how digital technology can be integrated (see Figure 1) and offer insights into examples of practice. For the reader the complexity of practice and considerations around understanding, type of technology, and pedagogy are represented to assist in considering the K-12 arts context and subsequent practices.

This book intends to bring together a variety of perspectives from educators who are and have worked in the K-12 arts classroom. Specifically lived experiences shared provide insights into pedagogical decisions, teacher and students voice, and innovative practices that meaningful integrate a digital technology

Figure 1. Integration of technology in K-12 arts classrooms
for the purposes of learning and/or teaching. “Current scholarship in education and pedagogy has raised new awareness about the presence of many voices, viewpoints, ways of knowing and being in schools and society, and of the necessity for teaching methods which acknowledge this” (Beattie, 2000, p. 19), this book highlights these perspectives and invites the reader to engage with possibilities of considering the place of arts and technology in their practice. The often unheard and unsayable stories of arts educators provide the opportunity to consider, adapt, implement, and influence what is possible in critically thinking about and reflecting on the purpose of technology in the arts K-12 classroom when creating and making, or exploring and responding. The reader is prompted to think about issues of equity, equality and access for arts education within the educational landscape situated with the school classroom, gallery and museum, organisations or institutions that support learning where catalytic, negative, social and ethical areas are highlighted.

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REFERENCES


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