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iPads and Paintbrushes: An Exploratory Case Study of Integrating Digital Media as Placed Resources into an Intergenerational Art Class

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Abstract

This exploratory case study integrated digital media as placed resources into an intergenerational art class. Its goals were to generate knowledge of how to bring young children and elders together to expand their opportunities for meaning making and seeing themselves in affirming ways so as to generate transferable understanding of digitally-enhanced multimodal curricula across the lifespan. Participants included 15 elders and 9 pre-schoolers. Focusing on how the digital media were used and with what implications for participants' literacy and identity options as well as relationship building, data were collected through ethnographic methods, and a qualitative thematic analysis with multimodal elements was conducted. The study found that the digital media were used in tangent with non-digital media for the creation of digital portfolios, digital text-making, and teacher- and participant-led referencing for text-making. Findings suggest that the integration of digital media enhanced literacy options by providing new tools for meaning-making and expanded identity options by highlighting achievements and promoting intergenerational relationships. The study contributes to literatures concerning literacy curriculum and practices across the life course.

The caring of one skipped generation for another (e.g., grandparent and grandchild) is the foundation of many cultures across the ages, and as Withers's song highlights through the metonymy of the hand, this caring is physical—it happens when generations literally connect, for example, in the wiping of the fevered child's brow, and/or the hug around the grandmother's waist by the grandchild who only reaches her navel. Yet what these physical interactions in the here and now can beget is extra-physical and extra-temporal, creating bonds across space and time through the sharing of practices and passing on of knowledge. Much, if not all, of these practices and knowledge are communicatory in nature; they concern how people make and share meaning with each other. Communication, meaning making, or *literacies*, can be acquired and/or deepened in and through intergenerational relationships. Extant intergenerational literacy research has for at least decades (e.g. Gregory et al. 1996) taught how children can acquire new literacy practices thanks to grandparents (e.g., Gregory and Williams 2000; Gregory, Long, and Volk, 2004). In keeping with findings in the area, Kelly's (2004) study of grandparents as mediators of literacy acquisition agrees with Rogoff's (1990) appeal to widen the notion of guided participation in literacy learning "to include the 'flexible webs of relationships' (97) that children are involved in with companions and caregivers as they focus on shared cultural activities" (67). In the case of Kelly (2004) this appeal extends to grandparents whom she claimed may be called on as key childcare resources and thus "involved with family learning" (68). Given examples such as these, there is a basis for asserting that intergenerational interactions and relationships in families are important for literacy learning and research.

What is less well known in the literature, however, are the literacy learning opportunities that might be created in non-familial, formal intergenerational programs.

What might be the possibilities produced by the curricula of these programs? What is the relationship between these curricula and skipped generations' *literacy* and *identity options* defined as the opportunities people have for meaning making (Heydon 2007) and forging understandings of themselves in relation to this meaning making (e.g., Cummins, 2001)? Further, in this age of new technologies, how might digital media be herein implicated? And how might intergenerational curricula capitalize on the affordances of multimodality and multimedia?

This paper reports on a pilot project that sought to respond to these questions by integrating digital media (i.e., iPads, the internet, and specific applications) into an existing intergenerational art program. The overall goals were to produce knowledge of how to unite skipped generations to expand their literacy and identity options and promote intergenerational relationships so as to produce understanding of digitally-enhanced multimodal curricula for people across the life course. The precise study questions were: *How did the participants in the intergenerational art program employ the digital media and with what effects on participants' opportunities for expanded literacy and identity options? What are the implications for multimodal curricula—both in mono and intergenerational contexts?*

Background to Study

The study reported on in this paper was situated within two innovations: formal intergenerational learning programs and multimodal literacy curriculum and was designed to contribute to the research literatures in these areas. The study was a pilot for a larger program of research focusing on digital tools in intergenerational multimodal curricula (Heydon and O'Neill 2015).

Intergenerational learning programs

Formal intergenerational learning programs are designed to offer the benefits of learning in intergenerational contexts (e.g., Kuehne and Kaplan 2001) in an age when there are changing and diverse patterns of familial intergenerational contact (e.g., (Bangerter and Waldron 2014) and findings that suggest that intergenerational interactions within families do not necessarily guarantee desired outcomes like generalized positive feelings in children about older generations (Jarrott 2007).

Systematically planned intergenerational learning programs are designed to promote benefits to skipped generations who are learning together outside of family contexts. It has long been known that to foster the full benefits of intergenerational learning programs there needs to be a "curricular…component" (Friedman 1997, 105). The conceptualization of curriculum adopted by the study was manifold and included the *intended curriculum* (i.e., what was planned to be taught) (Schubert 1986) and the *classroom curriculum* (Doyle 1992) (i.e., what actually happened in the specific teaching and learning situation). Documented benefits of intergenerational programs range from the psycho-social, such as minimizing participants' fears and stereotypes of aging (Mackenzie, Carson, and Kuehne 2011), to epistemic and practical, such as promoting content area knowledge and practices such as those germane to visual art (LaPorte 2004) and literacy (Kucirkova 2016). Relative to curricula that feature multimodal literacy specifically, the emerging literature demonstrates the meaning and significance that such curricula can produce for its participants including keeping open people's literacy options from early childhood to late adulthood (e.g., Heydon 2013), helping participants to forge relationships that are of import to them (Heydon and O'Neill 2015), and creating opportunities for young and old to see themselves as competent communicators who have much to share with others (e.g., Heydon 2007). At the time of the study, more knowledge was needed, however, about how different

intergenerational multimodal literacy curricula could be configured and with what effects, principally when these curricula drew on digital tools.

Multimodal literacy and multimodal curriculum

The innovation of multimodal curriculum is timely given the need for curricula that are reflective of contemporary changes in communication technology (Walsh 2011). Such curriculum comes from an understanding of literacy as multimodal. Well-known is that multimodal literacy has been defined as "the use of several semiotic modes in the design of a semiotic product or event, together with the particular way in which these modes are combined" (Kress and van Leeuwen 2001, 20). Rich opportunities for communicating through myriad modes and choosing the most apt mode(s) for the occasion of the communication (e.g., Jewitt and Kress 2001) form a person's *literacy options*. Research suggests that literacy options may contract across the lifespan. Children are recognized as experimenting with a breadth of modes and media to make meaning of the world, a phenomenon which can, however, lessen over time as children are encouraged to take up language as their dominant mode of communication (e.g., Fraser and Gestwicki 2002). The need to communicate through modes other than or in addition to language can re-emerge in late life when older adults may find language use grow more difficult, owing to cognitive or physical changes (e.g., Heydon and O'Neill 2016). Still, regardless of whether the need for extra- or non-linguistic modes is forced or not, multimodality allows people greater choice of meaning making and to assert their agency over the literacy options that are a human birthright (Finnegan 2014). Curricula that can keep open communication channels or teach new ones are thus vital across the lifecourse, and their importance grows further when considered in relation to the literature on literacy and identity.

Pertinent to the study is a definition of identity as "a way of describing a sense of self that is in practice" (Pahl and Rowsell 2005, 155), in this case, (multimodal) literacy practice. A look at the multiliteracies notion of *design* helps to explain the reciprocal relationship between literacy and identity options. Literacy researchers, such as Nagle and Stooke (2016), for instance, have drawn on Kalantzis and Cope (2012) to argue that the practice of designing "refers to processes in which people 'rework and revoice the world as found' (p. 184)" (Nagle and Stooke 2016, 159). People do not design out of nothing, instead, they access "available designs from a unique combination of resources" (159). These resources include people's linguistic and cultural assets known as *funds of knowledge* (Gonzales, Moll, and Amanti 2005). They also include *funds of identity* (Esteban-Guitart and Moll 2014), referring to people's "historically accumulated, culturally developed, and socially distributed resources that are essential for a person's self-definition, self-expression, and self-understanding" (31). The text that emerges from this design process, in whatever mode it may be (e.g., oral, written, etc.), then "becomes a new available design in an ongoing process of transformation" (Nagle and Stooke 2016, 159). Consequently, people are *creators* of signs whose own contributions can in turn be redesigned, thus providing new possibilities for individuals and communities in terms of their literacy options as well as how they might see themselves (e.g., as semiotic producers who are making a contribution) (e.g., Heydon and Rowsell 2015).

Previous studies have found that intergenerational relationships can mobilize literacy and identity options which is consistent with the notions that literacy is a social practice (Barton and Hamilton 1998) and that people learn best from those whom they value (Cambourne 2000/2001) and love (Hicks 2002). There is a need to bring together knowledge of multimodal practices and the affective dimensions involved, especially in

intergenerational situations where relationship is so salient (e.g., Heydon and O'Neill forthcoming) and literacy events involving digital tools where studies often do not address the affective (e.g., Heydon and Rowsell 2015). This knowledge is pertinent in particular to curriculum and pedagogy, raising questions of how to promote and leverage relationship and multimodality for the good of the people involved. This study therefore hopes to add to the growing literature in the area of pedagogies constituted within multimodal curricula.

The place of the digital in the multimodal pedagogy literature, has ranged from not at all (e.g., Stein 2008) to central (e.g., Walsh 2011). However, discussions of the digital are ubiquitous in the literacy education literature generally, especially in relation to children and their digital literacy practices; for instance, there is a strong and growing body of research on children's digital literacy practices in formal (e.g., Wohlwend 2013) and informal (e.g., Buckingham and Willett 2006) domains. An emerging literature exists on elders and digital literacies which is characterized by arguments for increased opportunities for elders to develop facility with them (e.g., McCausland and Falk 2012). Overall, there are some similar findings of children's and elders' digital literacy practices; research has identified, for instance, that digital literacies can support children and elder's social connections and improve self-esteem (Gamliel and Gabay 2014). Gaps, however, remain particularly in relation to how elders can acquire proficiency with digital tools and how digital tools can promote people's literacy goals and purposes, without being ends in and of themselves. Questions like these have implications for literacy education scholarship and practice in intergenerational and monogenerational contexts. To help address them, the study adopted Prinsloo's (2005) interpretation of *placed resources*.

Placed resources

The notion of placed resources offers guidance for conceptualizing digital tools in multimodal curriculum. In a study of different forms of digital media across contexts (one technology rich, the other low technology) Prinsloo (2005) drew on distinct theories of literacy to build a logic of how digital media must be viewed as placed resources, that is, as media whose value, uses, and potentialities are tied to the situations in which they are being employed. Prinsloo began his argument with New Literacy Studies scholars such as Street (e.g., 2005) and Barton (1994), and their findings that literacies "appear as not exactly the same thing, in their uses, functions, modes of acquisition and status across groups of people and across specific social domains within societies" (Prinsloo 2005, 89). Instead, people who are "socially located" pull "on particular sets of perceptual, cognitive and cultural procedures and resources to make and take meanings from texts" (89). Literacies, then, "do not exist outside the context which gave rise to them"; there is thus "no abstract invariant which remains 'the same' from one context to another", and hence "what might look like the same multimedia text on screen is not functionally the same in a different setting" (90). What a middle-aged professor wants to and can accomplish with an iPad here, is not necessarily what a ninety-year old person in a care home or a preschooler in a childcare center wants to and can accomplish with an iPad there.

The above has implications for the literacy practices that people and domains value. Prinsloo (2005) argued that "situated, distinctive types of meanings" that are created from texts, including digital texts, "are shared by groups of people who sustain them as part of their collective social practices" (90). Specific modes and media are thus "only contextually functional, rather than inherently functional", and "the signs of communication (spoken, written, visual, gestural, artefactual) are…always signs of

social value in contexts of inequality" (90). This, Prinsloo has reminded, is Blommaert's (2002) notion of *indexicality*, which refers to resources

> that are functional in one particular place but become dysfunctional as soon as they are moved into other places. This process of flows creates difference in value, for the resources are being reallocated different functions. The indexical links between signs and modes of communication on the one hand, and social value scales allowing, e.g. identity construction, status attribution and so forth -these indexical links are severed and new ones are projected onto the signs and practices (Blommaert, 2002, 20) (cited in Prinsloo 2005, 96).

Through indexicality, designing is shown to be value-laden, where what is created, how, and with what effects on its status are situationally constituted and dynamic. Prinsloo thus has stated that "the social nature of semiotics vary according to various factors, including…social position (as regards age, gender, economic class) and the related dispositions that" people "carry as embodied history and practices, together with other members of" their "affiliation groups" (Prinsloo 2005, 90). How interesting, therefore, to consider the meanings that can be generated in an intergenerational program where there are at least three different groups of people gathering in a class: children, elders, and teachers/researchers/other care providers.

Notions of social positioning and identity additionally play into conceptualizing digital tools as placed resources and have implications for understanding the intergenerational nature of the program in the study. For instance, Prinsloo's work on placed resources has been reliant on and benefited from cases of digital literacy emphasizing the global and social periphery. He has shown that digital resources and practices as well as the ways in which they are valued, are "varied" across "divergent social settings", hence research must attend to the "specificity…of place, conceived both in geographic terms and as social sites that are shaped by politics, history,

economics and cultural practices" (Prinsloo and Rowsell 2012, 271). Prinsloo and

Rowsell have argued that the contexts in which digital and new media research have

predominated are "Anglo-American or middle-class" (271). Two consequences of this

are that research outside of these contexts is needed as are studies that take a placed

resources perspective asking what "opportunities for particular users" digital tools offer

(96). This last question is "something that has to be established by situated research, not

assumed" (96). The social positioning of young children and elders in care homes

render participants in the study outside the mainstream (Heydon 2007), thus the

implications of digital tools in multimodal intergenerational curricula cannot be

predicted and warrant investigation.

The notion of placed resources was also important to the curriculum

development component of the study. The "digital divide logic" (Prinsloo 2005, 96) that

predominates in discussions of digital tools and socio-economic status as well as

discussions of the digital relative to the metropolis and periphery, might also be at play

in the push for inclusion of digital media in curricula relative to participants in

intergenerational programs, especially elders. Such logic, according to Prinsloo,

"overemphasizes the importance of the physical presence of" digital tools "to the

exclusion of other factors that allow people to use" such tools "for meaningful ends"

(97). Through the data in his studies of the digital in Africa, Prinsloo has revealed, for

instance, "that computers operate as exotic and dysfunctional resources when they are

inserted into an educational context where they do not have a significant part to play in

relation to the social and technological practices that characterize that context" (97).

Hence the current intergenerational study was concerned with helping the digital media

to be placed as meaningful, purposeful tools within the art class so as to meet the

personal and collective goals of the participants. To identify how to achieve this end,

the study considered how the digital media were resources within the context of the overall classroom curriculum.

Methodology

The study was an *exploratory case study* with the case being the attempt to integrate digital media into a pre-existing intergenerational art program. Participants were 15 elders and 9 preschool children (ages 4-5) who were part of an intergenerational art program at a co-located intergenerational community (i.e., an integrated elder retirement/assisted living facility providing day care for children) in the urban United States. The community offered continuity of care for adults that ranged from day programs to assisted living to long term nursing care, and a child care program for children ages 6 weeks to 5 years. The community had integrated architecture and programming to unite generations, and the art class was one of the formal activities that was optional for the adults and part of the normal programming for the preschool group. The classes ran twice weekly from September to July and had been offered for approximately twenty years, all taught by the same art teacher who was a collaborator in the study.

Author A, the principle investigator and Author B, a graduate research assistant, worked with Author C, the art teacher to support the integration of digital media into the class. The teacher had not before used digital media for her own artwork or teaching, and the children's child care program had a no screen rule which was amended only for this study. Consequently, it was important to the teacher and the child care program that the digital media be used only as tools that were supportive of the overall goals of promoting intergenerational relationships and art-making (understood in the study as meaning making more generally) rather than the focus of lessons. Preparatory work for integrating the digital media into the class began about two months before data

collection and involved familiarizing the art teacher and volunteers in the class with how to use iPads generally (e.g, the skills necessary for basic use), and providing examples of applications that might be useful in the class to achieve its goals. Support for the integration was a participatory and iterative process where the teacher explained what she hoped to achieve, the research team presented options, the teacher explored the options and sometimes asked for tweaks, and the team returned with new options.

Ethnographic-type data were collected in the art classes from September to January. Data sources included the teacher's lesson plans and written and audio recorded reflections of the art classes, digital portfolios that participants created throughout the classes, photos of observations and program artifacts, field texts including field notes and audio and video recordings of participants during the program, informal conversations with participants during text-making, and semi-structured interviews with elder participants.

Data analysis was inductive and guided by the research questions (Dyson and Genishi 2005). The units of analysis were bounded by the literacy events produced in the class which often corresponded with particular class lessons. Themes were identified through a juxtaposition of data sources (e.g., images of participant-generated texts next to transcriptions of field observations) and areas of resonance and dissonance were noted (Pahl 2007). Throughout analysis and interpretation, member checks were conducted with key participants. Data were triangulated by drawing on multiple data sources and comparing them against the literature.

Findings

The study questions were designed to guide the generation of knowledge concerning how the intergenerational art program employed digital media, how these tools as placed resources were ascribed value, were positioned vis-à-vis other class media, and

with what implications for the promotion of people's literacy and identity options in/through multimodal curricula. The data suggest that the digital media were used in tangent with other media in the class (e.g., paint and chalk), and their affordances allowed them to be used for unique purposes that forwarded the participants' meaning making and relationship-building opportunities. Foremost, the digital media were used for documenting the processes and products of class through a digital portfolio, the production of digital texts, and referencing purposes by both the teacher and the participants. We next discuss each of these uses in turn, where relevant, the curricular and pedagogical actions that accompanied them, and the opportunities they afforded for participants' literacy and identity options.

Use one: Documenting the processes and product of class through digital portfolios

Foundational to the integration of digital media into the intergenerational art program was the use of iPads and the Book Creator app (Red Jumper 2014) for documenting the processes and products of the classes in a digital portfolio. Class generally followed the following pedagogical sequence (Heydon 2007): (1) strategies to (re)acquaint participants with each other and foster community and a sense of safety (e.g., sharing of names); (2) a catalyst for that session that introduced the day's big idea and the modes and media involved, and could induce conversation (e.g., viewing of artwork and invitation to respond to a key question connected to the content of what would be signified in the artwork); (3) explicit instruction, modeling, and support to work through the day's project (e.g., the teacher's demonstration of a practice project); (4) sustained opportunities to work on the project and draw on fellow participants for support; (5) opportunities to provide closure to the session and sharing. The portfolio documentation happened throughout this sequence but tended to focus on the fourth and fifth points.

The portfolios allowed for participants to acquire increased facility with new modes, media, and designs. Participants were supported to make design choices, for instance, each portfolio had an opening page that included a photo of the participant and his/her name where choices like font and colour were decided by the participant. For example, the first page of child participant's Jakob's portfolio indicates where he selected a white background and a photo of himself holding up a piece of his artwork for the camera. Above this he inserted his first name in bold font. Jakob's design decisions for this first page express clearly the intent of the portfolio (to show case his artwork) and that it is his (e.g. through the photograph that includes himself and the positioning and quality of his name in relation to it).

An analysis of the portfolios showed that participants included variations of particular kinds of content. First, were the inclusion of digital texts the class participants had constructed from iPad apps and other non-digital media as discussed in a later section. Second, participants included digital photographs of their artwork which they had assistance to annotate when and as desired. Annotations could be as simple as the addition of the name of the project and date, or as elaborate as writing to express more substantive messages about the artwork or the participants' experience in creating it. Witness the annotation for elder participant Tobias's Georgia O'Keefe-inspired painting which he included in his portfolio: above the image of the leaf is written about art class, "I had a bad night last night. I am telling you this because I came in here and painted and forgot all about my pain" (see Figure 1). The annotation is the result of Tobias dictating to a volunteer who typed.

> I had a bad night last night. I am telling you this because I came in here and painted and forgot all about my pain.
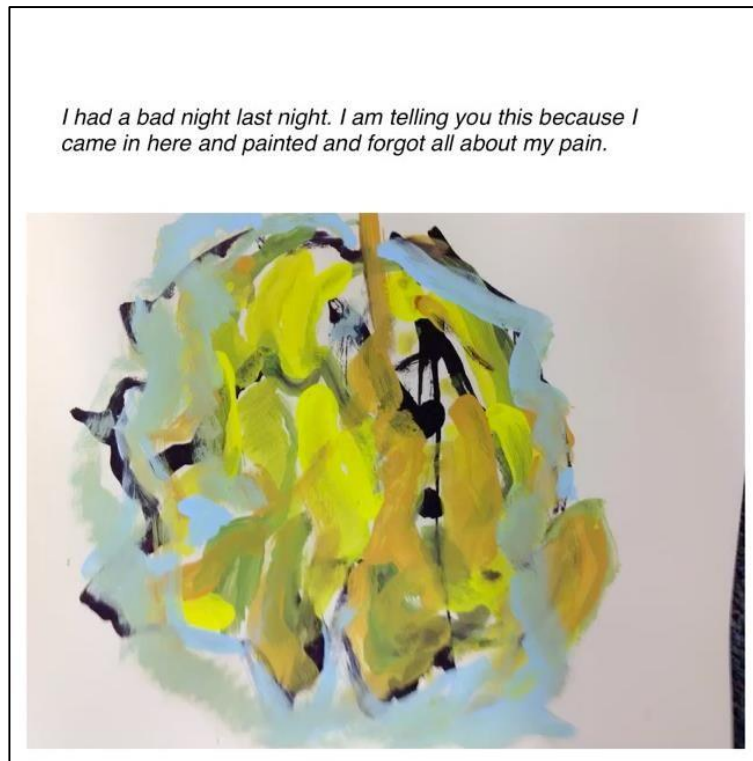
Figure 1. Page from Tobias' portfolio depicting leaf painting and written expression.

Third, participants included photographs of their artwork with audio additions. The photographic inclusion of child Jakob's print (Figure 2), for example, was accompanied by an audio recording of his exchange with the teacher about what he had made and his feelings about art class over the course of the year.

Teacher: So Jakob, what is the thing you liked best about art class this year?

Jakob: My favourite thing was to do *this* art.

Teacher: The printing that we did today?

Jakob: Yes, and my favourite colours that … made me *so* proud is… the black and blue and yellow.
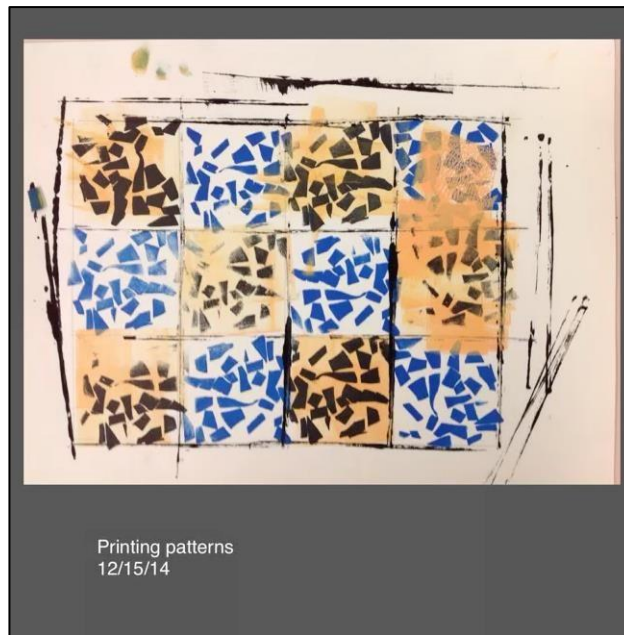
Figure 2. Page from Jakob's portfolio that includes audio insertion.

In the audio recorded exchange, Jakob referred directly to the qualities of his print, referencing its colours (black, blue, and yellow) and the emotions they engendered in him (i.e., "*so* proud").

Participants also included in the portfolios videos of text-making processes. With assistance, Jakob uploaded a video recorded by a volunteer of him using a brayer to make a print. The still image on the portfolio page from which one could click to start the video is labeled with the title 'Making a Print.' The image is a photograph of Jakob sitting in front of a piece of Plexiglas full of ink holding his brayer. The 36-second video depicts him observing the teacher demonstrating the braying technique, then Jakob confidently spreading out the ink and transferring it to the plate.

The portfolios also contain videos of participants discussing their texts. These were recorded by the teacher or volunteers. Often, these facilitators would record the responses to open ended questions focused on the texts, like "Tell me about your piece." Figure 6 is a still of Tobias discussing his "Dream Painting" where he explained in the 2:03 minute video the painting in relation to the image of a sun tattooed on the back of

his hand. His dream painting, created from tissue paper, glue, and pencils, depicted the same sun scape as his tattoo, and this was something he wanted to signal in his portfolio. In the video, Tobias motioned from his painting to his hand which he had placed on the arm of his wheelchair and said, "This is taken from the tattoo on the back of my hand and people regularly say, 'Oh, I love your tattoo' And I think they're talking about what they feel and we all feel in beautiful colors, and I am pleasured to carry it on my hand."

Figure 3. Still video of Tobias discussing his dream painting.

Last, portfolios housed photographs of class taken by the participants themselves, the teacher, or volunteers. The photographs that were in the portfolios were those that participants found to be of import; for instance, Jakob selected to include in his portfolio a photograph of himself and Tobias painting side-by-side. In this photo, the two look intently at their papers, holding paintbrushes, and working in unison.

The constituents of the portfolios and the portfolios themselves could only exist in their specific time and place, with their specific media, people, and curriculum, and each helped to produce the unique affordances of the portfolios.

Use two: Creating texts with digital media

All artwork from the classes became digitized when it entered the portfolios, and some texts were created as digital texts—though always in tangent with non-digital media. The art teacher was supported by the research team to access a variety of apps that could be used with or without other media for multimodal text design. Constituents of the portfolios that participants enjoyed revisiting and that drew on the digital media, were digital texts such as those created through the Chatterpix app (Duck Duck Moose 2013). Participants, for instance, were invited to create an underwater collage out of samples of different colours of paper to which they could use paint to add textures or designs and cut to suit. Collages were a known project in the class and the participants had developed a fair amount of facility with them. Supportive also to the participants was that this project was designed to piggyback on the previous week's project that emphasized (according to the teacher), "breaking down a subject into shapes". Novel during this session was that participants were invited to photograph their collages with the iPads, import the photos into Chatterpix, animate an aspect of the collage, and record their voice to make an aspect of the collage speak. The elder participant who created the collage in Figure 4, for instance, animated the fish's mouth and recorded it saying: "This is a beautiful world to live in." About this project the teacher noted, "For those who made a Chatterpix video there was much enjoyment."

Figure 4. Chatterpix collage

The period before, during, and after making this type of collage suggest some of the affordances of working with the media and the content of the project within the class. This time was ripe with opportunity for intergenerational conversation and collaboration; for example, the participants were invited to respond to a question relating to some aspect of what would be represented in the artwork that day or the medium/media that would be used. In the underwater Chatterpix project, the teacher asked people to share "something that you like to do with water". The teacher noted that most of the class responded similarly with "swimming", though the class was surprised when one elder participant said, "wake boarding". Such surprises elicited smiles and laughs, adding to the joy and mirth of the classes.

All of the participants seemed to delight in the Chatterpix project as evidenced by each participant creating his or her own collage, and also by the laughter that they all produced when they reviewed their and other's talking fish collages during class and later in the digital portfolios. This laughter was also present in all of the adult interviews and discussions with the children when the portfolios were reviewed. The laughter

seemed to come from the animated images—an affordance of the digital media; for instance, when discussing the affordances of the iPads and apps in art class, adult participant Genevieve singled out the collage and noted that the tools were "just amazing"; she then added, "especially like when you make the fish talk….It gets really 'ha-ha' on that one." Similarly, child participant Zara, when reviewing her portfolio with the research team exclaimed when she got to the underwater Chatterpix text: "Oh! There's my talking fish! Hey that's mine!". She then played the recording in the text ("I like swimming at the beach!") and continued to look amazed and reiterated, "Oh that's mine!", asserting ownership and pride over her text. Genevieve also pointed to another Chatterpix project where participants created animated self-portraits or portraits of class members. When asked, "what kind of potential do you see…for…integrating these iPads even more into class?" Genevieve said, "Ah, I *love it* that they put your picture on it and then…you can make it talk, and you can make it do all sorts of things." This last Chatterpix project indeed afforded not just laughter but also the expression of emotion and connection. The teacher noted of this project, "The [children] and residents had a lot of fun making their portraits talk with Chatterpix…one little boy…made his portrait say "I love you Ned!"" with Ned being the elder he sat next to.

Use three: Teacher-elicited visual reference

The iPads with an internet connection and browser, were also used in the class to provide teacher-elicited visual reference for the making of texts. The teacher selected images to be viewed by the class for particular purposes. A prime feature of art class involved the viewing and discussion of art created by a range of artists including folk artists, indigenous artists, art class participants from other years, professional artists past and present, and the teacher herself. Other types of visual stimuli were also used at this point in the pedagogical sequence with the viewings being employed as catalysts for

thinking about the modes and media that would be used in the sessions as well as to consider what one might represent. These opportunities for learning through example and/or demonstration was a critical part of the class pedagogy (e.g., Heydon 2013) where artworks could become *mentor texts* (Dorfman and Cappelli 2007) for the class's own texts.

Of her intent with using the digital images for referencing, the teacher noted following the class that focused on the underwater Chatterpix collage project:

> In this class I used the iPads both for reference and documentation. The reference portion of instruction was lively and involved between kid/elder pairs. All iPads connected to the internet. Even so we were short one iPad. We have found that it is difficult for three people to share the iPad: some of the residents have vision problems that make it hard to see a little screen unless it is up close and tilted at the right angle. (Some dementia issues make it hard to understand what is going on anyway, and distance seems to present an additional obstacle). But for those pairs that had one, the iPads helped forge a connection between the elder and child as they pointed out fish that they liked, or ones that looked scary.

Field notes and other data corroborate the teacher's observations. Class after class, the teacher's promotion of using digital tools for reference held potential for helping participants create their own texts and for sparking intergenerational interaction. We noted, for instance, the physical coming together of participants during shared viewings of images.

Participants viewed images on the iPads together, leading to shared conversation and creating opportunities for relationship building. Figure 5, for instance, is a photograph of an intergenerational pair viewing a Kathe Kollwitz drawing of what can be read as an older adult and a child (e.g., Kollwitz 1931). The teacher used this image in a lesson on tonal value preceding her introduction of a charcoal medium project. The photograph depicts how the image on the iPad pulled the pair together in time and space

to share a common viewing experience. The teacher used such mentor texts to guide whole group discussions and think-pair-shares of techniques germane to the media in question and asked the viewers to consider the meanings they could construct of the texts. For example, when the class viewed the Kollwitz drawing, child Izzy held the iPad so that she and adult Janet who was sitting beside her, could view together. During this point in the pedagogical sequence, the teacher drew attention to the adult in the drawing and said, "…she looks like she's giving the [child] something." Referencing the intergenerational nature of the text, the teacher asked Izzy, "What is the [child] getting from the grandma?" Izzy's engagement with the text grew as she held the screen closer to her eyes, paused and said, "soup on a spoon." Elder Mary chuckled at this and then Janet looked to Izzy's experience, gesturing that she wanted to view more closely, thus Izzy passed the iPad to her. Janet held the iPad and looked carefully. Next, participants Mary, Izzy, Janet, and Genevieve collectively continued on a conversation about what the "grandma" might be feeding the child.

Figure 5. Participants viewing a Kathe Kollwitz drawing.

In terms of constraints, to make good on the promise of using the digital media for reference, the logistics of using the iPads and the internet had to be constantly

negotiated. In noting how the iPads had been used in a class focused on shapes, the teacher documented:

> One way [of using the digital media] was by using it for reference as I did today. When it worked, it was great: Shared between a resident and a child the Matisse cut-outs inspired much discussion (i.e.: resident: "I can't tell what that is?" child, "It's a whale with a spout-ty thing. And a heart" etc.) Taking turns, they were quickly scrolling and selecting and seemed to be having fun talking about the artwork. (YEA!)…The problems were that there were not enough iPads to go around since, for some reason, two of them refused to connect to the internet. (ARGHH!). This left two residents empty handed and excluded until I could pull an iPad from another pair.

Though the digital media supported and expanded participants' meaning making, they also presented challenges that required pedagogical flexibility and problem solving.

Use three: Participant-elicited visual reference

The digital media were also used for participant-elicited visual reference. Prior to the introduction of digital media into the class, class members had experience requesting images from the teacher to use as mentor texts. The teacher had a massive organized folder of images as well as art books and other reference material in book form. Trying to look through all of these images to find the desired one was time consuming for both the participants and the teacher who had to constantly replenish and organize images. The iPads and browser, when the internet connection worked, provided more efficient and perhaps more effective opportunities to locate mentor texts. They also helped to bring participants together in their text making as demonstrated in the following examples.

First, an elder was working with a volunteer to find a mentor text. One of the children looked over at the duo and then left her spot to walk over to look at what they were doing. When she did so, another elder leaned over to me (Author A) and said,

"She is intrigued". Field notes and photographs show that the duo become a trio with the addition of the child, as all three searched together for the reference. Important vis-a-vis relationship-building is that the elder in this example was in a wheelchair and had limited mobility. He could not have approached the child, but "intrigued" by what was happening, the child came to him, and in this interaction, the child's and adult's physical proximity to each other mirrored their shared engagement with the reference image.

Another example of the use of the iPad as a visual reference initiated by the participants that offered opportunities for increased literacy and identity options and intergenerational relationship building, is the case of Janet and child participants Jubilee and Zara. Janet wanted to refer to an image of a black cat so that she could create her own charcoal and stencil image of something that scared her. I (Author A) helped Janet locate an image on the iPad. We searched black cats and as we scrolled through images, seeing the one she wanted, Janet stopped and said, "Oh, look. Wait! That's great!" I then informed Janet that she could enlarge the image if she wanted. I showed her how to increase the size of the image and continued to expand it until she directed, "Yeah, that's what I want." Making an image accessible was clearly an affordance of this mode of reference. Janet did need to understand what the media could and could not do for her, and less impressive to her was the notion that the image was only available as a reference. After getting the right image to the right size, Janet asked, "Can I have it?" Clarifying what she meant, Janet waved from the iPad to the paper and queried, "How do you get [the image] from here to here?" I provided the sorry news, "… that's where the brain-hand connection comes in." Resigned, Janet posed, "Just draw it, right?" Janet then got to work. As she was working, a quiet child's voice uttered, "I want a black cat too." I turned and saw Zara and Jubilee. Janet was now engrossed in

her drawing, so I invited the children to come closer to see what Janet was doing.

Eventually, all three participants were using the black cat on Janet's iPad as a mentor

text. Zara worked together with Janet, the two even at one point sharing the same paper

and pencil; Jubilee, whose work space was across the table, preferred to crawl back and

forth beneath the table, to consult Janet's cat and then return to her paper. A volunteer

suggested to Jubilee that the same image could be procured for her on her own side of

the table; Jubilee acquiesced but continued to look across the table seemingly checking

out Janet's and Zara's progress with their drawing.

A common phenomenon was this shared use of a mentor text which is also

illustrated in Figure 6. This figure depicts an adult and child who were both interested in

the same mentor text, elbow-to-elbow consulting it together while drawing. Through the

use of this visual reference, the participants were each able to create her own text in

tangent.

Figure 6. Participants sharing a visual reference

Class structures to support the use of digital media

There were many uses of the digital media in the program which produced texts and opportunities that could not have been otherwise. As already seen above, the integration of the digital media in class offered participants new tools for meaning making and promoted intergenerational relationship-building by mediating interactions; it also expanded identity options by generating, consolidating and highlighting achievements. The materials of class did not do this alone; particular pedagogies and other strategies in the program were also necessary.

The digital media that enabled the creation of the portfolios and texts therein as catalogued above were new to the participants who required scaffolding to learn how to use them. The teacher and volunteers taught the participants how to use the media to create the portfolios and add to them each week. Some participants required extensive assistance to do this but all were able to make design choices and create new texts with the media. For instance, from the teacher's notes on the first class, she explained the genesis of the portfolios:

> When I saw that the artworks were nearing completion I squatted between a child/resident pair and asked if I could take a photo of each of them holding their artwork. They both seemed happy to comply. Once I took the photo and made a cover page I added text (their full name) and let them pick out the font and background color. They were both very excited about it. The resident, Ned said, "that is really a nifty machine! What do you call it?".

The elders did not have prior experience with digital media, including iPads, and this lack of experience was anticipated by the teacher. The children, however, perhaps by virtue of being at a screen free child care centre, did not seem either to be familiar with the tool which was more surprising to the teacher. Again, from the teacher's notes:

I knew that the technology would be new to most/all of the residents. I expected that the children would be familiar with iPads, but they seemed not to be? Curious. One girl seemed very impressed that next week she would take a photo of her own artwork. I let her record an audio explanation of her artwork and she was floored.

All participants required an introduction to what the teacher called "the big picture" of the digital media available in class which she defined as "what the iPad is and what we are doing with it". The introduction of the digital media seemed to be, as with Ned and the child above, initially impressive to most.

As participants and facilitators worked with the portfolios, they supported each other to use them. This was a process that sometimes required perseverance. The portfolios in particular required some additional effort on the part of the teacher and volunteers, as none of the volunteers were comfortable with the digital media prior to their use in class. Due to fine motor, mobility, and/or cognitive issues, many of the adults found it challenging to use the iPads independently. As such, the volunteers' assistance was essential. The teacher provided ongoing training and practice with the digital media for the volunteers as well as other strategies such as written instructions for them to follow to use essential apps. The teacher also tried to highlight before classes, opportunities that the volunteers might take during class to document processes or interactions that the participants might later include in the portfolios (e.g., noting times when she predicted potential for strong intergenerational interaction as in the third point in the pedagogical sequence). The volunteers developed increased facility with the digital media over the course of the program: for example, one volunteer took what she had learned in class and practiced creating a portfolio on her iPhone to record her granddaughter's artwork outside of class, and even from the second to third class, the teacher noted that another volunteer began to document in the class "unprompted".

Author A also had the following exchange with this volunteer at the side of the class during the seventh session where the volunteer said,

> I had a resident the last time I was here…I [had] been gone for about a week, and we were trying to do the iPads thing together and she…was sort of helping me and I said, "Have you ever done this before?" and she said, "No, I've never seen one before" and I said, "Well, *you* have to show *me* how to do it". So we were having fun together trying to figure out this thing, and we were going back and forth with the text and voice over text. It was really cool…. once we all get over that fear of technology, we're much more flexible with it.

In this exchange the volunteer expressed a comradery with the participants as they collectively took up a learning opportunity to expand their literacy options. In so doing, there were opportunities for relationship building, seeing one's self as part of a collective, and enjoyment.

Supports to learn about the digital media came from the teacher, volunteers, *and* the children. The children, despite seeming to have no more experience with the iPads than the elders, did catch on more quickly. They thus sometimes schooled the adults, which provided opportunities for new identity options and relationship building. For instance, elder Genevieve laughingly remarked in an interview: the "teacher was trying to tell the…young girl…how to use [the iPad], and…the teacher [made a mistake] and the [child] goes [tsk-tsk]". The teacher also noted that through the course of the program the children became

> VERY into shooting their artwork photo and love to turn the pages of their [portfolio] and replay all the videos each session. Because of this, the shooting takes longer than it did in the initial classes, though, hey! -that's a good thing!

As the program progressed, the children and some of the adults (including some of the volunteers) developed greater ease in using the digital media, and in turn their

engagement with the tools seemed to increase as they recognized the tools' affordances. Learning opportunities were thus tied to these affordances and constraints.

Affordances and constraints

A triangulation of the data expresses the specific affordances and constraints of the digital media and their uses. Examples of the affordances of the digital media in the class noticed by the adult participants include the following. First was the ability with an iPad to delete; elder Ned, who shared that he had been in a "teaching position for a long time in the army" and identified himself as supporting the children in the class in their learning, articulated the delete function as one that created occasion for experimentation and learning as well as a different pedagogical relationship between adult and child. When he was asked about the iPads, Ned responded, "I think it's great because kids make mistakes, and you can make this [mistake] go pfft [gestured something disappearing]…Show them how to erase it." Ned juxtaposed having a "go" at something that could be attempted and then erased, versus telling a child how to do something absolutely. With the former being, in his opinion, a better learning opportunity. Interview data suggest that the elders perceived affordances of the portfolios germane to expanding identity options; for instance, when asked about the portfolios and what the children might have gotten out of art class, adult participant Jean said, "I think that they…get a… renewed picture of themselves and…better view of themselves because this is something …that I made." When asked, "How do you think that might help them?" Jean answered, "Oh I think it gives them…a sense of…what they're doing is worthwhile…and is recognized…and when they see what they do, and they see what the others do, sometimes it…encourages them to get a little bit better." Just as Ned saw himself in the role of teacher, so too did Jean see that the children perceiving themselves in positive terms could be meaningful to her and her peers as

well. When discussing how the portfolios could be a boon to children's sense of self, she said, "It shows them significance in what they're doing, in what they're learning. I think that's important. Not just [to] one person but [to] more people that are interested in…helping them to do better work" such as herself. Something about the framing of the texts, seeing them in a cohesive body, and having them contained in a digital portfolio lent a situational validity to the participants' work. The portfolios could also show growth over time.

Moreover, in terms of affordances, one of the teacher's goals for the portfolios was to enable participants to share what they had made in class with anyone they might choose. Foremost in the planning was the distribution of portfolios with family members through file sharing of various kinds. From the teacher's vantage, this sharing seemed important for both generations who were at the facility without their families— either because they were attending day programs or residing there. Disappointing to the teacher, however, for a host of reasons ranging from privacy legislation to technical incompatibilities, it was difficult to share the portfolios with people outside of class. Still, sharing did occur, and this affordance of the portfolios was leveraged. For instance, even early in the program, the teacher was able to note spontaneous sharing of texts across time, place, and persons:

> A resident…in my afternoon [adult resident only art] class has a great granddaughter in the morning [intergenerational] class. During the afternoon class I showed [the resident] her granddaughter's [portfolio]. She was very delighted and thanked me profusely for sharing.

Additionally, once when there was a shortage of help to bring elders with mobility needs to the art room which delayed the start of class, the teacher shared the portfolios of one group with another. She noted that while waiting for the adults to arrive, "I spent the wait time with the kids showing them the Chatterpix from the previous class, which

turned out to be a bonus because they were very motivated to complete the project."

Another example of unplanned sharing that occurred is when art class was held in resident *neighbourhoods* (i.e., the area of the building where the elders had their rooms and common areas for eating and socializing) instead of in the art room. The teacher noted that when class was held in a neighbourhood "a couple residents who had not been part of the art class previously enjoyed…looking at the [portfolios] of other participants." Other data also confirmed that the portfolios produced opportunities for benefits beyond the here and now and in ways that could not have been otherwise achieved.

The portfolios were also shared in ad hoc and planned fashions with family members. For instance, we observed elder Ned sharing his portfolio with his spouse who had come to visit him, providing her a window on what he had been doing and producing. And when participant Tobias died shortly after the end of the program, the teacher was able to share his portfolio with his spouse, permitting her to see his art work, watch him creating it, interacting with his classmates, and talking about what he was doing as demonstrated in the examples from his portfolio above which all demonstrate a keen sense of optimism.

The early childhood educators (ECEs) also worked with the teacher to share the portfolios with the children's families during conference time. The teacher, who was not a part of these conferences, documented afterwards,

> I asked [two ECEs] for the parents' reactions to the [portfolios] during conferences. Both said that all parents were delighted and spent a long time looking. [One ECE] said that she left that part until last because it was the best. She said, "You can tell the parents what happens during their child's time away from home, but this actually let them experience a moment in their child's day". …Both [ECEs] asked if we could continue with the [digital] portfolios.

Despite logistical challenges, the portfolios, as these examples relate, allowed participants' texts to be shared with others, affording the creation of new viewings, new designs, and new identities.

Discussion

In the intergenerational art class people's hands held charcoal and other mark making tools, the edges of each other's paper steady, and the cases of iPads as they passed them back and forth for viewing. In this holding of diverse media, people designed multimodal texts where the visual predominated, but where other modes were always present and necessary to carry out literacy goals. People's hands, small and young, grown and wise, were always willing accomplices in literacy practices within a class where the support for each other's texts was omnipresent and where the sharing of the processes and products of class could be had with class members and those whom one valued and loved—like one's family members. The integration of the digital media into class was not flawless, but the attempt has much to teach about digital media as placed resources and the potentialities of multimodal curricula, be they inter- or monogenerational.

The study reported on in this paper asked, *How did the participants in the intergenerational art program employ the digital media and with what effects on participants' opportunities for expanded literacy and identity options? What are the implications for multimodal curricula—both in mono and intergenerational contexts?* These questions were posed in a context where there were a plethora of known benefits of intergenerational learning programs and the use of new media including decreased isolation for elders (e.g., Gamliel and Gabay 2014) and children's and elders' increased appreciation for diversity (Jarrott and Bruno 2007).

Prinsloo's (2005) reading of placed resources, as described earlier, expressed that digital media are not valuable in and of themselves, nor are they universally appreciated in the same way by the people who use them. Rather, what said media mean within literacy practices is situational and their uses and effects fluid. The data in the study have suggested that in the intergenerational art class, digital media were resources that had specific uses, affordances, and constraints. Embroiled in the practices were the iPads, along with diverse applications, internet connections, and in relation to a plethora of other media such as paper, paint, pencils, charcoal, all within the context of a curriculum structured through pedagogies to support the acquisition and amelioration of people's facility with the tools of art-making in a socially-explicit manner. Specifically, participants used the digital media to construct digital portfolios, texts, and access reference or mentor texts in ways that framed their text-making, texts, and reflections on texts, and how they could communicate these artifacts to others in and outside of class. Child and adult participants were all able to use digital media, while receiving support and supporting others, to help in this co-construction. Each person involved in the classes was a learner and each person could be a teacher—a point that has implications for the availability of identity options.

The uses of the digital media in conjunction with the other media in class also allowed for a full spectrum of multimodality and backing for text-making. Within these practices digital media acted as a mediator, bringing people physically together (as in the examples of children and elders sharing reference material) as well as virtually through the sharing of accomplishments with loved ones (as in the illustrations of portfolio sharing). Within their communication, people are designers, and these designs can be adopted and adapted or redesigned by others (Kalantzis and Cope 2012). Mentor texts fuelled class text-production which in turn fuelled more text-production.

Sociability and opportunities for relationship were created by referencing texts together and created new opportunities for design. Being a designer and seeing one's self as a designer within and through relationship creates opportunities for the expansion of literacy and identity options.

Continuing along with these options and relationships between people and people and media (including the digital), there was a reciprocal relationship between text-making and intergenerational relationships with the digital media providing opportunities for each. Literacy options were expanded as participants had occasion to acquire and grow facility with diverse media. The root of this expansion included new facility with apps which enabled novel digital texts, but the iPads in their role as reference tools also contributed to opportunities for enhanced facility with more familiar media such as in the example of the chalk participants used in their collectively improvised explorations with the concept of value, all aided by reference material .

Text-making with the digital media drove relationship-building and identity option opportunities exposing participants to new perspectives and friendships: for instance, the digital portfolios were a valuable mneumonic for participants of their own and classmates' texts and consolidated disparate texts into a cohesive body of work whose accomplishment could be owned (e.g., consider the first page of Jakob's portfolio punctuated by a photo of himself displaying his work to the viewing with his name boldly below). Moreover, these texts could convey a powerful message as an assemblage, as in Tobias' portfolio where text after text spoke of beauty in the face of change, and one might consider the impact of these messages as they could be conveyed to people outside of class and the intergenerational community. What might it mean for family members—spouses and parents—to be able to see and share in what their kin are

doing when they are not able to be together? This is a line of inquiry that warrants follow-up.

The data also speak to the importance of the text-makers and supporters, in this case the intergenerational participants along with the teacher, volunteers, and ECEs, needing to see how the digital media could contribute to their pursuits and concerns. Participants, for example, took up the digital when they perceived it as helpful pedagogically (e.g., Ned and the delete key), enjoyable (e.g., the creation of texts that could make one laugh), and providing desired information (e.g., what does a black cat look like?). Volunteers, the ECEs, and the teacher too had to be convinced by the media themselves, so that the affordances of the digital could override fear or concern about learning new skills or exposing children to potentially stifling screens. In all, the digital media needed to be established, as per Prinsloo (2005) as important to the local community forged within the intergenerational art class. Prinsloo had previously noted an overemphasis in the research on new media on the physical presence of the media. This study has attempted to offer sufficient descriptions of the pedagogical and social context of the classroom curriculum that the web of relations mediating literacy and identity options as well as opportunities for relationship building were amply visible. Further, the intergenerational nature of the study here provides data and analyses focused on people (e.g., in early life, advanced age, and/or with disabilities) and a context that are little described, but who have much to teach.

References

Bangerter, L. R., and V. R Waldron. 2014. "Turning Points in Long Distance
Grandparent-Grandchild Relationships." *Journal of Aging Studies* 29: 88-97.
doi:10.1016/j.jaging.2014.01.004

Barton, D., and M. Hamilton. 1998. *Local Literacies: Reading and Writing in One
Community*. London: Routledge.

Buckingham, D. and R. Willett, eds. 2006. *Digital Generations*. Mahwah, NJ: Lawrence
Erlbaum Associates.

Cambourne, B. 2000/2001. "Conditions for Literacy Learning: Turning Learning
Theory into Classroom Instruction: A Minicase Study." *The Reading Teacher* 54
(4): 414-417.

Cummins, J. 2001. *Negotiating Identities: Education for Empowerment in a Diverse
Society.* 2nd ed. Los Angeles, CA: California Association for Bilingual
Education.

Dorfman, L. R., and R. Cappelli. 2007. *Mentor Texts: Teaching Writing Through
Children's Literature, K-6*. Portland, ME: Stenhouse Publishers.

Doyle, W. 1992. "Curriculum and Pedagogy". In *Handbook of Research on
Curriculum,* edited by P. W. Jackson, 486-516. New York: Macmillan.

Duck Duck Moose. 2013. *Chatterpix* [version 1.0.3]. [Mobile application software].
Retrieved from http://www.apple.com/itunes/

Dyson, A.H., and C. Genishi. 2005. *On the Case*. New York: Teachers College Press.

Esteban-Guitart, M., and L. C. Moll. 2014."Funds of Identity: A New Concept Based on
the Funds of Knowledge Approach." *Culture and Psychology* 20 (1): 31-48.
doi:10.1177/1354067X13515934

Finnegan, R. 2014. *Communicating: The Multiple Modes of Human Communication.* 2nd ed. London: Routledge.

Fraser, S., and C. Gestwicki. 2002. *Authentic Childhood: Exploring Reggio Emilia in the Classroom.* Albany, NY: Delmar Thomson.

Friedman, B. 1997. "The Integration of Pro-Active Aging Education into Exciting Educational Curricula." In *Intergenerational Approaches in Aging: Implications for Education, Policy and Practice*, edited by K. Brabazon and R. Disch, 103-110. Binghamton, NY: Haworth Press.

Gamliel, T., and N. Gabay. 2014. "Knowledge Exchange, Social Interactions, and Empowerment in an Intergenerational Technology Program at School." *Educational Gerontology* 40 (8): 597-617. doi:10.1080/03601277.2013.863097

Gregory, E., and A. Williams. 2000. *City Literacies: Learning to Read Across Generations and Cultures.* London: Routledge.

Gregory, E., S. Long, and D. Volk. 2004. "Introduction to Part I". In *Many Pathways to Literacy: Young Children Learning with Siblings, Grandparents, Peers, and Communities*, edited by E. Gregory, S. Long, and D. Volk, 23-24. New York, NY: RoutledgeFalmer.

Gregory, E., J. Mace, N. Rashid, and A. Williams. 1996. "Family Literacy History and Children #8217; Learning Strategies at Home and at School." *ESRC Final Report R000221186*.

Heydon, R. 2007. "Making Meaning Together: Multimodal Literacy Learning Opportunities in an Intergenerational Art Program." *Journal of Curriculum Studies* 39 (1): 35-62. doi: 10.1080/00220270500422665

Heydon, R. 2013. *Learning at the Ends of Life: Children, Elders, and Literacies in Intergenerational Curriculum.* Toronto: University of Toronto Press.

Heydon, R. and S. O'Neill. 2015. *Learning Together: A Multiple Case Study of Intergenerational Multimodal Literacy Curricula*. Research grant proposal submitted to Social Sciences and Humanities Research Council.

Heydon, R. and S. O'Neill. (2016). *Why Multimodal Literacy Matters: (Re)Conceptualizing Literacy and Wellbeing through A Singing-Infused Multimodal, Intergenerational Curriculum.* Netherlands: Sense.

Heydon, R. and S. O'Neill. in press-b. "Children and Elders Making Meaning: Semiotic Possibilities and the Imperative of Relationship." In *Making Meaning: Constructing Multimodal Perspectives of Language, Literacy, and Learning Through Arts-Based Early Childhood Education,* 2nd edition, edited by M. Narey. Boston, MA: Springer.

Heydon, R. and J. Rowsell. 2015. "Phenomenology and Literacy Studies." In *Routledge Handbook of Literacy Studies*, edited by K. Pahl and J. Rowsell, 454-471. London: Routledge.

Hicks, D. 2002. *Reading Lives: Working-Class Children and Literacy Learning*. New York: Teachers College Press.

Jarrott, S.E. 2007. "Programs that Affect Intergenerational Solidarity." *Proceedings of the United Nations Expert Group Meeting "Intergenerational Solidarity: Strengthening Economic and Social Ties."* Retrieved from http://www.un.org/esa/socdev/unyin/documents/egm_unhq_oct_07_jarrott.pdf

Jarrott, S. E., and K. Bruno. 2007. "Shared Site Intergenerational Programs: A Case Study." *Journal of Applied Gerontology* 26 (3): 239-257. doi:10.1177/0733464807300225

Jewitt, C., and G. R. Kress. 2001. *Multimodal Learning and Teaching: The Rhetorics of the Science Classroom*. London: Continuum

Kalantzis, M., and B. Cope, eds. 2012. *Literacies.* Cambridge: Cambridge University Press.

Kelly, C. 2004. "Buzz Lightyear in the Nursery: Intergenerational Literacy Learning in a Multimedia Age." In *Many Pathways to Literacy: Young Children Learning with Siblings, Grandparents, Peers, and Communities*, edited by E. Gregory, S. Long, and D. Volk, 66-76. New York, NY: RoutledgeFalmer.

Kollwitz, K. 1931. *Mother Feeding Child.* [etching]. Online image retrieved from https://www.nicholasangelo.com/images/IG7055-1.jpg

Kuehne, V., and M. Kaplan. 2001. *Evaluation and Research on Intergenerational Shared Site Facilities and Programs: What We Know and What We Need to Learn. Project SHARE Background Paper#1*. Washington, DC: Generations United.

Kucirkova, N. 2016. "Digital Personal Stories: Bringing Together Generations and Enriching Communities." In *Literacy, Media and Technology: Past, Present and Future*, edited by B. Parry, C. Burnett and G. Merchant. London , UK: Bloomsbury Academic.

Kress, G., and T. van Leeuwen. 2001. *Multimodal Discourse: The Modes and Media of Contemporary Communication*. London, UK: Arnold.

LaPorte, A. M. 2004. *Community connections: Intergenerational links in Art Education*. Reston, VA: National Art Education Association.

Mackenzie, S. L., A .J. Carson, and V. S Kuehne. 2011. "The Meadows School Project." *Journal of Intergenerational Relationships* 9 (2): 207–212. doi:10.1080/15350770.2011.568343

McCausland, L., and N. L. Falk. 2012. "From Dinner Table to Digital Tablet: Technology's Potential for Reducing Loneliness In Older Adults." *Journal Of Psychosocial Nursing and Mental Health Services* 50 (5): 22-26. doi:10.3928/02793695-20120410-01

Nagle, J., and R. Stooke, 2016. "Railways, Rebellions and Rage Against the Machine: Adolescents' Interests and Meaning-Making in the Creation of Multimodal Identity Texts." *Literacy* 50 (3): 158-165. doi: 10.1111/lit.12081

Pahl, K. 2007. "Creativity in Events and Practices: A Lens for Understanding Children´s Multimodal Texts." *Literacy* 41 (2): 86-92.

Pahl, K., and J. Rowsell. 2005. *Literacy and Education: Understanding the New Literacy Studies in the Classroom*. London: Sage.

Prinsloo, M. 2005. "The New Literacies as Placed Resources." *Perspectives in Education* 23 (4): 87–98.

Prinsloo, M., and J. Rowsell. 2012. "Digital Literacies as Placed Resources in the Globalised Periphery." *Language and Education* 26 (4): 271-277. doi:10.1080/09500782.2012.691511

Red Jumper. 2014. *Book Creator for iPad* (Version number 3.2) [Mobile application software]. Retrieved from http://www.apple.com/itunes/

Schubert, W. H. 1986. *Curriculum: Perspective, Paradigm, and Possibility*. New York: Macmillan.

Stein, P. 2008. *Multimodal Pedagogies in Diverse Classrooms: Representation, Rights and Resources*. London, UK: Routledge.

Walsh, M. 2011. *Multimodal Literacy: Researching Classroom Practice*. Newtown, New South Wales: Primary English Teaching Association (e:lit)

Withers, B. 1971. Grandma's hands. On *Just as I am* [Record]. Hollywood, California: Sussex.

Wohlwend, K. E. 2013. *Literacy Playshop: New Literacies, Popular Media, and Play in the Early Childhood Classroom*. New York: Teachers College Press, Teachers College, Columbia University.