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# Re-conceptualizing the nature of resources in multimodal literacy: The case of young children's meaning making in an intergenerational art class

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# Abstract

This case study was embedded in a SSHRC project called: *Learning together: A multiple case study of intergenerational multimodal curricula*, led by Dr. Rachel Heydon. The study specifically focused on resources employed by young children in their processes of meaning making within intergenerational art classes. Research questions concerned: 1) what resources were available for young children's meaning making within the intergenerational art classes? 2) what resources were chosen and used by young children in their processes of meaning making and how? and 3) how did different resources interact with each other in multimodal ensembles? The theoretical tool of the study was the theory of multiliteracies. Sources of data were derived from the original SSHRC project, including audio and video transcripts, interview transcripts, field notes, photos, and participants' digital portfolios. Methods of data analysis included micro-analysis approach (Kress, 2009) and constant comparison method (CCM) (Cohen, Manion, & Morrison, 2011; Glaser & Strauss, 1967). Findings of this study indicated that except for semiotic resources, human-based resources, contextual resources and young children's funds of knowledge and funds of identity were employed for young children's meaning making. Young children chose different types of resources according to their interests and perceived representational appropriateness. Findings also relate that in the multimodal ensembles, different types of resources were orchestrated for meaning making. The resources co-presented and enhanced each other's expressiveness. Multiple types of resources expanded opportunities for young children's literacy practices and identity

formation. The study enriches the existent understanding of resources for young children's literacy learning and offers recommendations about resources for young children's literacy learning in the 21st century.

## Keywords

Early literacy, multimodal literacy, intergenerational learning, art education

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# Chapter 1

## 1 Introduction

Literacy researchers have been increasingly attending to the idea that people draw on myriad resources in their meaning making (e.g., Pahl & Rowsell, 2011; McKee, 2013; Prinsloo & Rowsell, 2012). The term *resources* is differently used depending on the researcher, and a key goal of this study is to better conceptualize the notion of literacy resources, but simply put, as the literature review will show, resources is generally used to refer to the different *stuff* (Kress, 1997) from which people construct their literacies. Building on this foundation, in this study, I seek to provoke a greater understanding of resources for young children's meaning making by studying what resources young children choose and use for their meaning making, how they choose and use resources, and how different types of resources work together in multimodal ensembles.

In this chapter, I firstly explain the research context of this study and existent knowledge about resources for young children's meaning making. I then illustrate the gap between the current literature and the study. Next, I indicate the goal of this study. I also raise research questions for my thesis and address a brief research target of each question. Finally, I provide an overview of the thesis.

## 1.1 Research context and existent knowledge

Young children are growing up in a digital era which involves many types of literacy practices that draw on digital technologies, such as playing computer games, searching on the Internet, and drawing pictures by using screen-touch devices (e.g., Akhter, 2015; Carrington & Robinson, 2009; Davidson, 2011; Gee, 2003; Marsh, 2011). The introduction of Internet communication technology into literacy learning and rapidly changing literacy tools (e.g., tablets or iPads, computers, and mobile phones) provide young children with multiple new resources for meaning making (e.g., social networking sites, online dictionaries, and learning apps). Simultaneously, the theory of multiliteracies (The New London Group, 1996) advocated for curriculum and pedagogy that can offer learning opportunities not only for young children's literacy practices in the contemporary digital era, but for their expanded literacy and identity options (i.e., "the possibilities that learners have for making meaning through multiple design elements [multimodal, multilingual and multicultural], which relate to their identity construction" [Zhang & Heydon, 2015, p. 2]). With the lens of multiliteracies, learning opportunities are considered as *multimodal* (i.e., engaging multiple *modes*, including digital media, into literacy learning materials/resources, Kress, 2009). As a result, new goals for literacy learning are being put forth by literacy researchers in the 21st century. For example, Lapp, Wise, and Johnson (2013) expressed that literate people in the 21st century should be "creative, independent thinkers…(who) continually produce new knowledge" (p. 10). Ciardiello (2015) referred to "a broad vision of literacy" (p. 2) as a

requirement for 21st century literacy learning. That is to say, children's literacy practices are now recognized as potentially involving the use of myriad *semiotic resources* (e.g., texts, audios, videos, and apps on mobile phones or iPads) (ILA, 2009), and these are resources that need to be accounted for in pedagogies.

Additional to the above-mentioned semiotic resources, there are other possible resources, as identified in the literature, that support young children's processes of making meaning. These possible resources may include young children's *funds of knowledge* (e.g., people's linguistic and cultural assets [Gonzales, Moll, & Amanti, 2005]) and *funds of identity* (e.g., essential resources for a person's "self-definition, self-expression, and self-understanding" [Esteban-Guitart & Moll, 2014, p. 31]). Resources also come from people[1] (e.g., ideas and experiences from other people, and information from communications with other people [Heydon, 2013]) and contexts (e.g., contextual resources that available from one situated context, such as teachers' guidance in schooling contexts). These also are what I intend to explore in this study.

When searching with keywords such as "literacy" and "resources" or "literacy resources" in several educational databases (e.g., ProQuest Education Journals, Education Research Complete, etc.), I found little research that provides a specific definition of *resources* in literacy learning or literacy resources. There are studies that address "multimodal resources"

[1] Heydon's book *Learning at the ends of life: Children, elders, and literacies in intergenerational curricula* (2013) documents people as resources for meaning making. In the chapter five of this book, Heydon describes how both young children and elder people participants broaden their identity options and literacy practices through increasing communicative options with multiple modes and media.

for literacy learning in different contexts (e.g., Erstad, Gilje, & de Lange, 2007; Wopperer, 2011). However, most of the existent studies have focused on how one specific type of semiotic resource may support people's literacy learning, such as digital literacy resources (e.g., Dudeney, Hockly, & Pegrum, 2013; Woods, 2014) or textual resources (e.g., printed materials for literacy learning [Knain, 2006]). The existent literature points to the need to conduct research that expands the conceptualization of *resources* and elucidates how they might be orchestrated within the process of meaning making. Led by experienced researchers of literacy and curriculum, my research seeks to address the current knowledge gap.

In this study I also explore the relationship between resources that are employed in young children's meaning making through a tri-partite conception of *Design*[2] (Cope & Kalantzis, 2009). Through a multiliteracies lens, Design involves three aspects: *Available Designs* (e.g., "found and findable resources", p. 176), *Designing* (i.e., the act of making meaning), and *The Redesigned* (i.e., how people and the world are transformed through the process of *Designing*). The notion of Design emphasizes that people are designers in their processes of making meaning and explains the relationship between people and "found and findable resources" (p. 176) in their contexts. With the perspective of multiliteracies and the notion of Design, recent research on young children's literacy learning has focused primarily on: 1) how to innovate literacy teacher education and how devise curriculum that encourages students to learn literacy through a design lens (e.g., Jesson, McNaughton, & Wilson, 2015;

[2] The notion of Design is further explained in chapter 2.

McLean & Rowsell, 2013); 2) how young children participate in school literacy and design meaning on the basis of the expectations and opportunities that they encounter in school (e.g., Narey, 2009; Siegel, Kontovourki, Schmier, & Enriquez, 2008); 3) how a situated learning context supports young children's literacy learning: For example, how intergenerational learning, with family, supports young children's literacy learning (e.g., Akhter, 2016; Gregory, Long, & Volk, 2004; Kenner, Ruby, Jessel, Gregory, & Arju, 2008); and mostly 4) how digital media support and influence young children's literacy practices, and how to introduce digital tools into young children's literacy learning (e.g., Fleer, Ridgway, & SpringerLink, 2014; Heider, Renck-Jalongo, & SpringerLink, 2015; Hutchison, Beschorner, & Schmidt-Crawford, 2012). Most of current research has focused on how to generate opportunities for young children's literacy practices through various kinds of literacy resources, but researchers are only just now paying attention to how different types of resources interact with each other in multimodal ensembles when they are used in young children's making meaning. Thus, based upon the notion of Design, in this study I further explore how different types of resources work with each other in young children's multimodal artifacts.

In brief, in reviewing the literature I found that most of the studies I identified contribute to knowledge about how young children, as meaning makers, choose and use available semiotic resources in classrooms or out-of-school contexts. There are also many studies that explore how young children interact with different types of semiotic resources in their processes of

meaning making. However, the concept of literacy resources is still under-defined in the current literature. Also, the relationship between resources used in young children's meaning making needs to be further explored. Therefore, in this study, I explore how young children choose and employ various types of resources in their processes of making meaning in an intergenerational art class and how these resources interact with each other in young children's multimodal ensembles.

## 1.2 Purpose of Study and Research Questions

As is mentioned above, the purpose of this study is to contribute to a greater understanding of literacy resources, investigate the relationship between multiple resources in multimodal ensembles, and explore implications for young children's meaning making in the 21st century. This research is embedded in a Social Sciences and Humanities Research Council-funded project called: *Learning together: A multiple case study of intergenerational multimodal curricula*, led by Dr. Rachel Heydon. The original SSHRC project employed a multiple case study design using ethnographic tools such as interviews (with participants [both children and elder adults], educators, recreation staff, and volunteers who were involved in the intergenerational art class), field observations, and collection of digital portfolios (created by participants to document the particulars and dynamics of their literacy practices and identity options in an intergenerational context) and then provided rich data sources for this study.

Within the current SSHRC research study, this thesis adopts a single case design. This study specifically focuses on the resources employed by young children in their literacy learning within one intergenerational art program. The study was guided by four fundamental and interrelated research questions: *1) What kinds of resources were made available for young children's literacy learning in the intergenerational art class? 2) What resources did the young children choose to use in the process of making meaning and how did they use them? 3) What is the relationship between the resources (i.e., how different kinds of resources interact with each other in multimodal ensembles)? 4) What are the implications of resources employed in young children's literacy learning in the 21st century?*

These research questions are in line with the three components of the framework of *Design* (Cope & Kalantzis, 2009). The first research question addresses what types of resources are available for the children for their meaning making in the intergenerational context, which is based on the concept of *Available Designs*. The second question is underpinned by the definition of *Designing* and concerns how these resources support children's meaning making in the intergenerational art class. The last two questions align with *The Redesigned* and shed light on how young children are transformed in the processes of meaning making. Specifically, the reasons why I want to explore how resources are together orchestrated in multimodal ensembles are: 1) to figure out the affordances of different resources for young children's meaning making; 2) to make a comparison between different types of resources and find out similarities and differences of these resources on the aspect of supporting young

children's process of meaning making; and 3) to explore how resources are chosen and used by young children in their processes of representation and communication. I further study how multiple resources expand opportunities for children's literacy practices and identity formation in their processes of meaning making.

## 1.3 An overview of the study

In chapter 2, I synthesize the current literature on several fundamental concepts pertaining to children's literacy learning and resources, including literacy, multiliteracies, multimodal literacy, multimodality, modal affordances, and the affordances of resources for literacy learning. In particular, I review research about multiliteracies, which provides a theoretical framework to this study.

Chapter 3 presents the methodology—single case study—used in this study. In this chapter I also introduce data sources from which the data of this study derive and multiple methods utilized for data analysis. At the end of this chapter I outline ethical considerations in this study.

In chapter 4, per the data derived from the original project, I tap into the particulars of resources for young children's meaning making in intergenerational art classes. This chapter sketches what types of resources were available for young children's literacy learning in the art classes and how the children choose and used different types of resources for their representations and communication. I share examples of child participants concerning how

they interacted with resources. Specifically, through analyzing data from field notes of observation, transcripts of audio/video recordings and interviews, and young children participants' digital portfolios, I also exhibit what I have explored about how various resources were orchestrated in multimodal ensembles for the children's meaning making and how multiple resources expanded children's communication options.

Chapter 5 responds to the research questions of the study and discusses the findings presented in Chapter 4. It also seeks to expand the understandings of resources for people's meaning making by discussing the findings of the study. In this chapter, based on the discussion, I then provide implications of resources for young children's literacy learning in the 21st century. At the end of this chapter, I further illustrate the significance of this study.

# Chapter 2

## 2 Literature Review

This study focuses on the resources used by young children in their processes of meaning making. The literature review will set the stage for the study by providing several fundamental concepts pertaining to literacy learning and resources. In this chapter, I firstly illustrate the definition of literacy. Then I position the lens of resources for meaning making for the study within a *multiliteracies* framework. I further clarify the notions of *multimodal literacy, multimodality* and *modes.* Finally, I discuss the *modal affordance* and resource affordances in literacy learning.

## 2.1 Literacy

A basic definition of *literacy*, according to Merriam-Webster dictionary (www.m-w.com/cgi-bin/dictionary), is the ability "to read and write" (2017, para. 1) when it is used in the domain of early childhood education. However, some researchers expand the notion of literacy beyond merely the ability to extract an author's meaning from print literacy. Contemporary theories of literacy and literacy education, therefore, highlight the multimodal, situated nature of literacies as described below.

Traditional theories of meaning making are "mono-modal in their focus on how language communicates meaning" (Stein, 2008, p. 1). However, a multimodal theory of meaning making indicates that "meaning is made, always, in the many different modes and media

which make up and communication ensemble[3]" (p. 1). With the lens of multimodal literacy and new literacy studies, researchers (e.g., Bartlett, 2003; Heydon, 2013; Jones-Diaz, 2007) hold "an ever-expanding definition of literacy that sees literacy as involving more than just the reading and writing of linear printed-based texts as they recognize that all communication entails more than one mode at a time" (Heydon, 2013, p. 22). They thus believe that definitions of literacy should not be restricted to "writing and reading text in classroom and schooling contexts" (Jones-Diaz, 2007, p. 32). Literacy should be understood as situated in the social worlds in which people actively participate (Gee, 1990). Therefore, an alternative view of literacy—*literacy as social practices*, that is, the meaning represented in oral, written and visual texts are socially constructed and situated" (p. 32)—is forwarded. Barton (2001) argues that "everyday activity in the contemporary world is mediated by literacy and people act within a textually mediated social world" (p. 92). Jones-Diaz (2007) also contends that what constitutes literacy "must take into account the social practices and situations embedded in our daily uses of text" (p. 31). In 2004, the United Nations Educational, Scientific and Cultural Organization (UNESCO) provided an expanded notion of literacy as the "ability to identify, understand, interpret, create, communicate and compute, using printed and written materials associated with varying contexts" (p. 13). Through literacy learning, individuals can communicate with each other easily, develop their knowledge, and "participate fully in their community and wider society" (p. 13). The notion of literacy has thus been endowed with a rich meaning as associated with social practices.

[3] The terms of modes, media, and ensemble would be further explained in Section 2.3 of this chapter.

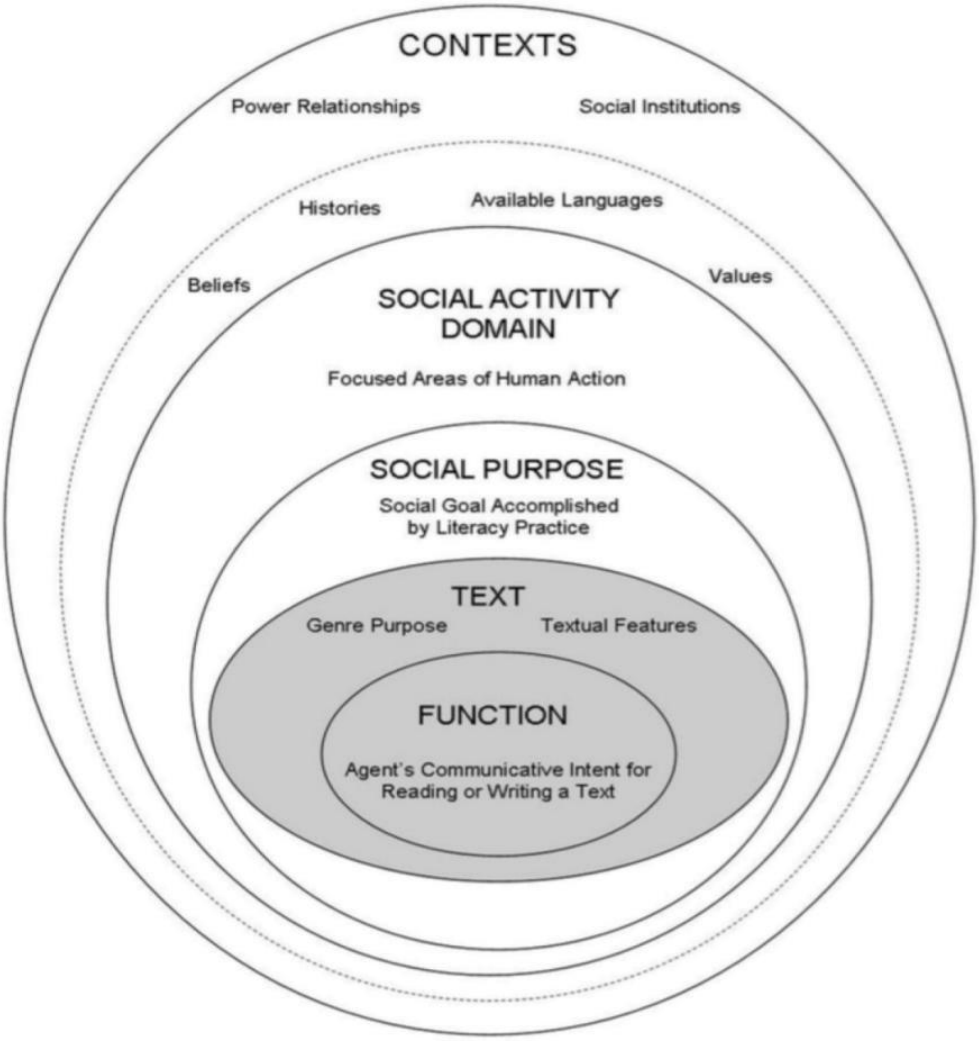
### 2.1.1 Literacy as social practice

According to Edwards (2012), the term literacy practice can be defined as "the ways in which people use written language in their everyday lives" (p. 2). Simultaneously, Street (1993) indicates that "practices involve values, attitudes, feelings and social relationships" (p. 12). Thus, practice here cannot be simply noted as observable behaviors. They are in the simplest sense of "what people do with literacy" (Barton, Hamilton & Ivanic, 2000, p. 7) as well as they "are internal to individuals whilst at the same time being social processes that connect people with one another" (Edwards, 2012, p. 2). In Latona's research (2015), she describes that literacy practices is related to people's values, feelings, and social relationships. She also emphasizes that "function is key to the process (of meaning making)" (p. 11), which advocates many researchers' views of literacy as social practice (e.g., Brandt, 2009; Cope & Kalantzis, 2000; Perry, 2009; Perry, 2012). Thus, from a sociocultural perspective, literacy is also "what people do with reading, writing and texts in real world contexts" (Latona, 2015, p. 11).

Perry (2012) provides two figures to illustrate how useful it is to "view literacy as a set of social practices" (p. 57) in today's literacy teaching and learning. Drawing upon Barton and Hamilton's (2000) work[4], Perry firstly represents the relationship between *literacy events* (i.e., something can be easily observed in people's process of meaning making; that is, we can see what people are doing with texts" [Perry, 2012, p. 54]) and *literacy practices* (i.e.,

[4] In their research in 2000, Barton and Hamilton explained the differences between *literacy events* and *literacy practices*.

something “must be inferred, because they connected to unobservable beliefs, values, attitudes, and power structures” [p. 54]) (See Figure 2.1).




**Model of a Literacy Practice**

The areas shaded in gray represent an observable *literacy event*, while the unshaded areas represent inferred aspects of the larger *literacy practice* that contextualize and shape the event.

Figure *2.1*. Model of a literacy practice. The model represents the model of a literacy practice. Derived from “Analyzing literacy practice: Grounded theory to model”, by V. Purcell-Gates, K. H. Perry and A. Briseño, 2011, *Research in the Teaching of English*, *45*(4), p. 450. Copyright 2011 by the National Council of Teachers of English.

Perry further identifies three aspects of knowledge that people need "in order to effectively engage in literacy practices" (p. 55). As is shown in Figure 2.2, the three aspects are lexico-syntactic and graphophonic knowledge, cultural knowledge, and written genre knowledge. Perry insists that these two figures demonstrate "the usefulness of viewing literacy as a set of social practices", because they show that "cognitive skills (e.g., the ability to decode) are only one part of what it takes to be literate" (p. 57). This means, besides text-based knowledge (e.g., knowledge from reading or writing), context-dependent knowledge (e.g., beliefs, values, and the social relationship between people [2012]) is also an important component of people's literacy practices. Literacy has already "insinuated itself into social relations anywhere" (Brandt & Clinton, 2002, p. 354). That is also why the view of literacy as social practice needs to be considered by researchers in current and future studies of literacy learning.

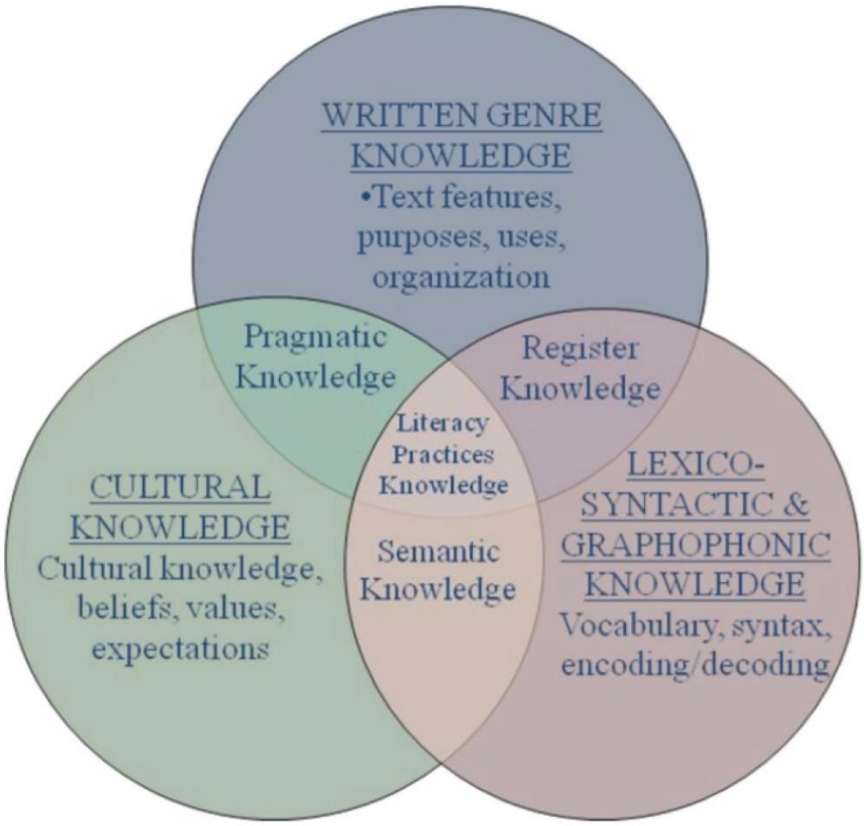



Figure *2.2.* Aspects of knowledge needed in order to engage in literacy practices. The model represents three aspects of knowledge required in literacy practices. Derived from "Genres, contexts, and literacy practices: Literacy brokering among Sudanese refugee families", by K. H. Perry, 2009, *Reading Research Quarterly*, *44*(3), p. 271. Copyright 2009 by John Wiley & Sons.

In this study, the notion of literacy as a social practice enabled me to conceptualize children's meaning making within the consideration of the "collaborative nature of literacy" (Wells, 1990, p. 14). Wells (1990) suggested, "to be fully literate is to have the disposition to engage appropriately with texts of different types in order to empower action, feeling, and thinking in the context of purposeful social activity" (p. 14). This statement sheds light on the social

practice perspective for the study and allows human and contextual elements to be understood as resources for literacy learning. The perspective also helps to expand the understanding of literacy resources.

## 2.2 Multiliteracies

The impacts of globalization and technological developments on literacy education have been theorized and conceptualized by many researchers (e.g., Cope & Kalantzis, 2000; Cope & Kalantzis, 2012; Kress & van Leeuwen, 2001; Lankshear & Knobel, 2003; The New London Group, 1996). Related to the theory of literacy as social practice, the notion of multiliteracies has been developed by The New London Group since 1996. Cope and Kalantzis (2000) note multiliteracies as "the big picture", such as "the changing world and the new demands being placed upon people as makers of meaning in changing workplaces, as citizens in changing public spaces and in the changing dimensions of our community lives" (p. 4).

The term *multiliteracies* (The New London Group, 1996) is contrasted with "mere literacy" (i.e., mere literacy "remains centered on language only, and usually on a singular national form of language at that, being conceived as a stable system based on rules such as mastering sound-letter correspondence" [Cope & Kalantzis, 2000, p. 5]). Multiliteracies emphasizes two aspects of literacy in new times: One is "the increasing salience of cultural and linguistic diversity" and another is "multiplicity of communications channels and media" (Cope &

Kalantzis, 2000, p. 5). Although the first aspect "certainly aligns with the theory of literacy as social practice", the second one "is different" (Perry, 2012, p. 58). This is because, according to Cope and Kalantzis, the theory of multiliteraices focuses on "modes of representation much broader than language alone" and relates to "the increasing multiplicity and integration of significant modes of meaning making" (p. 5). Perry also advocates this focus and indicates that "the salient difference between theories of literacy as social practice and multiliteracies is how text is defined: multiliteracies theorists do not limit their definition of text to print only and instead include a variety of forms and semiotic systems" (p. 59). This statement emphasizes the importance of the diversity of semiotic resources in today's literacy learning. Van Leeuwen (2005) defines the term of *semiotic resources* as follows:

> Semiotic resources are the actions, materials and artifacts we use for communicative purposes, whether produced physiologically—for example, with our vocal apparatus, the muscles we use to make facial expressions and gestures—or technologically—for example, with pen and ink, or computer hardware and software—together with the ways in which these resources can be organized. (p. 285)

Besides, van Leeuwen also indicates that "semiotic resources have a meaning potential, based on their past uses, and a set of affordances based on their possible uses, and these will be actualized in concrete social contexts where their use is subject to some form of semiotic regime" (2005, p. 285), which further illustrates how semiotic resources might be used in social contexts.

The theory of multiliteracies expands the landscape of one's understanding of literacy including what constitutes literacies and their social nature. Since the New London Group coined the term in 1996, pedagogies of *multiliteracies* have received an increasing international interest in literacy research, pedagogy, and educational policy (Mills, 2009). Fosnot and Perry (2005) believe that the *multiliteracies* theory as suggested by The New London Group (1996) point to a new path of knowledge creation or construction. This new path has its roots in social constructivism, which is antithetical to the traditional transmission of knowledge model (i.e., teachers impart knowledge to students as students passively accept it [Lapp, Moss, & Rowsell, 2012]). Simultaneously, educational researchers (e.g., Kaur, Ganapathy, & Sidhu, 2012; Tan and McWilliam, 2009) note that "multiliteracies initiatives propel pedagogical practices in the classroom that address students' preferred current mode of learning that relates to their social engagement" (2012, p. 121). Further, The New London Group suggest that multiliteracies can be applied to solve problems as how to negotiate "the multiple linguistic and cultural differences in our society" (1996, p. 60) and how to provide opportunities for young children's literacy learning and identity[5] formation.

[5] The term identity here refers to "a way of describing a sense of self that is in practice" (Phal & Rowsell, 2005, p. 155). Heydon (2013) explains the significance of including identity in literacy learning. She illustrates that "the inclusion of identity brings an important social dimension to multimodal literacy" (2013, p. 21).

## 2.2.1 The notion of *design*

This study is underpinned by the notion of *Design* (Cope & Kalantzis, 2009) given that it is a key feature of understanding literacy practices in an era of multiliteracies. I draw upon the definition of *Design* as,

> something you do in the process of representing meanings to oneself in sense-making processes such as reading, listening or viewing, or to the world in communicative processes such as writing, speaking, or making pictures. (2009, p. 175)

As is mentioned above, within the framework of multiliteracies, *Design* has three aspects: *Available Designs*, the *Designing* one does, and *The Redesigned*. Cope and Kalantzis elaborate on these three aspects further (see Figure 2.3).

The "What" of multiliteracies—designs of meaning

| | |
|---|---|
| Available designs | Found and findable resources for meaning: culture, context and purpose-specific patterns and conventions of meaning making. |
| Designing | The act of meaning: work performed on/with Available Designs in representing the world or other's representations of it, to oneself or others. |
| The redesigned | The world transformed, in the form of new Available Designs, or the meaning designer who, through the very act of Designing, has transformed themselves (learning). |

Figure *2.3.* Available Designs, Designing, and The Redesigned

The table provides explanations of *Available Designs*, *Designing*, and *The Redesigned*. Derived from " 'Multiliteracies': New literacies, new learning", by B. Cope and M. Kalantzis, 2009, *Pedagogies: An International Journal*, *4*(3), p. 176. Copyright 2009 by Taylor & Francis.

The table above illustrates the interpretation of the concept of design. *Available Designs* are the resources for Design (The New London Group, 1996). By "found and findable resources for meaning" (2009, p. 176) Cope and Kalantzis specifically refer to available resources that meaning makers can access not only from semiotic resource. Simultaneously some researchers (e.g., Esteban-Guitart & Moll, 2014; Gonzales, Moll, & Amanti, 2005) illustrate that available resources can be also derived from *funds of knowledge* and *funds of identity*. *Funds of knowledge* and *funds of identity* place more consideration on people's inherent knowledge gained from the experiences of living and learning. However, semiotic resources are multimodal resources (e.g., Kress, 2009), including images, gestures, oral speaking, and printed materials that people employ to represent the world and/or communicate with others.

The process of *Designing* is the process that people use *Available Designs* to make meanings. It emphasizes the act of meaning making and has two layers of its conception. One layer is "communicating to others" (p. 177), such as writing a paper, talking to others, and drawing a picture. Another is "representing the world to oneself or others' representations of it" (p. 177), such as listening to others, observing something, and reading a book. However, the most important thing is, in the process of *Designing*, when meaning makers use *Available Designs* for making meaning, they never simply replicate or repeat *Available Designs* (The New London Group, 1996), but create a unique combination of meaning-making resources within their own contexts or cultures. That is when Cope and Kalantzis (2009) emphasize design as being "a moment of transformation" (p. 177).

*The Redesigned* can be traced from the process of *Designing*—neither *The Redesigned* nor *Designing* is an independent process. According to Kalantzis and Cope (2012), *The Redesigned* means unique combinations that take the forms of "an image, an object, an oral utterance or a written text" (p. 183). Further, these unique combinations will "become new available designs in an ongoing process of *transformation*" (Nagle & Stooke, 2016, p. 159). The New London Group (1996) explain *transformation* as "always a new use of old materials, a re-articulation and re-combination of the given resources of Available Designs". They believe that "people transform their relations with each other, therefore, they transform themselves" through people's co-engagement in Designing (p. 76). Cope and Kalantzis (2009) also hold this view that "one person's designing becomes a resource in another person's universe of *Available Designs*" (p. 177). They also emphasize that "meaning makers do not simply use what they have been given" (p. 175). However, these meaning makers exert their subjectivity in their representational processes and remake themselves (e.g., "…they reconstruct and renegotiate their identities" [1996, p. 76]). Therefore, the meanings made by meaning makers are "always new" and become meaning makers' own "insights", "expressions", and "perspectives" (p. 178). This process of remaking highlights that the process of transformation is also a process of learning (i.e., "the result of their [meaning makers] representational work and their exertion of subjectivity is transformed subjectivity—and thus learning" [p. 178]). As a result, people are semiotic *producers* "whose own contributions can in turn be redesigned" (Heydon, McKee, & Daly, 2017, p. 4).

In this study, the concepts of *Available Designs*, the process of *Designing*, and *The Redesigned* guide the process of analyzing the relationship between young children's literacy and identity options and their use of available resources for meaning making.

## 2.3 Modes, Multimodality, and Multimodal Literacy

In this section, I further review current literature on modes, multimodality, and multimodal literacy.

### 2.3.1 Modes

Wherever meaning is the issue (e.g., education, arts, and social science), "the notion of *mode* and *multimodality* is rapidly gaining significance" (Kress, 2009, p. 54). Kress identifies *modes* as "socially shaped and culturally given resources for making meaning" (p. 54), which means "a set of resources people in a given culture can use to communicate" (Bainbridge, Heydon, & Malicky, 2009, p. 4). Also, Walsh (2011) explains modes as "the way the message is communicated" and exemplifies the notion with "(communicating) through spoken or written language, image, sound, gesture, movement, time and space" (p. 105). Kress (1997) further uses the term modes to indicate that "(people) make signs (i.e., a "combination of meaning and form" [Kress, 1997, p. 6]) from lots of different 'stuff', from quite different materials…and (they) use the physiology of (their) bodies to turn that physical, material stuff into signs: as speech, as music" (p. 7) and illustrates images, gestures, and animation as examples of modes. He even expands the scope of modes as including, for

instance, graphic resources in writing (e.g., font, bolding and spacing), intonation units in speech, and colors in paintings. He believes that all of these modes can offer "different potentials of meaning making" (2009, p. 54). Since people employed multiple modes for their representation and communication, Kress (1997) proposes that the term *media* comes under mode and refers to "focus more on the manner of dissemination: a letter as a medium of communication and writing—the graphic material—as the mode; a traffic sign as the medium of communication" (p. 7). Walsh (2011) also emphasizes media are "the means of communicating a message" and also provides examples of media for communication, such as "paper, computer screen, phone screen, IWB [Interactive White Board], film, camera, musical instrument" (p. 105).

Kress's concept of modes and the notion of multiliteracies (The New London Group, 1996) accommodate different strands of research in multimodal literacy and multimodality. These strands include: a) cultivating students' multimodal literacy practices in or out of school contexts (e.g., Mills, 2010; Serafini, 2015; Wissman, Costello, & Hamilton, 2012), b) implementing multimodal learning resources for students' literacy learning or assessing modal affordance in the processes of students' meaning making (e.g., Pandya, 2012; Poveda, Pulido, Morgade, Messina, & Hédlová, 2008), c) introducing various technological elements (e.g., 3D virtual games, and dynamic images) into literacy learning (e.g., Kleifgen, 2006; Yamada-Rice, 2011), and d) exploring how multimodal literacy matters to people's identities and their communities (e.g., Heydon & O'Neill, 2016; Kuby & Vaughn, 2015).

## 2.3.2 Multimodality

The notion of multimodality has been under development since its inception around 1996 (Jewitt, 2008). Bazalgette and Buckingham (2013) explored that the concept of multimodality was initially accepted by literacy educators (e.g., Rowsell & Walsh, 2012; de Saint-Georges & Weber, 2013) at "an academic level" (p. 95) and recently used in other domains (e.g., policy documents [e.g., Australian Curriculum, Assessment and Reporting Authority, 2009-2010; Ministry of Education, Ontario, 2007], teacher education [e.g., Bearne, 2009; Charles & Boyle, 2014], and classroom practice [e.g., Candreva, 2011; Jewitt, 2008]). According to Jewitt (2008), *Multimodality* refers to meaning making through "the situated configurations across image, gestures, gaze, body posture, sound, writing, music, speech, and so on" (p. 246). That is to say, multimodality implies that meaning making occurs through a various types of communicative forms (Perry, 2012). It provides "a broadly semiotic approach" (Bazalgette & Buckingham, 2013, p. 95) to analyzing various types of communicative forms (e.g., reading, writing, gesture, and the use of spaces). Some researchers (e.g., Cope & Kalantzis, 2000; Kress, 2003; Kress & van Leeuwen, 2006) think that the core of multimodality theory is the notion of design, which introduces "a dynamic" through emphasizing both "the social relationships of any communicative act" and the possibilities for transformation in the processes of meaning making (Bearne, 2009, p. 157).

As in Jewitt's (2008) statement, multimodality "approaches affordances as a complex concept connected to the material and the cultural, social, historical use of a mode" (p. 247).

In this research, I adopt the theory of multimodality to expand my understanding of the affordance of resources for young children's literacy learning. I pay attention to all the modes that have potentials of meaning for young children's meaning making in the intergenerational art classes in my study.

### 2.3.3 Multimodal literacy

The term *multimodal* has been defined as the dynamic convergence of two or more modes in the same text and where all modes can be viewed as components of meaning-making (The New London Group, 1996). Kress and van Leeuwen (2001) define *multimodal literacy* 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" (p. 20). Although language has been seen by people as playing a fundamental role in the process of meaning making, Jewitt and Kress (2003) posit that "representation and communication always draw on a multiplicity of modes, all of which contribute to meaning" (p. 277). According to Pahl (2009), previous studies on young children's multimodal text-making "has used the expression multimodal literacies to describe how meaning can be expressed through different modes of representation" (p. 190). She also illustrates that some research (e.g., Kress, 1997; Pahl, 2003; Stein, 2003) has explored "how young children's meaning making can be stretched by engagement with different modes" (p. 190). Recent research (e.g., Dallacqua, Kersten, & Rhoades, 2015; Grushka, 2011; Lu, 2010; Serafini, 2012) further highlight that young children need "complex, interconnected processes for creating, consuming, and

communicating effectively across multiple media, navigating multiple cultures and codes, and (re)acting appropriately to others" (Dallacqua, Kersten, & Rhoades, 2015, p. 209). Specifically for my study, I have found that exploring the relationship between different resources in multimodal ensembles helped me to understand how different resources interacted with each other in young children's processes of meaning making.

### *2.3.3.1 Multimodal ensembles and semiotic chains*

Identifying and understanding how different resources interact with each other in multimodal ensembles for young children's meaning making is one major focus of this thesis. In this section I explain the meaning of multimodal ensemble and semiotic chain two concepts that are vital to conceptualizing the study.

The metaphor of *ensemble* is derived from music and refers to "suggestive of discrete parts brought together as a synthesized whole, where modes, like melodies played on different instruments, are interrelated in complex ways" (MODE, 2012, para. 1). With a lens of multimodal literacy, Jewitt (2009) adopts the notion of ensemble and defines the term *multimodal ensemble* as "interrelationships between co-present modes. As the resources of different modes are combined, meanings are corresponding, complementary and dissonant as they harmonize in an integrated whole" (p. 301). This definition is also advocated by MODE (2012) as "representations or communications that consist of more than one mode, brought together not randomly but with a view to collective and interrelated meaning" (para. 1). As is

mentioned before, different modes have different potentials for people's representation and communication. When people make meanings, they orchestrate semiotic resources to express themselves, that is, meanings will be constructed through interactions and interrelationships of myriad resources. Thus, the term multimodal ensemble can be utilized in this study to explain how different types of resources interact with each other for people's meaning making.

According to the concept of Redesigned (Cope & Kalantzis, 2009), people "are generators and not just users of signs" (Heydon, 2013, p. 22). Besides, current literature (e.g., Heydon, 2013; Kress, 1997; Phal, 1999) document that people's interests and the desires to express their interests become the motive power of meaning making. The interests can "propel people to experiment with mode and media" and help people to "find the right fit between what they want to communicate and how to communicate it" (p. 22). Heydon also illustrates that "different modes and media afford different things, and these affordances affect the kinds of expressions people can produce and the meanings they can make from the expressions of others" (p. 125). As a result, these processes of representation and communication offer people many literacy practices and identity options and will create a *semiotic chain* (e.g., Stein, 2008). A semiotic chain is the place where meanings are "represented and communicated through a series of modes" (McKee, 2013, p. 10). These processes of movements are called by educational researchers as the processes of *transduction*[6] (e.g.,

[6] The term transduction is "originally coined by Kress (1997) in a social semiotic view of multimodality, refers to remaking meaning across modes" (MODE, 2012, para 1).

Kress, 1997) or *transformation*[7] (e.g., Pahl, 1999). In semiotic chains, people will "provide numerous communicational possibilities when they move ideas across various modes and media" (Heydon, 2013, p. 22), that is, semiotic chains offer opportunities to people for their "learning, creativity, and concept development" (p. 126). Heydon further illustrates that the movements from one mode to another can "help people to express themselves better, and they might also help people to make better sense of others' expressions of others" (p. 126). She notes, "an increase in communication options is linked to an increase in identity options". This also provides this thesis a theoretical foundation in exploring how the use of different resources influences people's literacy practices and identity formation.

## 2.4 Modal affordance and the Affordance of Resources in Literacy Learning

Modal affordance is the basis of understanding the affordances of resources for children's literacy learning in this study. In this section, I comb out these two aspects according to current literature.

### 2.4.1 Modal affordance

The notion of *affordance* is originally outlined by Gibson (1979), and then adopted by Kress (e.g., 1993; 2010) in his approach to multimodality. In the domain of multimodality, the concept of *affordance* refers to "what it is possible to express and represent readily, easily,

[7] Pahl (1999) suggests the word transformation to describe the same process which is described by Kress (1997) as transduction. As is mentioned in the footnote 4, the process refers to "the movements of ideas across modes" (Pahl, 2009, p. 190). Pahl also believes that "these creative transformations across modes can lead to new meanings being created" (p. 190).

with a mode, given its materiality[8] and given the cultural and social history[9] of that mode" (Kress & Jewitt, 2003, p. 14), that is, "what it is possible to express effectively with different modes of communication in different contexts" (Flewitt, Kucirkova, & Messer, 2014, p. 108). Specifically, the affordance of a mode includes: 1) how the mode has been used; 2) what the mode "has been repeatedly used to mean and do" (Jewitt, 2008, p. 247); and 3) "the social conventions that inform the use of the mode in contexts" (p. 247). According to Kress (2009), "modes offer different potentials for meaning making" (p. 54). He gives an example that the intonation units can be viewed as information units in an English speech: If a person says "it was **last** Saturday he came", he/she means that this Saturday is "not the Saturday two weeks ago". If this person put high intonation on "Saturday", then he/she wants to emphasize that it is "last Saturday", not "last Sunday". Similarly, Jewitt (2008) describes that the affordance of modes is material, physical and environmental as well as "provides different communicational and representational potentials" (p. 247). She exemplifies that "an image in the form of graphic marks on a two-dimensional surface offers different potentials for the expression and representation of meaning than the affordances of speech in the form of sounds" (p. 247). Further, Bearne (2009) indicates that "the affordance of modes…depends on time and space" (p. 159). She explains, for example, "books afford some flexibility in the time that they can be appreciated whereas stage productions do not" (p. 159). Meanwhile, Kress also points that one mode will have different meanings in the different cultural and

[8] The term materiality here refers to "a mode's 'physical' features" (Heydon, 2013, p. 23).
[9] According to Kress and Jewitt (2003), they explain the phrase "the cultural and social history of the mode" as "what has been done in the past with this material, and how the meanings made in the past affect what can be done with a mode" (p. 15).

social contexts (e.g., “these resources have specific forms in different cultures, leaving aside the fundamental issue of differences of script-systems”[2009, p. 55]). For instance, Kress and van Leeuwen (2002) illustrate that color is “multifunctional in its uses in the culturally located making of signs” (p. 343). They specifically exemplify that white is the color with a meaning of mourning in some Asian countries, however it represents purity in some European countries.

In this MA thesis, I explored the types of resources used by young children in their processes of meaning making and how young children use them. Different affordances of different resources helped me to focus on how different modes interacted with each other for young children’s meaning making. The notion of affordance further guided me to pay attention to how young children combined different resources together to express themselves during intergenerational art classes.

### 2.4.2 The affordance of resources in literacy learning

Along with an ever-expanding definition of literacy, we have witnessed an explosion in the types of literacy resources that are recognized as being used by people in their processes of meaning making. The current understanding of literacy resources has expanded beyond traditional paper materials or texts but included various “new” forms of meaning making. These “new” forms of meaning making, according to recent research (e.g., Bourelle, Bourelle, Knutson, & Spong, 2016; Ranker, 2014; Rowsell, Saudelli, Scott, & Bishop, 2013;

Wopperer, 2011) include images (e.g., static images and dynamic ones), animations, dramas, songs, paintings, digital tools (e.g., iPads, computers, tablets, Kindles, and digital cameras), and online websites or apps (e.g., social networks, online chatting rooms, online video games, and mobile games).

From a perspective of multiliteracies (The New London Group, 1996), Jewitt and Kress (2003) further conceptualize the notion of multimodal literacy, which focuses on different representations and communications of meaning. Some educators begin to apply the theory of multimodal literacy to create different kinds of learning activities. For example, Baldwin and Fleming's (2003) research encourages teachers to use drama to provide opportunities for students to practice what they have learned. Miller and Burnette (2007) investigate that fine arts can help students to express and share their ideas. Also, Al-Azri, Al-Rashd and Kazazi (2015) explore how students learn vocabulary through English songs. Besides, the theory of multimodal literacy can also be applied to the design of multimodal texts (i.e., a text that combines two or more semiotic systems or linguistic, visual, audio, gestural, and spatial [Anstey & Bull, 2009]). Bearne (2009) defines a multimodal text as a combination of different modes. As Serafini (2015) suggests, "approaching a multimodal text as a visual object invites readers to consider its visual images and design features and to move beyond the traditional focus of text as a linguistic entity" (p. 412). Therefore, multimodal texts can be used to improve readers' interests of reading and support their literacy learning.

### *2.4.2.1 Multimedia and digital resources*

Walsh (2010) indicates "multimodal literacy refers to the meaning making that occurs through the reading, viewing, understanding, responding to, and producing and interacting with multimedia and digital texts" (p. 213). Thus the application of new communication media may also provide new ways for people to acquire literacies. For example in school settings, the literature expresses that students can work collaboratively with photos, sound, text, and moving images using standard editing software (Erstad, Gilje, & de Lange, 2007). Some researchers (e.g., Manovich, 2005; Perkel, 2008) then propose a term *re-mixing* and define the term as "selecting, cutting, pasting, and combining semiotic resources into new digital and multimodal texts, which is achieved by downloading and uploading files from different sources (e.g., Internet, iPod, DV-camera, or sound-recording devices)" (2007, p. 186). Based on the concepts of multiliteracies (e.g., Cope & Kalantzis, 2000) and multimodality (Kress & van Leeuwen, 2001) but being different from them, which focus on "the changes in texts and semiotic resources", the notion of re-mixing pays more attention to "participation and production activities" (p. 186). Jenkins (2006) even describes the process of re-mixing as a "culture of appropriation" and explains this as "re-mixing involves the creative juxtaposition of materials that otherwise occupy very different cultural niches" (p. 33). When people use multimedia and digital devices for their meaning making, they blend semiotic resources "through the editing process, which we can imagine as a kind of multimodal mixing-desk" (Burn & Parker, 2003, p. 23). Jesson, McNaughton, and Wilson

(2015) further illustrate that "the potential affordances of personal digital devices provide specific opportunities to improve teaching and learning" (p. 202). Specifically she summarizes these opportunities with three aspects: 1) The use of digital devices can increase "learning-focus time and production", that is, learners will develop their "capability to perform several tasks simultaneously" (p. 202); 2) One-to-one access use of digital devices "might allow for increased engagement and independent learning skills" (p. 202), which is also advocated by Lowther, Ross and Morrison (2003); 3) The third aspect of opportunities, according to some researchers (e.g., Grimes & Warschauer, 2008; Lin & Dwyer, 2006), is "for increased leaning-focused interactions and the attendant engagement in higher level thinking skills" (p. 202). The three aspects of opportunities show us that using multimedia and digital devices did support people's literacy learning and identity options to some extent. Especially for the young children, encouraging them to engage in the use of digital technologies in their processes of meaning making will "contribute to the construction of their literacies and identities" (Akhter, 2016, p. 502).

Today, the number of these digital devices is growing at a rapid rate (e.g., Berge, Muilenburg, & Crompton, 2013; Walling, 2014; Warschauer, 2006). Laptops, tablets, and even smart phones can become teaching and learning tools, and new communication media are gradually playing a part in literacy education. Current research shows that people tend to engage in a broad use of digital devices and new technologies for both informal learning[10]

[10] Organization for Economic Co-operation and Development (OECD, 2014) defines the term informal learning as "never organised, has no set objective in terms of learning outcomes and is never intentional from the learner's standpoint. Often it is referred to as learning by experience or just as experience" (para. 3).

(e.g., Livingstone, 2002) and formal learning[11] (e.g., Buckingham, 2003; Cuban, 2001). My research also addresses a discussion about how digital tools support young children's literacy learning. In the original SSHRC project led by Dr. Rachel Hedyon, researchers introduced iPads into the intergenerational art classes to help participants (both young children and older adults) to look up information when they made meaning. At the same time, participants also used iPads to document their processes of meaning making in the art classes, took photos of their artifacts, and created their own digital portfolios (Heydon, McKee, & Daly, 2017). Thus, with research questions of my study as guidance, whether and how young children chose and used iPads as resources in their processes of meaning making are also explored in this research.

#### *2.4.2.2 Funds of knowledge and funds of identity*

As is mentioned above, most resources used in literacy learning are *semiotic resources* (i.e., "image, sound, number, the manipulation and choreography of physical materials, and body movement" [Hamilton, Heydon, Hibbert, & Stooke, 2015, p. 2]). However, according to Cope and Kalantzis (2009), those semiotic resources are not the only components that constitute "found and findable resources for meaning" (p. 176). Some researchers (e.g., Esteban-Guitart & Moll, 2014; Gonzales, Moll, & Amanti, 2005) illustrate that there are some other types of resources that also support people's literacy learning and identity options.

[11] According to OECD (2014), formal learning is "always organized and structured, and has learning objectives" (para. 3). The typical examples of formal learning which is given by OECD is "learning that takes place within the initial education and training system or workplace training arranged by the employer" (para. 3).

They include: 1) *funds of knowledge* (Gonzales, Moll, & Amanti, 2005) and 2) *funds of identity* (Esteban-Guitart & Moll, 2014). As is mentioned in the chapter of introduction, there is also literature that indicated human-based resources and contextual resources (e.g., Heydon, 2013) need to be considered as one type of resources for young children's meaning making, which are also explored in this study.

*Funds of knowledge*, according to Gonzales, Moll, and Amanti (2005), can provide people opportunities for literacy learning success to harness their own cultural and linguistic backgrounds. It capitalizes on people's inherent cultural and linguistic tools as helpful "in mediating and co-constructing new knowledge" (Garza, 2010, p. 30). Based on the concepts of *funds of knowledge*, Esteban-Guitart and Moll (2014) further raise the notion of *funds of identity*. In their view, when people "actively internalize family and community resources to make meaning and to describe themselves" (2014, p. 33), people's funds of knowledge becomes their funds of identity. Within the world embraced by historical, cultural, and social resources (e.g., these resources can be "artifacts, religious beliefs, political ideologies, and social relationships" [Scribner, 1990, p. 92]), people always use these resources to make meanings and expressing their identity. Therefore, Esteban-Guitart and Moll (2014) define funds of identity as "the historically accumulated, culturally developed, and socially distributed resources that are essential for a person's self-definition, self-expression, and self-understanding" (p. 31).

In my study, I focus on the affordances of different types of literacy resources employed in young children's processes of meaning making. I also explore how these resources influence and support each other in a multimodal ensemble. I further investigate whether there might have other resources (e.g., people as resources [Heydon, 2013]) for young children's meaning making in chapter four.

## 2.5 Summary

In this study, the theory of multiliteracies and the notion of *Design* provide me lenses to view the nuances of how young children made meaning through various resources and how resources related to each other in multimodal ensembles, and the ensuing implications for their expanded identity options. Specifically, the concepts of *Available Designs*, the process of *Designing,* and *The Redesigned* guide the process of data analysis in this research.

# Chapter 3

## 3 Methodology and Methods

This thesis study was designed to explore the relationship between different resources for young children's making meaning within a larger, SSHRC-funded (i.e., Social Sciences and Humanities Research Council) project entitled Learning Together: *A Multiple Case Study of Intergenerational Multimodal Curricula* (Rachel Heydon, principle investigator). In this chapter, I outline the research design of my MA study and relate it to the project in which it was embedded. In brief, I used a single case study design (Yin, 2014) to identify data from the project related to children's resources for meaning making and drew on data gleaned from the original project through ethnographic tools, including transcripts of semi-structured interviews with participants who were involved in the intergenerational art class, transcripts of audio and video recordings of the whole art classes, field notes of class observations, photos, and digital portfolios that participants created throughout the art classes. I then identified a single case (Yin, 2014) from these data. At the end of this chapter, I also address issues of trustworthiness and ethical considerations for the study.

## 3.1 Methodology-Single Case Study Using Ethnographic Tools

The case study methodology is defined as "a strategy for doing research which involves an empirical investigation of a particular contemporary phenomenon with its real life context using multiple sources of evidence" (Robson, 2002, p. 178). A case study provides

researchers with an in-depth way to collect and analyze qualitative data in specific contexts. Yin (2014) suggests that case studies enable researchers to answer *how* and *why* research questions, because "such questions deal with operational links needing to be traced over time, rather than mere frequencies or incidence" (p. 10). Therefore, these *how* and *why* questions have "the potential to evaluate or explain" (Day Ashley, 2012, p. 102). Meanwhile, case study researchers prefer a focus on process and understanding, as well the methodology offers insights for the whole study and illuminates meanings (Merriam, 1998). Merriam also indicates that "the case study result in a rich and holistic account of the phenomenon...educational processes, problems, and programs can be examined to bring about understanding that in turn can affect and perhaps even improve practice" (p. 41). Therefore, case study is a reasonable investigation methodology to use in this study, and I aim to develop a more comprehensive understanding of the relationship between the resources in multimodal ensembles.

In this study, I employed a single case study approach (Yin, 2014) and used data derived from ethnographic tools, such as interviews and participant observations. Yin (2014) identifies single case study as "a critical experiment", which can "help to refocus future investigations in an entire field" (p. 51). These features of single case study enabled my exploration of the relationship between available resources and how they supported young children's literacy practices and identity options, and the implications for young children's meaning making in the 21st century.

In terms of the type of case, this study was also an in-depth case study. The bounded case for this study was about investigating different types of resources used in young children's processes of making meaning in the intergenerational art classes. In the original project, ethnographic tools were employed in the process of data collection, which provided my research abundant situated data for analysis. For my thesis, I conducted a secondary analysis where I used the pre-existing qualitative data derived from the original project. Specifically, transcripts of audio and video recordings, photos, and field notes of class observation helped me to answer research questions of my MA study, such as *what kinds of resources had been made available for young children's literacy learning in the intergenerational art class* and *how the young children chose to use resources in their process of making meaning*. Data from semi-structured interview and digital portfolios provided me with more information about the relationship of resources employed by young children in the process of making meaning and how young children were supported by different available resources in their processes of meaning making in intergenerational art classes.

## 3.2 Methods

This section includes descriptions of the research site from the original SSHRC project, participant selection, data sources, and methods used to conduct data analysis. The data analysis procedures for this study closely mirrored those used in the original project, but were guided by the particular research questions of my MA study.

### 3.2.1 Research site

This study was based upon an original intergenerational learning program established by the Learning Together project. Formal intergenerational programs in North America have been in existence for decades. “[O]ne of the first systematically planned intergenerational programs in North America” (Heydon, 2013, p. 21)—the U.S. Foster Grandparent Program—appeared in 1963. Since then intergenerational programs have slowly gained recognition by researchers. Generally, intergenerational programs encourage interactions and involvement between youth and older adults, benefiting both groups academically (e.g., providing both young children and elder adults with literacy learning opportunities in intergenerational curricula [Heydon, 2013; Heydon, McKee, & Daly, 2017]), emotionally (e.g., helping young children to gain a raised level of awareness regarding elders and aging process and increasing students’ positive attitudes towards elders [Schwalbach & Kiernan, 2002]), and socially (e.g., helping older adults and young children to form close intergenerational relationships [Jarrott & Bruno, 2007]).

The specific site for this study was a six-session intergenerational art program pilot held in the social hall of a Universalist Unitarian congregation located in an urban center in the Pacific North West of the United States.

## 3.2.2 Participant selection

My research adopted convenience and purposeful sampling (Patton, 2002). I paid attention to child participants who were included in the original project. These participants attended an intergenerational art program, which was comprised of child (ages 3-6) and adults (ages 55+) participants. All participants were members of the same Universalist Unitarian congregation. The total number of child participants in the original project was 7. From amongst these participants, my study selected focal children on the basis of those who were present at more than 4 classes in the program. Then, adopting purposeful sampling I selected 4 child participants as "information-rich cases" (i.e., "those from which one could learn a great deal about issues of central importance to the purpose of the research" [Patton, 1990, p. 169]) that allowed me to gather rich data purposefully from this case (see Table 3.1 for participant profile). This number of focal participants was also a manageable number for rich qualitative analysis.

Table 3.1

*Profile of young children participants*

| **Name** | **Total number of participating in the intergenerational art classes** | **The session (date) that he/she participated in the intergenerational art classes** |
|---|---|---|
| **Mia** | **5** | Session **Two** (April 21st, 2016), Session **Three** (April 28th, 2016), Session **Four** (May 5th, 2016), Session **Five** (May 12th, 2016), Session **Six** (May 19th, 2016) |

| | | |
|---|---|---|
| **Sam** | **4** | Session **One** (April 14th, 2016), Session **Two** (April 21st, 2016), Session **Three** (April 28th, 2016), Session **Five** (May 12th, 2016) |
| **Stella** | **4** | Session **Two** (April 21st, 2016), Session **Four** (May 5th, 2016), Session **Five** (May 12th, 2016), Session **Six** (May 19th, 2016) |
| **Yafeu** | **6** | Session **One** (April 14th, 2016), Session **Two** (April 21st, 2016), Session **Three** (April 28th, 2016), Session **Four** (May 5th, 2016), Session **Five** (May 12th, 2016), Session **Six** (May 19th, 2016) |

Note. Names of young children participants in this table are arranged in alphabetical order.

Table 3.2 shows the names and roles of participants other than the focal children who were involved in this MA study:

Table 3.2

*Profile of other people involved in this MA study*

| **Name** | **Role in the intergenerational art classes** | **Relationship with young children participants involved in this MA study in the intergenerational art classes** |
|---|---|---|
| **Betsy** | Education Director for the Congregation | |
| **Bridget** | The intergenerational art class instructor | |
| **Cliff** | Elder adult participant | Sam's partner in Session Two<br>Yafeu's partner in Session Six |
| **Dejon** | Elder adult participant | Sam's partner in Session Three |
| **Elisa** | Research assistant for project | |
| **Joanne** | Elder adult participant | Yafeu's partner in Session Three, |

| | | |
|---|---|---|
| | | Session Four, and Session Six |
| **Kathryn** | Elder adult participant | |
| **Marian** | Elder adult participant | |
| **Mary Anne** | Elder adult participant | Mia's partner in Session Two and Session Five<br>Stella's partner in Session Two |
| **Peggy** | Elder adult participant | Mia's partner in Session Three<br>Stella's partner in Session Six |
| **Roz** | Research assistant for project | |
| **Susan** | Elder adult participant | Yafeu's partner in Session Two<br>Sam's partner in Session Six |

Note. Names in this table are arranged in alphabetical order.

## 3.2.3 Data sources

Data sources from the original study included field notes of class observation, transcripts of video and audio recording which recorded interactions and events in the intergenerational art classes, photographs which recorded the context and artifacts made during art classes, digital portfolios which had been created by participants to document the process of making meaning, and transcripts of semi-structured interviews with elder adult participants in this project and young children's parents. I describe each of the data sources that I used in my MA study in turn.

### *3.2.3.1 Field texts*

In the original project, field texts included transcripts from audio and video recordings and field notes taken during the art classes. The video and audio recordings, especially video

recordings, provided accurate representations of the multimodal interactions within the intergenerational art classes (Connelly & Clandinin, 2000). In my research, transcripts from video and audio recordings helped me explore what and how young children chose and used available resources for making meanings during the intergenerational art classes.

The literature details that field notes can be used to supplement observations in the process of field-based data collection. During interviews, besides the content of conversations, field notes can document many other aspects, such as values, attitudes, feelings, and expressions of the interviewees presenting during the conversations (Mears, 2009). Thus, taking field notes is essential for researchers to catch details besides verbal or physical information that can be recorded by video and audio recording tools.

I employed data from field texts provided by the original project, in order to examine the selected children participants' interactions and activities during their meaning making in the intergenerational art classes.

### *3.2.3.2 Photographs*

Photos were taken in the project to document details in observation and artifacts created by participants. According to Cohen, Manion, and Morrison (2011), photographs evoke "meanings and reflections as well as information and factual data" (p. 530). To some extent, photographs could catch "the 'feel' of real life and different places" (2011, p. 530). Thus they could be used to supplement other sources of data (e.g., audio recordings and field notes).

With photos taken during the art classes, I tracked the context of the art classes and details of participants' artifacts, which provided my research with rich data to respond to the research questions.

### *3.2.3.3 Digital portfolios*

Digital portfolios were created by each of the child and senior participants during the art classes. iPads were introduced into the art classes by the project for "the creation of digital portfolios, digital text-making…and participant-led referencing for text-making" (Heydon, McKee, & Daly, 2017, p. 1). With the help of digital tools (e.g., iPads), young child participants collected photos of their artifacts or used digital tools for their text-making, and then documented their artifacts created during each class in a linear way. Using the data from digital portfolios, I easily tracked the transformation of children participants' literacy practices and identity options during their processes of meaning making. I also captured details related to the available resources used by young children for their meaning making.

### *3.2.3.4 Informal conversations*

During the intergenerational art classes, both formal activities and informal conversations were video-recorded by researchers and presented in the transcripts of audio and video recordings. For the child participants, informal conversations provided opportunities to communicate with adult participants and generate new ideas in their process of meaning making. For me, informal conversations allowed for "a timely and natural way to clarify

what children were thinking as they created multimodal texts" (McKee, 2013, p. 30). These conversations provided data about the children's process of making meaning from "the lens of the participants" (Dyson & Genishi, 2005, p. 75).

### *3.2.3.5 Semi-structured interviews*

Mears (2009) indicated that semi-structured interviews employ a more open format than structured interviews, which means that an interviewer could "let his/her participants know what interested him/her and invite them to tell his/her more" (Arthur, Waring, Coe, & Hedges, 2012, p. 172). In this study, I utilized data from interviews of both child participants' parents and adult participants in the original project. For child participants, I chose interviews of parents of the 4 child participants who were purposefully selected in my research. I also filtered information in all interviews with adult participants about those 4 selected child participants. This was because, in the art classes, the selected child participants had interactions with different adult participants. Further, data from interviews with young children participants' parents provided me rich information to explore the literacy and identity background of child participants, which further helped me to track child participants' resource use during the intergenerational art classes. I collected information about how child and adult participants perceived past and recent intergenerational experiences from semi-structured interviews conducted by researchers of the original project. I offered a *deep description* (i.e., *thick description*, which is firstly introduced by Geertz [2000] in the domain of anthropology) and examined "data that not only describe events in context, but

participants' intentions, strategies, and agency" [Cohen, Manion, & Morrison, 2011, p. 540]) to answer the research question of *what kinds of resources had been made available for young children's literacy learning in the intergenerational art class* (e.g., whether elder participants' help, interactions, touch, and feelings were viewed as available resources by young children for their meaning making and influenced their processes of making meaning). I then ascertained implications for resources employed in young children's literacy learning in the 21st century. I present further explanations about these in Chapter Four.

## 3.3 Data analysis

In this section, I illustrate methods used to analyze data derived from the above-mentioned data sources. I also describe how I analyzed data. Before data analysis, I firstly used NVivo 11 (i.e., a software from QSR International, which enables researchers to "easily manipulate the data and conduct searches" and "display codes and categories graphically" [Creswell, 2007, p. 167]) to help me to organize the data. I also created an "audit trail"[12] when I analyzed the data in this study, in order to "offer a reliable database" for future appliers "who might seek the transferability" of this research to other contexts and situations (Zhang, 2012, p. 78) (see Table 3.3).

[12] The term "audit trail" refers to "the trail of materials assembled for the use of the auditor, metaphorically analogous to fiscal accounts" (Lincoln & Guba, 1985, p. 391).

### 3.3.1 Analyzing data derived from photographs and digital portfolios

In this study, using a micro-analysis approach helped me to answer these two research questions: 1) *What resources did the young children choose to use in the process of making meaning and how did they use them and 2) What is the relationship between the resources (i.e., how different kinds of resources interact with each other in multimodal ensembles).*

Kress's (2009) micro-analysis approach was employed to analyze data derived from participants' artifacts and digital portfolios. According to Zhang and Heydon (2014), this approach could be used to "unpack the layers of modalities and meaning making" (p. 396). Drawing on the micro-analysis approach, they also suggested five aspects of analyzing multimodal artifacts: 1) the materiality, which consisted of texts made by participants (e.g., colors, fonts, and modes); 2) what particular modal affordance the modes had when they were used to create texts (e.g., a photograph could express one scene intuitively and easily while characters could not) and how these modes were used in different ways in a particular context—in this study, it was the intergenerational art class; 3) the layout of modes that was presented in one text (e.g., the spaces in the pictures and the silence in a speech); 4) the relationship between these modes (e.g., the interplay and coherence among these modes when they were employed to represent meanings); and 5) how "the choices of modes and their culturally given semiotic resources" (p. 396) worked together to express child participants' literacy and identities experiences in the intergenerational art classes.

### 3.3.2 Analyzing data derived from field texts and semi-structured interviews

In the original project, all interviews were audio or video recorded, and then transcribed as paper-based documents. Similarly, processes of observations were also recorded in field notes. As was mentioned before, these transcripts and field notes consisted of field texts. Besides, transcripts of all interviews were also important data sources for me to get data in this study.

I analyzed the data derived from above-mentioned field texts and interview transcripts by using the constant comparison method (CCM) (Cohen, Manion, & Morrison, 2011; Glaser & Strauss, 1967). CCM helped me to compare data derived from field texts and semi-structured interview transcripts with the existing categories, so that the categories "achieved a perfect fit with the data" (Cohen, Manion, & Morrison, 2011, p. 600). For example, first of all, I categorized and coded all data deductively, in order to correspond to three macro themes from existent literature on available designs (e.g., funds of knowledge, funds of identity, and semiotic resources). Based on the current literature, I simultaneously raised the hypothesis that there were human-based resources and contextual resources provided for young children to make meaning in the intergenerational art classes. I then coded the data from an inductive perspective. Coding the data inductively enabled me to explore answers to research questions for each data sources (e.g., data from observations and data from semi-structured interviews with older adult participants). Further, according to Handsfield's (2006) modified CCM

model, I paid attention to the data that 1) fell into more than one code/categories and 2) that were not belong to any code/categories at all but "would illuminate the contingencies" (Zhang, 2012, p. 93) in resources for making-meaning. I also utilized axial coding (i.e., "was a category label ascribed to a group of open codes[13] whose referent were similar in meaning [2011, p. 561]) in the process of data analysis, which catered to "the dynamic, temporary, and interconnected nature of the codes" (2012, p. 93). It enabled me to segment data in one category in more subgroups and make connections between these subgroups. Here is an example of aforementioned procedure of data analysis as shown in Table 3.3.

Table 3.3

*An example of audit trail in data analysis*

| **Data source** | **Research questions/Sub-questions** | **Exemplary codes/categories related to existent literature of resources for young children's making meaning** | **Exemplary codes/categories related to resources that are not listed in the existent literature and for young children's making meaning** |
|---|---|---|---|
| **Data from transcripts of audio recordings, video recordings, and interviews** | • What kind of resources do young children participants use in their process of making meaning?<br>• How young children participants use available resources for making meaning?<br>• How young children interact with older adult participants in their process of making meaning? | ➢ Funds of knowledge<br>➢ Funds of identity<br>➢ Semiotic resources | ✧ People resources<br>✧ Contextual resources |
| **Data from field notes of observations** | • What kind of resources do young children participants use in their process of making meaning?<br>• How young children | ➢ Semiotic resources | ✧ Contextual resources<br>✧ People resources |

[13] According to Cohen, Manion and Morrison (2011), an open coding is "simply a new label that the researcher attaches to a piece of text to describe and categorize that piece of text" (2011, p. 561).

| | | | |
|---|---|---|---|
| | participants use resources for making meaning? | | |
| **Data from photos** | • What kind of resources do young children participants use in their process of making meaning?<br>• How young children participants use resources for making meaning?<br>• How young children interact with older adult participants in their process of making meaning? | ➢ Semiotic resources | ✧ Contextual resources<br>✧ People resources |
| **Data from digital portfolios** | • What kind of resources do young children participants use in their process of making meaning?<br>• How young children participants use resources for making meaning?<br>• How these resources interact with each other in multimodal ensembles? | ➢ Semiotic resource | |

As is shown in Table 3.3 above, for instance, I explored young children's choices of multiple resources for their making meaning based on the data derived from transcripts of interviews, audio recordings, and video recordings. First of all, I sorted the data about resources chosen by young children out from the whole data collected. I labeled them with the description as *resources for young children's meaning-making*. I further clustered the data with similar categories into conceptual labels, such as *funds of knowledge, funds of identity,* and *semiotic resources*. Thirdly, I subdivided labels into subgroups. For example, the label of "semiotic resources" was further subdivided into "materials", "verbal communications", and "non-verbal communications". Finally, I displayed the data with descriptive labels by forms and made connections and comparisons between different types of resources.

## 3.4 Trustworthiness

In this section, I explain how I attempted to ensure the trustworthiness of my research.

### 3.4.1 Triangulation

Triangulation is a powerful way of "demonstrating concurrent validity" (Cohen, Manion, & Morrison, 2011, p. 195), particularly in qualitative research. It involves "the use of multiple and different methods, investigators, sources, and theories to obtain corroborating evidence" (Onwuegbuzie & Leech, 2007, p. 239). According to Patton (2002), four types of triangulation could be employed to evaluate trustworthiness of qualitative research. They are data triangulation, investigator triangulation, theoretical triangulation, and methodological triangulation. I conducted methodological triangulation and theoretical triangulation to maximize the validity of findings of this research.

#### *3.4.1.1 Methodological triangulation*

This study employed data derived from the original SSHRC-funded project. In the original project, data were collected by multiple methods (e.g., semi-structured interviews, observations, digital portfolios, and field notes). For example, field notes were used to record details of observations during the intergenerational art classes. Simultaneously, audio-recordings and video-recordings were employed to document the whole process of the intergenerational art classes, which could supplement field notes in recording details of observations.

#### *3.4.1.2 Theoretical triangulation*

My study was not limited to just one theoretical lens. However, I tried to develop a theoretical framework that encompasses theories of multiliteracies, multimodality, and the affordances of literacy resources to illuminate the relationship of resources for young children's meaning making

### 3.4.2 Transferability

Transferability refers to "the degree to which the results of qualitative research could be generalized or transferred to other contexts or settings" (Conway, 2014, p. 97). The provision of thick, rich descriptions of interviews and observations applied in the original study could help the findings of my study to achieve a type of external validity (Lincoln & Guba, 1985). According to Cohen and Crabtree (2006) external validity could be achieved "by describing a phenomenon in sufficient detail" so that "one could begin to evaluate the extent to which the conclusions drawn were transferable to other times, settings, situations, and people" (para. 1).

Three aspects of data analysis could help to ensure the transferability of my MA study: 1) thick, descriptive data derived from the original project. Guba (1981) illustrated that thick and descriptive data "allowed comparison of this contexts to which transfer might be contemplated" (p. 86). Anney (2014) also agreed that thick and descriptive data could "develop thick description of the context in order to make judgments about fittingness with other contexts possible" (p. 12); 2) purposeful sampling. As was mentioned above,

purposeful sampling enabled researchers to focus on "specific purposes associated with answering a research's questions" (Teddlie & Yu, 2007, p. 77). It helped researchers to pay attention to key informants and provided greater in-depth findings tha other probability sampling methods (e.g., Anney, 2014; Cohen, Manion, & Morrison, 2011). That is to say, purposeful sampling would contribute to providing reliable database that might offer rich information for "the potential appliers who might seek for the transferability of findings of this study to their own situations" (Zhang, 2012, p. 78); and 3) using "audit trail" in the process of data analysis. As was mentioned above, in this study I utilized "audit trial" to ensure a reliable database and provide potential appliers "a strong chain of evidence to follow" (2012, p. 78). Thus, I helped to make the transferability of this study possible.

## 3.5 Ethical Considerations

In this section, I briefly talk about the ethical considerations of the study.

### 3.5.1 Potential risks and mitigation plans

There were no known risks or discomfort to participants associated with this study. The possible benefits for young children's literacy learning of this research might be that the findings of this study would contribute to literature relating to multimodal literacy, resources for young children's meaning making, and the design of literacy curriculum.

### 3.5.2 Data protection

All the data in this study were collected and stored in two forms: 1) electronic data (e.g., audio or video taped interviews and observations, digital portfolios, photos which documented artifacts, field texts [digital version] and details of observations) and 2) paper data (e.g., field texts, which included transcriptions of audio or video recordings, and field notes). All the written and recorded information from this research project was not kept on a personal computer hard drive. Alternately, the data were stored on the encrypted Western server. After 5 years[14], all paper materials would be shredded, and audio files would be destroyed or erased per Western's Information Security guidelines.

### 3.5.3 Consent and access

The original project was approved by Westerns' NMREB and then the project site. In the original project, before the program began, letters of information and consent, based on Western NMREB templates were distributed to elders for the intergenerational art classes. These consent forms were collected by the PI, CI, or RA on the first day of the class. Parents who brought their child to the class would also receive a letter of information and a consent form for themselves as potential research participants on the first day of the class. Besides, parental consents were obtained for all participants under the age of 18.

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[14] Data with identifiable information will be retained for longer than 5 years, to a maximum of 7 years. The SSHRC Insight grant itself is 5 years' long.

### 3.5.4 Respect for persons and confidentiality

The interviews and observations in this research were audio or video taped, and later transcribed for analysis. Participants might have chosen to audio record narration with the iPads for some of their artifacts that they constructed in the intergenerational art classes. Classes were video-recorded in order to capture interactions and gestures. Participants might have chosen to video record their artifact making. If a person for whose consent had not been obtained was inadvertently caught on audio or video recording, or in photos, this data would be deleted.

In this study, first names of all the participants were allowed to be used as per the Letter of Information. This study would only use participants' first names if they were used on participants' artworks. It was necessary to use the first names of the participants because the use of first names is particularly important in understanding children's print literacy (i.e., reading and writing acquisition). If the participants include surnames or other identifying information on the artifacts constructed, this information would be masked in the data. At the same time, adequate level of confidentiality of the research data were ensured (Bryman & Bell, 2007). All the data collected from interviews and observations were used for research purpose only, as well as they were kept safely during the process of the research.

## 3.6 Summary

With the lens of multiliteracies and the notion of design, this research relied on data derived from the original project and focused on questions related to resources for young children's making meaning. Single case study methodology was utilized in this research, in order to provide the in-depth description of data for the research. The thick, descriptive data also ensure the transferability of the research, which provide reliable database for potential appliers who might transfer the findings of this study to other situations.

# Chapter 4

## 4 Findings

This study was designed to provoke a greater understanding of resources for young children's meaning making and focused on how young children used different types of resources for their meaning making. It also explored how resources worked together to support young children's representation and communication.

In this chapter, I display the data that show the literacy events where young children drew on various kinds of resources to make meanings in multimodal ensembles. Specifically, I present the data about what kinds of resources young children utilized for their meaning making and how these resources were used. I also demonstrate how different types of resources worked together to support young children's meaning making. I then describe how various types of resources provided opportunities to expand young children's literacy and identity options. Further, I conclude my findings of the study.

In each section of this chapter, I portray the multimodal literacy events where young children used available resources in the processes of meaning making. Within the portraits, I retrieve data from a variety of sources including transcripts of audio and video recordings, field notes of observations, transcripts of interviews, photos and screenshots from digital portfolios of young child participants. I use direct quotes of field notes and transcripts wherever possible. I

adopt square brackets to identify non-verbal interactions[15] (e.g., gestures, facial expressions, and young children's behaviors during the art classes). I mask the areas on photos or screenshots of digital portfolios where adult participants of the art project may have included their identifying information (e.g., their family names).

## 4.1 Available resources in intergenerational classes

The research data showed that there were various types of resources that were available for young child participants' meaning making in the intergenerational art classes. These resources included semiotic resources, human-based resources, and contextual resources. Resources were made available by the art teacher (e.g., materials for children's meaning making in the art classes) and the site of the program (e.g., the room where art classes took place and the original stuff of the room that children could still get access to). Also, according to the data, young children's funds of knowledge and funds of identity influenced their processes of representing themselves and communicating with other people. The following are descriptive accounts of the multimodal literacy events occurring during the processes of intergenerational art classes: I present data that illustrate the types of available resources (e.g., semiotic resources, human-based resources, and contextual resources) in the art classes. Meanwhile, I show what kinds of resources were employed by children for their meaning making and how children employed them.

[15] Non-verbal interactions had been recorded and noted by video and audio in the original project. In this MA thesis, data about non-verbal interactions are mainly derived from transcripts of audio/video recordings and field notes of observation.

## 4.1.1 Semiotic resources

The data suggest various types of semiotic resources for young children to make meanings during the multimodal literacy events. According to van Leeuwen (2005) and Kress (2009), modes can be produced and combined with each other materially, physiologically, and technologically. Semiotic resources are "image, sound, number, the manipulation and choreography of physical materials, and body movement" (Hamilton, Heydon, Hibbert, & Stooke, 2015, p. 2). Thus, I categorized semiotic resources that appeared during all the six sessions of the program and marked them with different labels. Table 4.1 shows categories of the main semiotic resources used by the children for their meaning making.

Table 4.1

*Main Semiotic Resources that Appeared in Each Session of the Program*

| Label / Session | Materials (Paper-based tools) | Technological tools & Digital devices | Others |
|---|---|---|---|
| One | Multi-colored paper, corn starch mixture | iPads (especially the app called Book | The thickness of lines, the brightness of colors, |

| | | | |
|---|---|---|---|
| | (i.e., glue), water color paints, color pens, black sharp pens | Creator[16]), camera | the layout of the pictures… |
| Two | Firm tag board, ink, brayers, glue sticks, scissors, Multi-colored foil paper, newspapers, photos | Ibid | Ibid |
| Three | Paper, charcoal, Multi-colored crayons, water, scissors, chalks | Ibid | Ibid |
| Four | Multi-colored foil paper, paper with animal print, scissors, snake patterned paper, glue | Ibid | Ibid |
| Five | Multi-colored crayons, paper | Ibid | Ibid |
| Six | Sponge, water containers, paint pallet, multi-colored gouache paints, paint | Ibid | Ibid |

[16] The Book Creator is an app designed for use with iPads to create various types of e-books, including children's picture books, comic books, photo books, journals, textbooks, and more. People can add pictures, photos, texts, and even sound documents to built their e-books. These e-books can also be shared with families and friends. Here, in this project, child participants use this app to create their digital portfolios to document their art works created during the intergenerational art classes.

| | |
|---|---|
| | brushes, flowers (in vase), paper, marker pens |

Except for the above-mentioned resources, there were also resources that were produced physiologically during the intergenerational art classes, including verbal interactions (e.g., language, tone of people's voice, repetition, and punctuation) and non-verbal interactions (e.g., body language, gestures, and behaviors)[17]. These physiological semiotic resources existed throughout the whole sessions of the art classes.

Moreover, the allocation of semiotic resources, especially materials for young child participants' meaning making, was based on the topic/tasks of each session. Also, as Table 4.1 shows, the material semiotic resources of one intergenerational art class differed from another. This was because the art teacher intentionally placed resources so that they ensured each session of the project had one specific topic/task for their participants' making meaning. Here are three examples that presented how material semiotic resources were allocated in each class and how child participants chose and used these material semiotic resources to fulfill different tasks and correspond to the topic of each art class.

The first example shows that, in the first session, child participants were invited to participate in collage activities by the art class teacher, Bridget. Bridget, with the help of Betsy (the education director for the Congregation), prepared and organized all the materials that would

[17] The definition of verbal communication in educational domains, according to Commonwealth of Australia (2009), was the spoken words that could convey people's messages and make meanings; while the non-verbal communication could add meanings during the interactions between people, including gestures, actions, and body languages.

be offered to participants for their artifact creation in each session. At the beginning of Session One, Bridget firstly provided the topic and instructions that were related to the session:

> *Vignette 4.1: "Sticking pieces of components together"*[18] *—Bridget, April 14th, 2016*
>
> Bridget's collage activity consists of two parts: 1) following instructions to draw certain shapes that in the end would form a bird and 2) filling in the drawing with colored pieces of paper with corn starch mixture as a glue.
> (The field note of Session One, April 14th, 2016).

With the instructions that were mentioned above, child participants employed materials (e.g., multi-colored paper, corn starch mixture, paint rollers, and palettes) that were available in the first two art classes for their meaning making. For example, in his first art class, Yafeu, a five-year-old boy, made his artifacts *Penguin* (see Figure 4.1) by using multi-colored paper, scissors, a glue stick (or corn starch mixture), and color pens.

[18] Note that the instructions of each art class are also part of human-based resources. I will explain this in the next section of this chapter.


*Figure 4.1.* Yafeu's collage "Penguin"

In his collage, Yafeu outlined the shape of a bird with a black sharp pen provided in the art class and filled his drawing with pieces of color papers as the birds' plume. He used large white paper as the background and positioned the bird halfway down of the paper. Yafeu finally named his picture as "Penguin" because he said the bird was standing on the ground and could not fly in the sky.

The second example of the purposeful allocation of semiotic resources could be shown in Session Two. Bridget began the session with asking participants to tell the group how "they were like someone in their family" (The field notes of Session Two, 21st April, 2016). And then she provided instructions on how to make collagraphs with the materials, such as ink, firm tag board, and brayers that were prepared for the second art class and invited

participants to make their own collagraphs. For example, as is shown in Figure 4.2, Yafeu created his collagraph *Sam.*

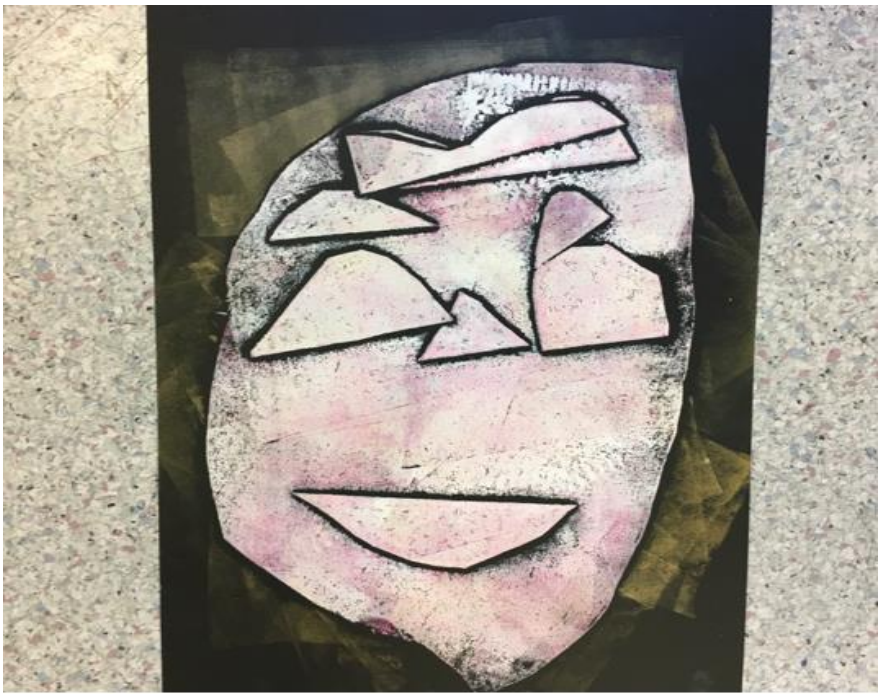

*Figure 4.2.* Yafeu's collagraph "Sam"

In the second session, Yafeu employed dark-colored firm tag board as the background of his artwork. He used ink and brayers to make prints and created a face with a big smile. Yafeu explained that this is the face of another child participant Sam and named his collagraph as *Sam*.

The third example shows that the third art class was equipped with charcoal, papers, and water for all the participants, which was quite different from Session One and Session Two. Session Three was about shading and playing shade, which called for participants to work with charcoal, use their fingers to smudge it on paper, and make drawings with their own

topics. Mia, a girl who just had her fourth birthday before the class, enjoyed the process of drawing with her fingers. She firstly used a scissor to cut one stencil paper into the shape of mountains. Then she put the stencil paper on white paper as the background and created shadows with charcoal and her fingers. The shadows and tints composed Mia's mountains and are shown in Figure 4.3.


*Figure 4.3.* Mia's finger drawing "Mountains"

The allocation of the resources is one of the reasons that might have influenced children's ways of meaning making. From the data, I noticed that each type of resources held particular affordances when they supported child participants' meaning making. The affordances would also act on how children chose and utilized different resources to express themselves. For instance, the data indicated that paper and multi-colored pens were the common materials that child participants chose to use in the process of meaning making during intergenerational

art classes. Figure 4.4 shows that child participants use multi-colored pens to create their artifacts in each art class. Besides, according to the data from field notes, transcripts of audio/video recordings, and interviews with parents, I also found that paper and pens were basic tools for children to make meaning in their daily life—children could employ paper and pens to create multimodal ensembles to represent themselves without any additional instructions from other people. However, things were different in the situations where children used digital tools or created collages and sought help from other people to guide them to make meanings as I will show later in the chapter.


*Figure 4.4.* Child participants used paper and multi-colored pens to make meaning

Except for materials that were mentioned above, the data also show that, in the art classes, child participants also employed verbal and non-verbal communications to express their ideas and interact with other people during the intergenerational art classes. For example, in

the third session of art classes, when Mia shared the pictures that she had explored by using iPads with her partners—two adult participants, Mary Anne and Peggy—and shared the point where she was most interested:

*Vignette 4.2: "I see a scuba diver."—Mia, April 28th, 2016*

[Mia (child) shares discoveries on iPad with Peggy (adult) and Mary Anne (adult).]
Mary Anne [watches the picture and says to Mia]: Do a penguin – you look up a penguin.
Mia: I see a scuba diver.
Mary Anne: Oh yeah.
[Mia scrolls on her Google search.]
Mary Anne: There's sharks.
Mia: Scuba divers!
Mary Anne: Wow, look at that. Diving, and dolphins!
Mia: Look what I took.
[Mia shows Peggy an image of a scuba diver in a cave on the iPad.]
Peggy: Whoa!
Mary Anne: A diver.
Peggy: Wow, a water scuba diver!
(The video transcript of Session Three, April 28th, 2016)

In the dialogue above, Mia repeated the phrase "scuba divers" twice and strengthened her tone in the second time. She sharply found that there was a scuba diver in a cave. She was eager to share her discovery with her adult partners. The repetition and emphasis that Mia employed in her verbal communications illustrated the way that she intended to attract other people's attention and express what she had explored to other people. In another scenario of the second session of the art classes, Mia utilized both verbal and non-verbal

communications when she wanted to seek help from Mary Anne. The following instance further shows that Mia used both verbal and non-verbal communications to interact with her adult partner:

*Vignette 4.3: "How do you glue next?"—Mia, April 21st, 2016*

[Mary Ann (adult) and Mia (child) are seated at the table. Mary Anne is using scissors and Mia is using a glue stick.]
Mia: [Turns to the right to look at Mary Ann] Mines is…[Mary Ann smiles and chuckles. Mia opens her mouth as if she is going to say something. Mary Ann leans in close and Mia shows Mary Ann her glue stick and paper, which she is holding, one in each hand. Mia taps her finger against the paper she is holding. Mary Ann leans in closer].
Mary Ann: What is it?
Mia: How do you glue next? [each word is spoken slow and punctuated, pointing to her paper after each word spoken].
Mary Ann: Oh, sure. [Mia begins to glue her paper down and smiles]. That's a good thing. (The video transcript of Session Two, April 21st, 2016)

During the dialogue, Mia added some non-verbal elements into the spoken words (e.g., tapping her finger against the paper and pointing to her paper after each word spoken) to stress the places where she needed Mary Anne's help. She also used punctuation and spoke slowly to ensure that her intention could be conveyed to Mary Anne clearly. And finally she succeeded to receive Mary Anne's attention and assistance. In the examples that are presented above, both verbal and non-verbal communications, as part of semiotic resources, were used by children in their processes of meaning making.

### *4.1.1.1 Digital resources*

Digital devices were also utilized as resources by the children to support their meaning making, such as iPads. According to the field notes of observations, in each art classe, all of the child participants used the iPads to search information online. Some child participants (e.g., Yafeu, Mia, and Sam) even tried to draw pictures with iPads (e.g., Figure 4.6 and 4.26). Moreover, when child participants finished their paintings, they were also invited to take photos of their work and then create their own digital portfolios with iPads. The app that children used to build their digital portfolios was Book Creator (which was shown and explained in Table 4.1). It helped child participants to organize their artifacts in a chronological order.

It is worth mentioning that, during the art classes, all of child participants in particular showed their curiosity and interests on iPads compared with other types of semiotic resources. The camera captured several times how children explored with iPads and used them to learn and support their meaning making. Especially Yafeu (see Figure 4.5), he exhibited a heightened level of curiosity of iPads and was engaged in exploring with iPads during the art classes:

*Vignette 4.4: Yafeu explored with iPad—April 28th, 2016.*

[Yafeu (child) shares iPad findings with Joanne (adult).]
Joanne: This one!
[Yafeu swipes on the iPad numerous times and seems very engaged. He shows Joanne what he finds on the iPad.]

Joanne: Wow! What is that?

Yafeu: A mermaid.

Joanne: So you're going to draw that?

[Joanne points to iPad and both Yafeu and Joanne are attentive to what is on the screen.]

[Joanne returns to her drawing. Yafeu is still engaged with the iPad and search online.].

(The video transcript of Session Three, April 28th, 2016)


*Figure 4.5.* Yafeu explored with iPad

Sam was another child who showed his interest in iPads. He began his new journey of drawing with digital devices, such as iPads. Sam's artwork is shown as Figure 4.6.

*Vignette 4.5: Sam colored on iPad—May 12th, 2016.*

[Roz (off camera) speaks to Sam (child) about his drawing.]

[Sam has already drawn a blue circle on his iPad drawing. To the right of the circle, he is using the color red and proceeds to make a line. He makes the line thicker and continues to make it a solid red line. He looks over to his left at what they are making.]

Roz: That color shows up really well, Sam.

[Sam starts to make his line even thicker and now it turns into a rectangle. He watches across the room at what they're doing. He returns to coloring in red and it becomes a larger rectangle.].

(The video transcript of Session Five, May 12th, 2016)

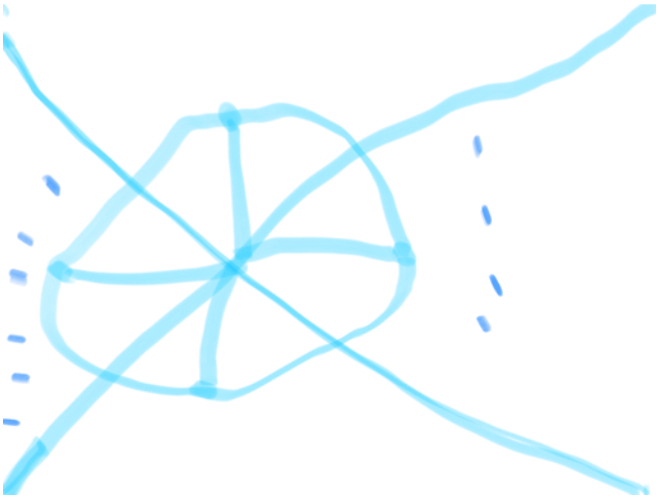

*Figure 4.6.* Sam's iPad painting "Lava"

In Sam's picture, he used lines and dots to represent the scene of lava. The lines presented the directions of lava's flow and the dots meant that the lava splashed out of the volcanic vent. The volcanic vent was located in the middle of the paper and represented by the intersection of lines. IPads here, with the same functions (i.e., create two-dimensional drawing) as that of paper and color pens, provided Sam opportunities for his literacy practices.

Yafeu's exploration with iPads and Sam's experience of creating digital paintings suggested their interests in digital resources. The data showed that children's interests might be the third reason that influenced their choices of resources for their meaning making, except for the above-mentioned reasons of the intentional allocation of resources and affordances of different resources.

## 4.1.2 Human-based resources

In the art classes, human-based resources were also available for children's meaning making. Such resources included other people in the room where the art classes took place (e.g., other child participants, adult participants, parents of the child participants, researchers, and the project staff), plus, for example, people's experiences, instructions, emotions, evaluations, interactions, and the relationships between people. During the art classes, human-based resources played an important role in providing children opportunities of both literacy practices and identity options.

*Vignette 4.6: Betsy guided Mia to use iPad—April 21st, 2016*

[Betsy is bent over, standing with Mia, helping her to hold the iPad while she takes a picture of her art work which is lying on the ground. Stella is standing to the left of Mia, watching].

Betsy (The education director for the Congregation): So, make it closer, closer, closer, closer, closer, [Mia bends down, closer to her artwork, while holding the iPad] perfect! Now press that white button [points to the button on the iPad]. Is that a good picture? [Mia shakes her head yes while standing up straight, still holding the iPad]. Yeah! Press use photo right there. It says "use photo" [points to and holds the iPad]. Yay! Now what would you like to name your photo? [Bends down while holding the iPad for Mia to see it].

Mia: Ummmm [picks up both sides of her skirt of her dress and flaps it in and out multiple times]

Betsy: What did you name the girl? What's her name?

Mia: Unicorn flower [steps back and puts her hands behind her head].

(The video transcript of Session Two, April 21st, 2016)

In the communication above, Betsy guided Mia with patience and encouragement. She taught Mia about how to use an iPad to take photo of Mia's artifact and create the digital portfolio. When Betsy showed Mia the steps of adding a photo into the digital portfolio, she asked Mia whether Mia understood this step before she went to the next. Mia replied to Betsy's questions with body language, such as bending her body down and shaking her head. Once Betsy noticed that Mia comprehended her instructions and made a correct operation with the iPad, she provided Mia some affirmative words and encouraged Mia to handle the iPad by herself. Mia gained the experience of learning and using digital devices to support her meaning making. Another example of how adults' experience and encouragement were resources for young children's literacy learning is evident in an interaction between Sam and Cliff, an adult participant. During Session Two of the art classes, Cliff taught Sam how to use a brayer in his artwork:

*Vignette 4.7: "What color are you going to get?"—Cliff, April 21st, 2016*

Cliff: [Looking at Sam's artwork] I think you did it. [Chuckling] He did it! [Sam smiles and raises his artwork face cut out to show the room]. We don't need very much ink, and so, it is best, if you don't know how much ink to use, to let me or Betsy put it on. You use about as much ink as you would put toothpaste on your toothbrush, maybe the size of a lima bean. So you can see I'm just putting that much on…
Cliff: what color are you going to get?
Sam: [camera pans right to show Cliff and Sam] I'm going to get uh, orange.
Cliff: Orange? Orange and green would be a good combination.
* * * * * *
[Sam and Cliff are seated at the table. Sam is using a paint roller in yellow paint for his artwork. Cliff is holding Sam's cut out for him with his left index finger.]

> Cliff: There. [Cliff points to Sam's cut out and Sam begins to paint it yellow with his paint roller. Cliff while continuing to hold Sam's artwork picks up his paint roller with his other hand and his own cut out and moves it to the right. Cliff lets go of Sam's artwork, who is still painting, and begins to paint his own artwork.]
> Cliff: Yep, you got it.
> Sam: I don't know; I've never done this before.
> Cliff: Yeah? [Sam smiles at the camera]. You think we need more ink?
> (The video transcript of Session Two, April 21st, 2016)

When Cliff showed Sam how much ink they should use and made their artwork look better, he employed a metaphor from the daily life based on his own experience: "You use about as much ink as you will put toothpaste on your toothbrush, maybe the size of a lima bean" (the video transcript of Session Two, 21st April, 2016). This provided Sam a familiar comparison of how much ink would be better to apply in his artwork and taught Sam that there were some connections between meaning making (e.g., paint making) and the knowledge of daily life. Also, during the interactions between Cliff and Sam, Cliff's praise, affirmation (e.g., "He did it!" and "Orange and green would be a good combination." [The video transcript of Session Two, 21st April, 2016]), and positive emotions influenced Sam in an obvious way—Sam was so happy that he "smiled and raised his artwork face cut out to show the room" (The video transcript of Session Two, 21st April, 2016).

More photos and videos that captured several occasions in which the adults actively guided the children during the intergenerational art classes are shown as below. Figure 4.7 and 4.8 show the art teacher, Bridget, provided instructions to the participants and demonstrated how

to use water color in the artworks. And Figure 4.9 shows an example of how an adult participant, Dejon actively interacted with a young child participant, Sam. They worked together to fulfill tasks of one session of the art classes. Moreover, the communication between Betsy and Yafeu (see Vignette 4.8) also indicated that how Betsy guided Yafeu to add the name of his artwork and the date into his digital portfolio.

*Figure 4.7.* Bridget gave instructions

*Figure 4.8.* Bridget demonstrated how the watercolor worked

*Figure 4.9.* Dejon (an adult participant) held card for Sam

*Vignette 4.8: Betsy guided Yafeu to add the name of his artifact and the date into his digital portfolio—May 19th, 2016*

[Yafeu uses his thumb to press an icon on the iPad to take the photograph. He stands back up straight and looks at the photograph.]

Betsy: Do you like that picture? So what is it called? [Betsy uses her right hand to touch the top of the iPad screen.]

[Yafeu looks up from the photograph and looks directly ahead. Betsy points at Yafeu's painting on the ground.]

Yafeu: Max.

Betsy: Max. Max is the name for your picture? [She grasps the bottom of the iPad.] Do you know how to spell Max?

Yafeu: Yes. [He releases one side of the iPad and uses his pointer finger to touch the iPad screen.]

Betsy: And now you bring it down where you want it.

[Yafeu slides his pointer finger on the iPad to move the title of the photograph. Betsy points to the Done icon. Yafeu presses the Done icon.]

Yafeu: That's good.

Betsy: That's good? Okay, and then we're going to do plus and then the date. Do you know what the date is? Do you know what month we're in?

Yafeu: Umm.

Betsy: It's almost like Max, but we're a little part February I'm happy to say. We are in the month of Max. I mean May.

Yafeu: May.

[Betsy uses her finger to type on the iPad. Yafeu holds onto the bottom of the iPad]

Betsy: And today is the nineteenth. Can you make a nineteen? Do you know how to do that?

[Betsy presses the iPad screen. Yafeu presses an icon on the screen. Betsy continues to press icons on the screen.]

Betsy: And the year is 2016. 2…0…1…6…Done! [Yafeu touched icons on the iPad screen as Betsy spoke.]

[Yafeu presses and swipes the iPad screen with his pointer finger.]

(The video transcript of Session Six, May 19th, 2016)

During the communication above, Betsy guided Yafeu to use the iPad to create his digital portfolio with patience. She continuously inspired Yafeu to name his artwork and to figure out the date it was made. As for Yafeu, he was provided with knowledge of how to use an iPad to document his artwork and how to record and spell the date correctly. And also, the interaction between Betsy and Yafeu and Betsy's guidance on how to use iPad supported Yafeu's literacy learning and provided Yafeu opportunities of literacy practices.

Another example of how human-based resources supported young children's literacy learning is the interaction between the adult participant, Susan and the young child participant, Yafeu.

*Figure 4.10.* Susan (an adult participant) showed her phone to Yafeu

Figure 4.10 presents that Susan showed Yafeu her cell phone. According to the field notes, Susan also shared her experience of using digital devices with Yafeu. The scenario occurred when the formal session was over and some people had already left. However, several people, including Susan, had noticed that Yafeu had an affinity for working with the iPad. Thus, Susan came closer to Yafeu and sat nearby him. She communicated with Yafeu about the digital devices and introduced her phone to Yafeu. This instance shows that the reciprocal sharing between child participants and adult participants could be a resource for young children's literacy learning.

The reciprocal sharing as a human-based resource also occurred between Mia and Dejon, an adult participant, during Session Three of the art classes. When Dejon helped Mia to type the name of her artwork by using iPad, Mia also provided instructions to Dejon to correct his spelling of the name which was derived from a Disney movie that Dejon had never seen before:

*Interview excerpt 4.1: Mia's interaction with adult participant—May 19th, 2016*

Interviewer: This is probably a good time to say my favorite moment. I am not sure how much you got to see, but, the iPads sometimes they got used during the class. After every class the kids took a picture of their artworks, and Betsy would go round and help people. Then there was an opportunity to type the title of kids' artworks. So, Dejon was going to type this for Mia—she had drawn a picture and it was one of the Disney pictures. It was Ariel. I believe the little mermaid, but you know, he (Dejon) doesn't go and see Disney movies. And Mia was trying to get Dejon to say Ariel correctly, you know, she didn't have all the right letters, sometimes she had the sound name of the letter and she got Dejon completely confused. If he's got his finger on the wrong line she would say "no no no no it's E E E!" meaning "Ari-E-L!" I just thought I had to get that blend of the multimodal and the kind of traditional learning to read and write—Mia is just on the cusp right?
Mia's mother: She is starting to sight read, and like read a few couple words it's super fun.
Interviewer: So was fun to see that blend of the traditional you know first the A then they letter R and then "E E!" Dejon was completely confused, but also you know, I noticed that he was completely patient and he was having so much fun with the little guys.
(The interview transcript of Mia's mother, May 19th, 2016)

The description of the interactions between Mia and Dejon shows that both children and adults could learn from each other. Mia had learnt how to use the iPad to type the name of her artwork into her digital portfolio, while Dejon finally understood what the word Ariel meant and how to spell it correctly. The reciprocal sharing between people of two generations supported children's literacy learning. It also expanded opportunities for children's literacy practices.

## 4.1.3 Contextual resources

Contextual resources were the third type of literacy resources for young children's meaning making that I identified in the intergenerational art classes. In the classes, contextual resources included seat allocation, layout of the classroom, supplies and facilities that participants could access, and the atmosphere of the art classes. Through arranging contextual resources, the original project provided participants a free, warm, and relaxing environment to build connections with each other and also an ordered environment to support children's literacy learning.

Table 4.2 and 4.3 show two examples of seat arrangement in two sessions of intergenerational art classes. Figure 4.11 also displays the layout of the seats and the table on which Bridget put supplies. Bridget also made place cards for each participant.

Table 4.2

*Seating Plan for Session Two, 21st April, 2016*

| | KATHRYN PEGGY | SUSAN Yafeu | |
|---|---|---|---|
| | | | |
| Mia<br>MARY ANNE<br>DEJON | | | CLIFF<br>Sam |
| | | | |

Note. Adults' names are in UPPER CASE and Children's are in lower. Bridget (the art teacher) is not seated.

Table 4.3

*Layout and Seating Plan for Session Three, 28th April, 2016*

| *Stage | | | |
|---|---|---|---|
| | Peggy FREYA | Marian Kathryn | |
| MIA<br>Mary Anne | | | Joanne<br>YAFEU<br>Susan |
| | | | |
| SAM<br>Dejon | | | |
| | Betsy & Bridget (moving around)<br>*Here is a small table for supplies | | |

Note. Children's names are in UPPER CASE.


*Figure 4.11.* Supplies on a small table in the middle of the seats

The purpose of the place cards was to pair each child with one adult. This enabled people to find their spots. Simultaneously, as is shown in Table 4.2 and 4.3, tables were placed in a horseshoe configuration. This allocation of seats in each intergenerational class demonstrates how the program strategized to provide opportunities for children and adults to have more interactions: Pairing one young child participant with one elder adult increased chances for

participants of two generations to communicate with each other and share the one's ideas with others. This was confirmed by plenty of scenarios that recorded interactions between child participants and adult participants (e.g., Vignette 4.2, 4.3, 4.4, and 4.7); Placing tables in horseshoe configuration made it easy for participants to share their ideas with each other, to view the task's progress of others, and to move around freely. That is to say, the layout of the classroom increased opportunities for children's communicational options and should be regarded as one part of contextual resources for young children's literacy learning.

Moreover, the intergenerational classes took place in a multi-purpose hall. The hall was large and the studio space took up less than half of it. Supplies for other programming that had been in the hall prior to the art program had been stored alongside the back wall (e.g., Figure 4.12 and Figure 4.13), which freed up more space and afforded a lot of movement, especially among the children. The spacious classroom and movements further facilitated the use of above-mentioned human-based resources: Child participants and adult participants moved freely during the process of meaning making, had communications and shared ideas with others, and pick up materials that would be used in their artworks.

*Figure 4.12.* Image of the back of the hall (1)


*Figure 4.13.* Image of the back of the hall (2)

For example, during Session Three, Dejon, an adult participant, interacted with Mia without constraints of space. From Table 4.3, Dejon was not sitting beside Mia. However, when he noticed that Mia was trying to add the photo of her artwork into her digital portfolio, he moved to Mia and gave Mia instructions about how to use iPad to add photos and create digital portfolio (see Figure 4.14).

*Figure 4.14.* Dejon helped Mia to create her digital portfolios with iPad

The contextual resources also provided young children opportunities for their literacy practices and identity formation. The welcoming and friendly atmosphere in the art classes encouraged children to interact with other people and gradually broke their shells of shyness and silence at the beginning of the classes[19] (see Section 4.3).

The original supplies and facilities in the room provided opportunity for children to represent themselves in their own ways. For example, during Session Six, Stella (a young child participant) finished her intergenerational hands project work early and found a whiteboard easel at the back of the hall. The whiteboard and one marker pen provided her the chance to design her own story with drawing. Her story had quite a different content focus than the artworks she made during the art classes. Figure 4.15 shows that Stella was standing in front of the easel and telling a story of what she intended to do with some drawings that she had

[19] I will further explain this in Section 4.3 of this chapter—the changes in young children during the intergenerational art classes.

not yet made. The video camera also recorded Stella's process of creating her own story with drawings, as is shown in Vignette 4.9.


*Figure 4.15.* Stella was standing in front of a whiteboard easel that was positioned in a corner of the room

*Vignette 4.9: Stella told one story with drawing—May 19th, 2016*

[Stella is facing the camera and a black ink or paint mark can be seen on her forehead.]
[Stella turns around and faces the easel.]
Stella: And that's all of my art but I still have to make some more of it. [The sound of the marker on the easel can be heard] so I can umm, introduce it to my babies [Turns facing the camera] and when I'm done making it up, I can show it to my babies. [Turns to the easel.]
ROZ: You have a baby at your house?
Stella: Hum, he's here but it's my babies that you can't see. I'm just pretending babies.
[On the easel Stella has drawn with an oval shape on the right end that is colored in.]
Stella: So I'm trying to introduce this and make it very big. I can make it.
ROZ: So it's too big?
Stella: Umm, no. It has to be just right. I have to make it big enough too.

ROZ: Can I get a picture of it?

[Stella moves off to the side but is still in the camera shot. Stella has transformed the drawing into one large circle and has colored in approximately 1/3 of the circles surface.]

Stella: This is some of it.

ROZ: Yeah, that's some of it. And tell me again what it is.

Stella: Umm, it is Tanzania Colorado, Seattle and baby pictures [Stella faces the easel and begins coloring in the circle] and that's all that was, that's all I wanted.

ROZ: Baby pictures.

Stella: Yeah and it's the Tanzania Colorado one.

ROZ: Oh and a […].

Stella: Seattle.

(The video transcript of Session Six, May 19th, 2016).

Vignette 4.9 shows that Stella was conceiving her story about Tanzania Colorado, Seattle and babies while she was painting with the marker pen and the easel. The whiteboard and the marker pen belonged to the research site and were the original materials of the room that children could still get access to. Stella chose and employed the whiteboard to create meanings and talked about her own story. Thus, the whiteboard and the marker pen, as one part of contextual resources, provided Stella more choices for Stella's literacy practices.

### 4.1.4 Young children's funds of knowledge and funds of identity

As was mentioned in Chapter Two, young children's funds of knowledge and funds of identity were also available resources for their process of meaning making. From the above-mentioned children's artifacts (e.g., Figures 4.1, 4.2, 4.3, 4.4, and 4.6), funds of knowledge and funds of identity influenced children's choices of resources for their meaning

making and ways of representing themselves. Young children used and employed these available resources that were derived from the family, community, and culture that they spent their lives with. For example, as seen in Figure 4.4, Mia's drawing depicts her mother washing dishes. Mia drew her mother with long hair and a kitchen sink which was located in the middle of the picture. These details seemed to be derived from Mia's observation in her daily life and was further verified by Mia's mother in the interview that Mia's art making was influenced by the family (e.g., " I think to some degree I do but I'm really trying to think of someone other than me and my husband (who had important influences on Mia's art making)", [The interview of Mia's mother, 19th May, 2016]).

There were also another example that demonstrates how Mia used her funds of knowledge and funds of identity to represent herself and make meanings. The following excerpt shows that Mia tried to name her drawing "Mermaid":

*Vignette 4.10: Mia, names of her mermaids, and Disney—28th April, 2016*

[Mia (child) tells Roz about her mermaids.]
Mia: Water, under.
Roz: Swimming underwater. Is it one mermaid or is more than one mermaid?
Mia: [Points to each mermaid as she counts] One, two, three, four, five!
Roz: Are they all different mermaids?
Mia: One is yellow. One is Elsa. One is Anna. One is a flower.
(The video transcript of Session Three, 28th April, 2016).

*Figure 4.16.* Mia's artwork "Ariel"

Mia's artwork and the description about the names of her mermaids show how her knowledge of Disney influenced her process of naming the picture: When Mia tried to give her mermaids names, she borrowed two names—Elsa and Anna—which were derived from one Disney movie called *Frozen*[20]. Eventually, Mia named her artwork as Ariel (see Interview excerpt 4.1)—Ariel was also a name from another Disney movie *A Little Mermaid*[21]. In the process of creating artwork, Mia remixed these Disney components with available semiotic resources (e.g., charcoal, paper, and pens) in her own drawings and created a new combination of resources for her representation. This indicated again that

[20] *Frozen* is a 2013 American 3D computer-animated musical fantasy film produced by Walt Disney Animation Studios. Anna and Elsa are the names of two main characters in this film.
[21] *A Little Mermaid* is a 1989 Disney animated musical fantasy film. Ariel, who is the main character of this film, is a mermaid.

Mia's funds of knowledge were transformed as part of the new resources for her meaning making.

The data also show how young children based their ways of representation on their funds of knowledge and funds of identity. For example, the field notes of observation of Session Six (19th May, 2016) documented that Stella explored the painting with watercolor freely. During Session Six of art classes, Bridget invited all the participants to draw their partners' hands holding flowers. However, Stella did not follow the instructions of the project completely when she worked with her painting (see Figure 4.17 and 4.18). She had her own creation during the process of meaning making. She brought her experiences of painting at home to the art class.

*Figure 4.17.* Stella enjoyed broad brush strokes


*Figure 4.18.* Stella's watercolor painting

However, in the same session, how Yafeu created his artwork began with a comment on how to paint his partner's wedding ring so that it looked shiny. According to the data from the field notes of observation (19th May, 2016), Cliff, Yafeu's adult partner of the sixth art class, made a joke that his wife did not need to worry about him wearing a ring. The field notes of observation captured Yafeu's reaction on this message. Yafeu noticed the ring that Cliff worn on his finger. He then drew a ring on the paper and colored it with the bright yellow color (see Figure 4.19).


*Figure 4.19.* Yafeu was drawing Cliff's hand with flowers in his picture "Max"

Both Yafeu's keen observation and his choice of bright yellow color for the ring were part of his funds of knowledge and funds of identity that were derived from preschool, according to Yafeu's father:

> *Interview excerpt 4.2: Yafeu's father talked about Yafeu's experience of painting in preschools—May 19th, 2016*
>
> Roz: Is there someone important in Yafeu's life who you would say has had an influence on his art making?
> Yafeu's father: Well, I think that going to one of the preschools that he goes to has been influential. It's an arts-based program and so he's really, he's gotten a lot of vocabulary there and also just a lot of experience with different materials, and ideas, and approaches so they…Well like with mixing paints and mixing colors and talking about different shades of things and how bright a color is or how dark a color is, you know to just sort of use those to have conversations about art I think has opened up his idea of what he could really do with art. Maybe the more we talk about all the different, you know if we talk about

> dimensions of something then we realize that those dimensions are significant and so maybe by being in a program where they do art and they talk about art or they do different things with texture, and different materials and different processes that you know, that kind of helps him know that that's significant. (The interview transcript of Yafeu's father, May 19th, 2016).

According to Yafeu's father, the preschool provided literacy resources for Yafeu for his meaning making, such as new vocabulary for communication, different ideas and approaches for representation, and how to recruit colors and lines in his paintings. This knowledge and his personal experience became one part of his funds of knowledge and then transformed as available resources that supported Yafeu's meaning making in the art classes. When Yafeu employed these linguistic tools (e.g., language and vocabulary) and the knowledge he had learnt from his growth domains (e.g., his family, the preschool, and his community) to express himself to other people, his funds of knowledge further became his funds of identity that would also be part of available resources for his meaning making.

Comparing Stella's artwork with Yafeu's, I noticed that there were obviously different styles—Stella's artwork seemed more abstract and free, while Yafeu's was more detailed and figurative. From the above-mentioned data I explored that this difference was derived from different life and learning experiences of the two children. That is to say, young children's funds of knowledge and funds of identity, as resources for young children's meaning making, influence young children's ways of representation and communication.

Moreover, the data also provide examples of how children made connections between their funds of knowledge/funds of identity and other types of resources in their meaning making. One of these examples is the process in which Yafeu created his artwork in Session Five:

*Vignette 4.11: Yafeu talked about his artwork—May 12th, 2016*

[Yafeu is seated at the table pointing to his drawing with his left index finger. Roz (adult) and Joanne (adult) are off camera].

Yafeu: That's a cloud [circles the top of his drawing which is colored blue].

Roz: Sky and a cloud.

Yafeu: A chicken person. [points to the bottom of his drawing].

Roz: A chicken person?

Yafeu: Chicken feet.

Roz: Ok.

Yafeu: …and that's a house, that's the soil and that's the grass. [circles the bottom of his picture]

Roz: What do chicken feet look like?

Yafeu: Oh. They look like, well, leg. [straightens up in his chair]

Joanne: Show your fingers.

[Yafeu rests three of his fingers on the table in front of him]

Joanne: They look like that.

Roz: Oh, ok.

Yafeu: [Points to his three fingers] Like that.

Roz: Do you have chickens at your house, Yafeu?

Yafeu: [Shakes his head no] Ah, no.

Roz: Where did you see chickens?

Yafeu: Oh. At a friend's house.

Roz: At a friend's house.

Yafeu: Yeah.

Roz: Oh.

> Yafeu: At a farm house. Friends we have help them get… get the eggs from the chicken's nest and sometimes don't know if sometimes chickens start flying out and Bawk! Bawk! Bawk! Bawk! Bawk! Bawk! Bawk! Bawk!
> Roz: You decided you were going to give chicken feet to your, to ah person. Is that a person there?
> Yafeu: Yes, it's a person.
> Roz: Yeah. So what's the person going to do?
> Yafeu: [Shuffles his drawing back and forth on the table and bounces it in his hand] Oh. It's going to stand in its house with lots of…food and well it's going to go outside to play. (The video transcript of Session Five, May 12th, 2016)

In the dialogue between Yafeu, Roz, and Joanne, Yafeu employed his funds of knowledge in his representation. Yafeu said that the source of his inspiration was derived from his experience of seeing chicken at his friend's farm house and imitated sounds of chicken and duck during the dialogue. He made connections between his funds of knowledge with semiotic resources (e.g., sounds, multi-colored pens, and paper) when he created his artworks *Blue Sky* (see Figure 4.20) and communicated with Roz and Joanne. In Yafeu's text one can see how he brought together his personal experience, as part of his funds of knowledge, together with multiple tools (e.g., paper, a black sharp pen, and multi-colored crayons) and other modes (e.g., various colors, lines, and space) for his meaning making.

*Figure 4.20.* Yafeu's artwork "Blue Sky"

Yafeu's funds of identity also seemed to play a role when he represented himself to other people. During the above-mentioned conversation, for example, Yafeu expanded the meaning in his painting with his words, but also his body. He actively and frequently used movements and gestures to express his meanings, a meaning making strategy that is mentioned by his father. In his father's interview, Yafeu's father explained that Yafeu was good at employing body language to represent himself, which became one part of his funds of identity and influenced his process of meaning making:

*Interview excerpt 4.3: Yafeu's father talked about how Yafeu usually expressed himself—May 19th, 2016*

> Yafeu's father: Yafeu I think as being more visual and physically expressive like dance, if he'll come out of his shell enough to do dance he's really wonderful with his body and has a good facility with his body.
> Roz: And that's something you've noticed from?
> Yafeu's father: From when he was tiny…he's just been able to see someone move in a certain way and then move his body in that way or to express himself. If he's sad he'll put his head in his hand and just sort of hunch his whole body over or if he's happy he's whole body is smiling not just his face.
> (The interview transcript of Yafeu's father, May 19th, 2016)

Young children's first names, which were also regarded as part of their funds of knowledge, might also help young children to express themselves with the characteristics of their individual identities. From child participants' digital portfolios I further noticed that children used their first names to mark their own artworks and to communicate with other people during the art classes. For instance, Yafeu always used capital letters to write his name (see Figure 4.1, 4.19, 4.20, and 4.24). Sometimes he also circled his name (e.g., Figure 4.1) or put an exclamation mark (e.g., 4. 19) to highlight his name; Mia routinely made the dot of the letter "i" big and drew many circles when she wrote the letter "a" (see Figure 4.3, 4.16, and 4.21); Stella had a free-style of writing her name—sometimes she used all capital letters but sometimes not (see Figure 4. 22); and Sam's name-writing made me wonder how and why he presented his name by using a backward writing order (see Figure 4.23).

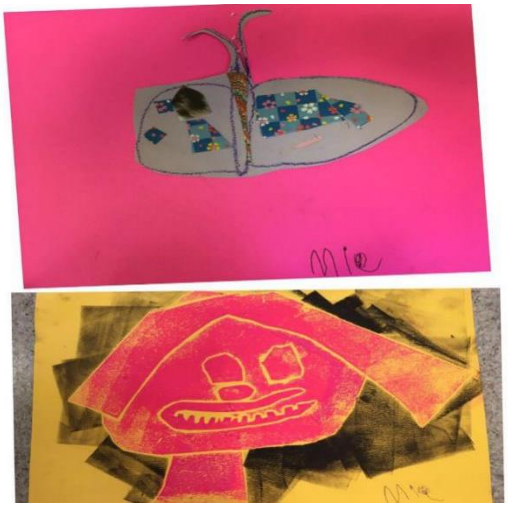

*Figure 4.21.* Mia put her name in her artworks

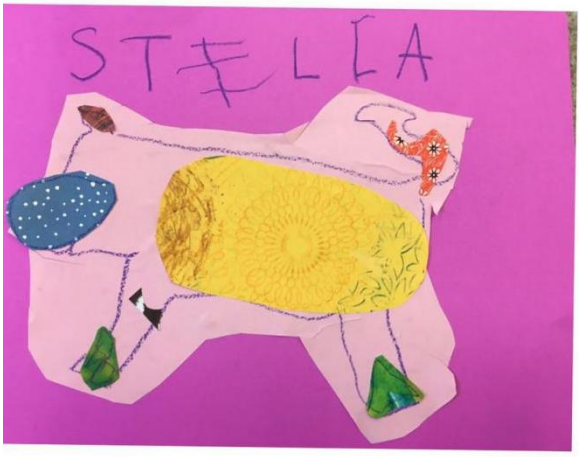

*Figure 4.22.* Stella put her name in her artwork

*Figure 4.23.* Sam put his name in his artwork

All in all, during the process of meaning making, child participants became designers and sign makers to "mediate and co-construct new knowledge" (Garza, 2010, p. 30) with their current knowledge. The above-mentioned data show that different types of resources were available for children's meaning making in the art classes. Children remixed available resources to create new combinations for their meaning making. The processes of reconstruction and redesign then provided children new opportunities for their literacy practices and identity formation.

## 4.2 The relationship between resources in multimodal ensembles

In this section, I explore how different types of resources worked together to support the children to express themselves in the intergenerational art classes. The data suggest that various types of resources integrated to represent and communicate meanings in multimodal ensembles. The data also show that, in the ensembles, different types of resources interacted to enhance the children's expressiveness.

Firstly, some examples from the data show how different types of resources worked together to support the children's meaning making. In the intergenerational art classes, the visual combination of different types of resources could be seen in children's artwork. For example, Mia used contrasts and composition to make meanings. As shown in Figure 4.3, she contrasted positive (i.e., tint) and negative space (i.e., shade) and the positive space was created with the charcoal in her finger shading "Mountains" in order to create a more dimensional effect. She also employed the stencil paper twice, which helped her to represent the scene that mountains arose in folds. The layout of the picture and the use of the charcoal worked together and enabled Mia's designing. The engagement of different modes (i.e., layout of the picture and contrast) stretched Mia's expression. This example indicate that different types of available resources used by Mia were integrated to make a multimodal ensemble for Mia's meaning making.

Another example of how different types of resources worked together to support meaning making, can be found in an additional example from Yafeu. In the third art classes, Bridget, Susan, and Joanne supported Yafeu to make shadows with stencil paper and charcoal:

*Vignette 4.12: Susan, Bridget, and Joanne showed Yafeu how to make shadows—April 28th, 2016*

[Susan holds up drawing to show to Yafeu.]
Susan: That's very cool looking.
[Joanne also holds up her purple paper.]
Bridget: Ya! It is very cool looking. Without putting any more charcoal on it, just take your same piece of purple paper – your same piece and just move it a little bit. Doesn't have to be a lot, just move it a little bit. And wipe again. Don't put any more charcoal on it. Just wipe it again. You can move it.
[Yafeu wipes on his drawing and finishes.]
(The video transcript of Session Three, April 28th, 2016)

Bridget's instruction, Susan's and Joanne's demonstration of their artworks, and semiotic resources (e.g., charcoal and paper) that were made available in the program supported Yafeu to fulfill his artwork of Session Three. Yafeu obtained knowledge about how to make his shadow artwork with charcoal, stencil paper, and his finger. During the process of meaning making, Yafeu further got his inspiration from Susan's artworks. As is shown in Figure 4.24 and Figure 4.25, Yafeu's and Susan's work looked quite similar in color intensity and shape: they both employed the wavelike shape to express their meanings; and they both allocated the shading from shallow to deep with the distance of the scene presented in their artworks.

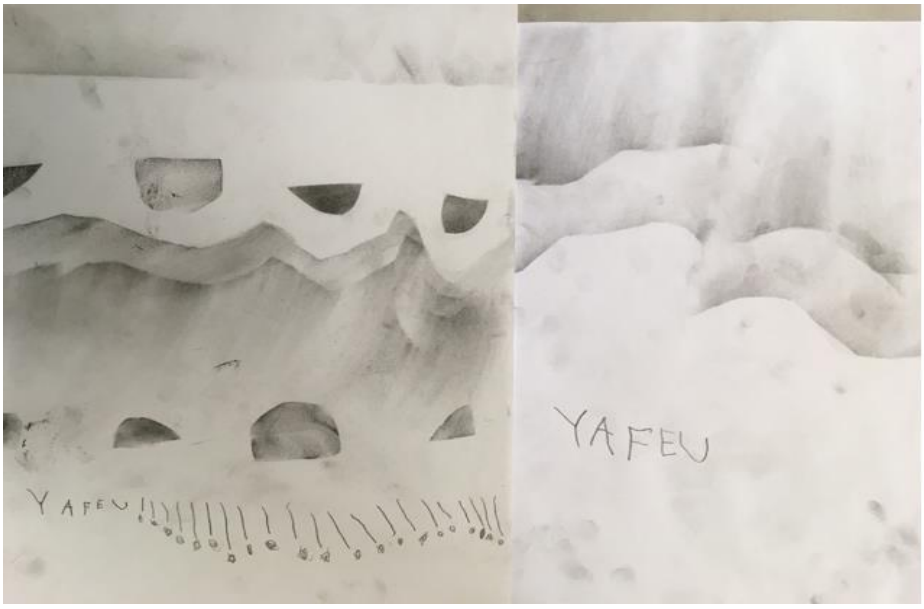


*Figure 4.24.* Yafeu's finger drawing of "Ocean"

*Figure 4.25.* Susan's finger drawing of "Look through glass"

The above-mentioned instances also demonstrate how children integrated multiple type of resources to support their meaning making in the art classes. For example, Figure 4.6 is an image of Sam's artwork that he created with the x app on the iPad. In this artwork, Sam combined his personal understanding of lava with the iPad as a digital tool to make meaning;

Yafeu represented himself to his adult partner by using his artwork Blue Sky (see Figure 4. 20)—which was a combination of Yafeu's funds of knowledge and semiotic resources (e.g., multi-colored crayons and paper)—and imitating the sound of chicken; and supported by human-based resources (e.g., the assistance, instructions, and encouragement from Mia's adult partner Mary Anne) and semiotic resources (e.g., stencil paper and glue stick), Mia succeeded to fulfill the task of Session Two (see Vignette 4.3). These instances showed that children navigated different types of resources, moved their ideas between different modes, and then brought these resources as a synthesized whole for their meaning making. During these processes of combination, which is also known as processes of redesigning, different types of resources "harmonize in an integrated whole" (Jewitt, 2009, p. 301) to support young children's representation and communication.

Moreover, the data further showed that various resources facilitated the overall expression of meanings in multimodal ensembles. For example, as was mentioned before, the art teacher Bridget provided participants instructions to help them to fulfill tasks of the art classes. The instructions, as a human-based resource for children's meaning making, were different according to the different topics of each art class: the instructions of Session One and Session Two were about how to glue multi-colored paper pieces together and create a collage (see Vignette 4.1 and the description of Session Three in Section 4.1); Session Three's instruction related to how to use figures to smudge and make artworks with charcoal (which was

mentioned in Section 4.1); while in the Session Six, the topic was drawing partner's hands holding flowers. Bridget showed participants how to use watercolors to paint:

*Vignette 4.13. Bridge's instruction of how to paint with brush and watercolors—May 19th, 2016*

Bridget: I think everybody has painted before but I just want to show you because we are sharing paints…So we will have some water. We will have some sponge to soak up the extra water. Look at this brand new paint! One of the things that I want to show you is how to stop them [the brushes] from altering the…color because you want to keep them sort of clean. Everyone should have a thick and thin brush … Now we're going to paint. So what you need to do is wet your brush, and put it on whatever color you want. Maybe I'll make an orange flower. So, I'm going to make kind of a puddle and keep adding water until there is a puddle in there. After there is a puddle I can paint what I want, and as long as I am going in the same paint I can keep my brush. You know I don't have to clean it in between. But if I want to switch colors and put some yellow in there, then I would really need to clean the brush because I don't want to put orange in the yellow because after a while they would all turn the same color. So I want to rinse, rinse, rinse, and then tap, tap, tap it off. Now I am ready to do the yellow. So I would put some water in the yellow, make a puddle, and see it stay all nice and clean. When I want to switch colors again, rinse, and tap. Okay? Rinse and tap.
(The audio transcript of Session Six, May 19th, 2016)

With the different instruction of each art class, children were guided to experience different ways of meaning making. They chose and employed resources to express themselves from different types of semiotic resources that were allocated particularly based on the topic of each session of the art classes. They followed the instructions to make their own artworks and fulfill the task of each art class. As the result, they created various multimodal ensembles, including collages, paintings, and also digital paintings. Instructions from the art

teacher in intergenerational art classes guided children to employ a range of media (e.g., watercolor, brush, and charcoal) in order to maximize the affordances of these resources for meaning making.

## 4.3 Changes that occurred in the intergenerational art classes

As was mentioned above, there are various types of resources that were available for children's meaning making during the intergenerational art classes. These types of resources worked together to support children's processes of representation and communication. They also expanded opportunities for young children's literacy practices and identity formation. For example, in the intergenerational project, digital devices provided children opportunities to draw, search, and read without paper-based materials. Personal experience and instructions from adults guided children to fulfill different tasks in each session of art classes. Besides, the layout of the art classroom offered children an ordered and effective environment for their literacy learning and a warm and free atmosphere to encourage them to communicate with other people.

The data do not just indicate how different resources supported children's meaning making. The data also show changes that are related to children in the intergenerational art classes occur in aspects of children's choices of resources and ways of resources for their meaning making, the reciprocal relationship between children and adults, and children's identity formation. In this section, I track these differences and changes that appeared in the

intergenerational classes through comparing the data of all the art classes. I also make connections with the examples that are mentioned earlier in this chapter to explain these changes.

## 4.3.1 The changes in children's choices of resources and ways of using resources during the art classes

By comparing the data from each session of the art classes, I was able to discern three aspects of changes related to how the children chose and used resources during the program.

The first aspect of changes concerned the semiotic resources and contextual resources that supported young children's meaning making in each class. As indicated in Table 4.1, different materials were offered to participants in the program based on the different topics and tasks in each session of classes. Moreover, I noticed that contextual resources also changed in each session according to the different seating plans in different sessions of the intergenerational art classes. For example, comparing Table 4.4 below with Tables 4.2 and 4.3, the changes of seat layout are obvious:

Table 4.4

*Seat Plan for Session Six of Art Classes, 19th May, 2016*

| *Stage | | | |
|---|---|---|---|
| | Peggy STELLA | Cliff YAFEU | Marian |
| MIA | | | FREJYA |

| | | |
|---|---|---|
| Mary Anne | | Joanne |
| SAM<br>Susan | | |
| | Betsy & Bridget (moving around)<br>*Here is a small table for supplies | |

Note. Children's names are in UPPER CASE.

The data show that, although the rationale for seat allocation was that one young child participant sat between two adults in order to increase the chances of exchanges between the young children and the adults, the seats were never fixed. In the second session, Yafeu's adult partner was Susan; however in the third session, his had two partners—Susan and Joanne. While in his sixth art class, Cliff became his partner, who used to be the partner of Sam. This was partially because the number of people who participated in each class was different. Another reason was that the program team purposefully arranged the various seating for each session in order to provide more opportunities for participants to interact with different people in the project.

Secondly, human-based resources were gradually accepted and used by young children to support their processes of meaning making. According to field notes of the art classes, most of the child participants were quiet when they firstly attended the art class: Yafeu was "extremely shy" and "would not speak" in his first class (The field note of Session One, 14th April, 2016); Mia "shyly whispered something to her mom" and let her mother relay the answer to Bridget's question (The field note of Session Two, 21st April, 2016); and Stella "was hesitant to speak" and did not respond when Bridget asked her name (The field note of

Session Two, 21st April, 2016). Only Sam, who adapted himself quickly into the new environment of art classes and actively responded to the information from other people.

Although it seemed to be difficult to make connections with children at their first class, adult participants were proactive and insisted to interact with their children partner during the process of creating artworks. For example, Mia's elder partner, Mary Anne, failed her first attempt of making connections with Mia in Session Two of the art classes:

*Vignette 4.14: Mary Anne's first attempt—April 21st, 2016*

[Mia and Mary Ann are sitting at a table each with circle cut outs from their construction paper in front of them. Mary Ann looks to her left to watch Mia who is trying to cut her paper with scissors, holding them straight up and down to the paper.]
Bridget (off camera): [Mia looks up to listen to Bridget and then down to continue cutting her paper]. Anybody needs paper let me know.
Mary Ann: Kind of hard paper to cut, isn't it? [Mia continues to cut her paper].
Betsy (off camera): Mary Anne can help you if you need help, honey. [Mia continues to cut her paper, then moves a cut out with her left hand to the right hand side. Mia then begins to use a purple crayon on her paper. Mary Anne returns to working on her own work, using a purple crayon as well.].
(The video transcript of Session Two, April 21st, 2016).

The data show that Mia kept silent and did not respond to Mary Anne's questions. Mary Anne did not give up in communicating with Mia. As the art classes progressed, the relationship between Mia and Mary Anne became closer as their exchanges on their artworks increased throughout the art program[22]. As is shown in Vignette 4.4, things changed—at the

[22] I will also make a further explain about this in section 4.3.2 of this chapter.

end stage of the session Mia actively sought help from Mary Anne and asked Mary Anne questioned about how to glue multi-shaped paper pieces together to create a collage (see Vignette 4.3).

The data show that from Session Three on, most of the child participants began to actively seek help from their adult partners when they encountered difficulties in creating their artworks. Simultaneously, adults proactively offered their personal experience and instructions to help children in the process of meaning making. They also encouraged children and offered praise to them for the progress they had made.

The data also showed that digital devices gained importance as the program progressed in the children's meaning making. The data from the field notes presented that the first two sessions of the art classes were the time when children began to learn how to use iPads to document their artwork into their digital portfolios. They needed adults' help to fulfill the process of documenting in the first two art classes. However, from the third art class on, some children, such as Yafeu and Mia, began to explore with the iPads, including by conducting searching on the Internet for information and pictures that they were interested in or used as references. They also searched for images as references to support their meaning making. In Sessions Five and Six, the children also drew with the Notes app that came on the iPad and built their digital artworks with the app Book Creator (e.g., Figure 4.6 and Figure 4.26). They exhibited being more adept at manipulating iPads in the last two sessions, including documenting their artwork in their digital portfolios by using iPads and sharing what they found with iPads to

other people. According to the data from field notes of the last sessions, Yafeu and Mia could use iPads and required no assistance, which are shown as Figure 4.27 and Figure 4.28.

*Figure 4.26.* Mia's iPad artwork "A flower growing out of gum on a boat"

*Figure 4.27.* Yafeu added his picture to his digital portfolio

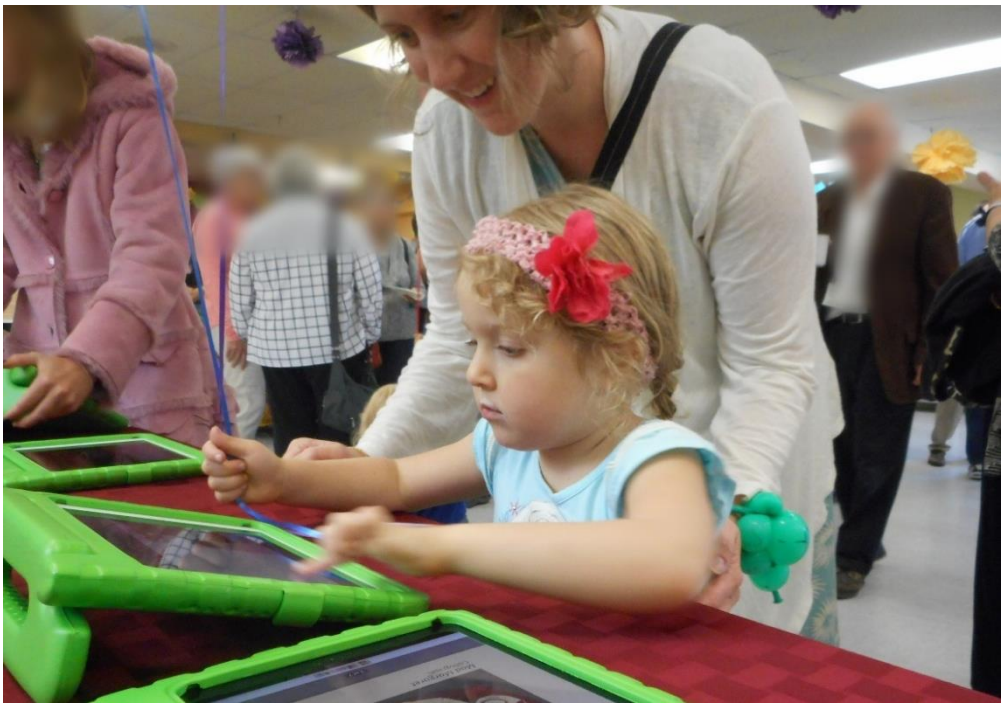

Figure *4.28.* Mia shared her e-book with her mother

All child participants were engaged in activities of searching information and making artwork or digital portfolios with iPads, especially Yafeu. Before participating the intergenerational art project, he "did not have a lot of access to iPads", because his family did not have one (interview transcript of Yafeu's father, 19th May, 2016). From the data about each session of the intergenerational art classes, I found that there were amounts of information about how Yafeu explored with iPads and how he made improvements of using iPads. These also showed that digital devices expanded Yafeu's options of resources for literacy learning and further provided him with more opportunities for his meaning making and communication.

The data further suggested that the digital devices also changed the ways in which children used resources for their meaning making. For instance, during the intergenerational art classes, paper and pens were not the only tools that children used to draw pictures. Some child participants (e.g., Sam and Mia, see their artworks in Figure 4.6 and 4.26) chose and employed iPads to create digital artworks instead of paper-based ones.

## 4.3.2 Resources, reciprocal relationship between children and adults, and children's identity formation

Compared with their performance in the first art class, changes appeared during the subsequent intergenerational art classes. These changes, except for the above-mentioned ones that occurred in children's processes of choosing and using resources for meaning making, could also be found in the aspect of the reciprocal relationships that two generations had built during the art classes as well as young children's identity formation. The following instances from the data show the processes of the development of reciprocity, children's transformation during and after the intergenerational art classes, and how multiple resources were involved in these processes in detail.

### *4.3.2.1 Yafeu's changes during and after the intergenerational art classes*

As was mentioned above briefly, the data from field notes showed that Yafeu was particularly noteworthy in that his extreme shyness radically changed over the session of the art class. At the beginning of his first art class, Yafeu would not speak, answer questions

Bridget posed, or allow his dad to stand up and move away. He sat on his dad's lap for the whole introduction portion of the session and then the first part of the arts activity. Once the collage activity went underway, Yafeu allowed his dad to slip away, worked on his work independently, and started speaking to Sam, another young child participant, and some of the adults, especially Bridget. In Session Three, when using the iPad to document his work, Yafeu seemed to be engaged: he kept exploring with iPads, listened to Bridget's instructions of how to use iPads carefully, and then tried to manipulate the iPad by himself. At the end of the session, Bridget also showed Yafeu a funny talking app that recorded people's voice and then made the role which created by people in the app talk. And in Session Six, which was with a lesson plan about drawing partner's hand, the video recorded that Yafeu and his adult partner, Cliff, examined each other's hands and consulted with each other about what they should include in the drawing (see Figure 4.29). The human-based resources helped Yafeu to build a reciprocal relationship with his adult partner. From the process of reciprocal sharing, Yafeu also gained expanded communication options.

Figure *4.29.* Cliff examined Yafeu's hand

Yafeu's changes are worthy of attention. The welcoming and free atmosphere of the whole classroom, as a contextual resource created opportunities for Yafeu's representation and communication. Combining various semiotic resources with human-based resources, Yafeu also gained expanded opportunities for his literacy practices. Moreover, the digital devices successfully aroused his interests, which also offered him new experiences of literacy learning. The following excerpts of the interview transcript of Yafeu's father show that how different types of resources worked together to help Yafeu to adapt to the new surroundings and then provided Yafeu with opportunities for his literacy learning and identity formation:

> *Interview excerpt 4.4: "He is been willing to come out of his shell."— Yafeu's father, May 19th, 2016*
>
> Yafeu's father: it's been nice that he's been so motivated by the class and by interacting with the other people there and just by being, welcoming that he's been willing to keep on coming out of his shell.
> (The interview transcript of Yafeu's father, May 19th, 2016)

Yafeu's father described that over the course of the program, he saw Yafeu "coming out of his shell". The resources in the class allowed new identity options for Yafeu. This change in Yafeu was expressed by his father as extending beyond the art program. Yafeu's father, for instance, shared the following story in an interview. The story occurred one Sunday morning after the close of the art program:

*Interview excerpt 4.5: "He was waving to them and saying 'Hello'."— Yafeu's father, May 19th, 2016*

Yafeu's father: Sunday morning we were coming into the pews [at service in the congregation]. And we all start together with adults and children in the pews and at a certain point in services the children are off to their classes but we were going into our seats. Yafeu started seeing his friends from class walk by, his adult friends, and he was saying, 'Oh, there's Joanne, there's Mary Anne, there's Dejon.' And he was waving to them and saying hello. A lot of times he kind of hides in me a little bit umm, first thing in the morning on the church services but once he started to notice the other people from his class he was really connecting with the community and connecting with other people. And it was fun for him to have his own links rather than having to be linked to whomever I am talking too.
(The interview transcript of Yafeu's father, May 19th, 2016)

The description provided by Yafeu's father suggest that Yafeu had built his own social ties during the process of attending the intergenerational classes. These ties would also become part of Yafeu's funds of knowledge and funds of identity which he could draw from for his making meaning in the future.

Enriching the above finding are data from the adult participant interview transcripts. When they were asked "what did the children learn from the adults (during the art classes)", several adult participants said that the children had learned how to participate in a group and how to be comfortable when they communicated with adults.

### *4.3.2.2 Mary Anne made continuous attempts to make connections with Mia*

During the art classes, the group of Mia and Mary Anne were worthy of attention because of the obvious changes of the relationship between them. Vignette 4.14, which is mentioned above, show that Mary Anne seemed to fail her first attempt to communicate with Mia: She tried to talk to Mia but did not receive any responses from Mia. Although Mia did not seem to really notice Mary Ann's efforts, Mary Anne continue to praise Mia, offer help, and give advice:

*Vignette 4.15: Mary Anne continued to make connections with Mia—April 21st, 2016*

[Mary Ann is looking at Mia who is gluing small pieces of paper on her larger piece of paper.]
Mary Ann: Now before it dries, put it back on your face [Mary Ann points to Mia's artwork and Mia glues the strips of paper to her face cut out]. That's the way!
Mia: It can't stick [begins patting the strips of paper with her hands].
Mary Ann: Did you put enough glue on it? Maybe you need a little bit more glue [Mary Ann grabs a glue stick with her right hand and begins rotating the bottom of the glue stick.] I'll open mine and see if, see if mine, try mine and see if mine works better. [Mia takes the glue stick and tries gluing her paper cut outs. Mia places the paper on the face. Mary Ann and Mia stop working to look at the baby crying off-camera. Mia then begins to glue again and Mary Ann returns to working on her own artwork.]
* * * * * *
Mary Ann: Really good! Ok, now, now you have to do the hair [Mary Ann leans over towards Mia and grabs a cut out with her right hand. Mia silently takes the hair and begins gluing it. Mary Ann smiles and starts working on her own artwork.] Ok.
(The video transcript of Session Two, April 21st, 2016)

A few moments later, Mia initiated interactions with Mary Anne and asked her for help. This can be seen in Vignette 4.3. From then on, Mia and Mary Anne had several brief exchanges that were mostly about their work. At the end of the session the two seemed "quite in synchrony" (The field note of Session Two, 21st April, 2016). Figure 4.30 further show that, in Session Six, Mia and Mary Anne developed a closer relationship than they had in the sessions before.

*Figure 4.30.* Mia was whispering in Mary Anne's ear

The example of Mia shows that human-based resources, especially the patience, attitudes, experience, and affirmation from the adults, provided opportunities to extend young children's communicational options. With the supports from human-based resources, children represented themselves actively. The process of employing human-based resources for their meaning making was also the process that children experienced how to adjust

themselves and adept to a new leaning and social environment. This experience might also useful for young children to learn how to be one part in a social group, and further prepare them for being one part of the society in the future.

### *4.3.2.3 The "equality" between Sam and his adult partner, Cliff*

Multiple types of resources allocated in the intergenerational art classes also contributed to Sam's processes of literacy learning and identity formation. According to the data from field notes of observations, Sam was usually quiet and spoke only when someone spoke to him. Thus in Session Two, Cliff was engaging in interactions with Sam. In addition, Cliff provided Sam with sustained encouragement (e.g., telling him he was doing a good job and praising that he was good at drawing and cutting) and asked frequent questions about his choices in relation to the artwork (e.g., what Sam was drawing and what color he was thinking about using):

*Vignette 4.16: Cliff kept encouraging and praising Sam—April 21st, 2016*

Elisa[23] (off camera): [Sam is holding his artwork to the right of his face, looking at the camera]. So, he, he's telling us what he did.
Sam: I rolled this guy here so it can be the background, and that's the pretty face- [Sam lowers his painting to show Cliff looking over at his art work].
Cliff: And then you peeled it off.
Sam: And then I peeled it off,
Cliff: Better than mine!
Sam: And, and, then I got the color we painted.

[23] Elisa was a research assistant in the project of the intergenerational art classes, which was shown in Table 3.2 of Chapter Three.

Elisa: Yeah, it looks really nice! [Sam starts twisting his torso back and forth, holding his artwork]. And you got the same colors as Cliff?
Sam: [Shakes his head yes].
Elisa: Yeah? Look at that! So let's take a look at Cliff's over here [camera pans to the left]. That looks really nice, Cliff!
Cliff: [Laughs]. Yeah, right. Not as good as Sam's!
Elisa: Nice. I think they're both really nice.
Cliff: I think we've got to write your name here. What did we do with the pen? Oh, she took it. You gotta put your name on it there.
(The video transcript of Session Two, April 21st, 2016)

The above-mentioned dialogue presented that there was a sense of equality between Cliff and Sam. This equality was reflected in their attitudes towards each other and their ways of communication: Cliff spoke to Sam as if he was talking to an adult peer—not a child— and Sam responded well to the register of the interactions. This equality was clearly illustrated when they faced the task of documenting their works with iPad at the final stage of the class:

*Vignette 4.17: Sam and Cliff worked together to solve problems—April 21st, 2016*

[Sam and Cliff are seated, with their artwork in front of them. Sam is holding the iPad].
Cliff: Now this one [reaches to touch the iPad with his right index finger] [Sam lifts the iPad on a diagonal towards his left]. Nope, that's not…You, see? That's you! [Cliff laughs while Sam shakes his head no]. That's the table [laughs].
Sam: How do you get it away from that?
Cliff: Huh?
Sam: How do you get it away from the photograph? [Sam waves his finger back and forth across the iPad].
Cliff: [Takes the iPad] Like this you mean? Uh…You have to hold it up like this, wait a minute [lifts the iPad up, then places it on the table, resting for Sam to see], like that. This, maybe this takes a photo? [taps the iPad] No. …Yeah, that's the picture. Here's a whole

bunch of them, see? [Cliff points to the iPad as Sam looks on, camera pans around to the side of Sam and Cliff]. That must have been from last week. Do those look like last week? [Sam shakes his head yes]. [Cliff while tapping through the gallery of photos says] That's, that's yours, this one here [points to a photo with his left index finger]. That's a picture.
Sam: How do you get away from this [shakes his right hand back and forth, then looks at the camera].
Cliff: Hmm…
(The video transcript of Session Two, April 21st, 2016)

The dialogue shows that the reciprocal and equal relationship between Sam and Cliff had been established: Both Sam and Cliff were unsure of how to proceed. However, Cliff and Sam engaged in discussion, switched the device back and forth and tried to solve the problem together. This dynamic was quite different from other groups' where one person of the group usually took the lead in handling difficulties. Both Sam and Cliff gained new knowledge and experience from their interactions and efforts about how to use iPads correctly and effectively to make meaning. This example presents that, with supports of human-based resources and semiotic resources, children can actively change and participate in new relationships that they built with other people. The experience of adjustment will also become one part of children's funds of knowledge and further influence their processes of meaning making. When employing their funds of knowledge to express themselves to other people, children gain opportunities for their identity formation.

## 4.4 Summary

In this chapter, I shared findings that responded to the research questions. According to the data from field notes, transcripts of interviews, transcripts of audio and video recordings, photos, and digital portfolios, the findings of this research included: 1) Available resources for young children's meaning making in the intergenerational art classes consisted of semiotic resources, human-based resources, contextual resources, and young children's funds of knowledge and funds of identity; 2) Young children chose different types of resources according to their immediate interests and perceived representational appropriateness. They employed different types of resources to create multiple new combinations for their meaning making; and 3) In multimodal ensembles, different types of resources were orchestrated for meaning making. These resources interacted to enhance the meaning making. The data also suggested that multiple types of resource expanded opportunities for young children's literacy practices and identity formation. Moreover, the data about how resources worked together in multimodal ensembles showed that young children were not only meaning makers, who used myriad types of modes to represent themselves, but also semiotic producers, who created new available resources and generated new and unique combinations of modes during their processes of meaning making.

# Chapter 5

## 5 Discussion and Implications

In this chapter, I draw on the findings in Chapter Four and summarize: what types of resources young children chose and used for their meaning making, how children chose and used them to make meaning, and how multiple resources interacted with each other to provide the children with literacy learning opportunities. I then discuss how various types of resources extended opportunities for the children's literacy practices and identity options. I reflect upon the pertaining implications for meaning making in the 21st century. At the end of this chapter, I illustrate both the significance and limitations of the study.

## 5.1 What types of resources did young children choose and use for their meaning making in the art classes and how did they use the resources?

As was mentioned in Chapter Two, the existing literacy literature (e.g., Dudeney, Hockly, & Pegrum, 2013; Knain, 2006; Woods, 2014) has paid attention to semiotic resources and how semiotic resources support children's literacy learning. There is also literature (e.g., Heydon, 2013) that indicated that human-based resources need to be considered as one type of resources for young children's meaning making. Moreover, children's funds of knowledge and funds of identity were proposed by researchers (e.g., Esteban-Guitart & Moll, 2014; Gonzales, Moll, & Amanti, 2005) and considered as elements that would influence the

arrangement of other types of resources for children's literacy learning (e.g., Hedges, Cullen, & Jordan, 2011).

The findings of the study showed that, in the art classes, semiotic resources, human-based resources, contextual resources, and children's funds of knowledge and funds of identity were available resources for children to make meaning. It further presented that children's choices of resources and their ways of using resources for the meaning making were based on the different affordances of semiotic resources and their funds of knowledge (e.g., children's interests). In this section, I talk about these available resources in the art classes and discuss how children chose and used them in the processes of expression.

### 5.1.1 Semiotic resources

Based on Van Leeuwen's (2005) notion of semiotic resources, the study found that in the intergenerational art classes, semiotic resources mainly included material resources (e.g., paper, pens, watercolor, and charcoal), technological resources (e.g., iPads and Internet), plus physiological ones (e.g., verbal and non-verbal communications). The material and technological resources were purposefully allocated in each session of art classes by the art teacher to facilitate children's meaning-making according to specific topics of different art classes; while the physiological resources were captured by camera throughout the art classes. For example, children employed multi-colored paper to make collages, utilized iPads

to make digital portfolios, and used gestures to express their ideas or raising tones to arouse their elder adult partner's attention.

Different modes held different potentials of meaning for young children's representation and communication (e.g., Bearne, 2009; Flewitt, Kucirkova, & Messer, 2014; Jewitt, 2008; Kress & Jewitt, 2003). Some researchers (e.g., Bearne, 2009; Kress & van Leuween, 2002; Kress, 2009) have indicated that the affordances of semiotic resources are influenced by space, time, and culture. The literature also relays that when children choose semiotic resources to make meaning, they consider the functions of the materials or devices that could help them to represent themselves better in a particular context (e.g., Heydon, 2012). Children's process of choosing and using resources that would be driven by the affordances of modes was verified by the findings of the study. For example, as was described in Chapter Four, children repeatedly used paper and pens to express themselves throughout the art classes; paper and pens were accessible, familiar, easy to use, and high-performing enough for them to operate to make meanings. Children also presented strong facility with paper and pens to express themselves: They required little scaffolding about how to use them, which was also a result of their previous experience of using these tools based on the data showed in interview excerpt 4.2 where Yafeu's father talked about Yafeu's experience of learning how to paint by using paper and pens in his preschool.

Jenkins's (2009) stated that "Injecting digital technologies into the classroom necessarily affects our relationship with every other communications technology, changing how we feel

about what can or should be done with pencils and paper, chalk and blackboard, books, films, and recordings" (p. 8). The integration of iPads in the intergenerational art classes gradually changed children's use of pen and paper for meaning making, according to the findings of the study. For example, Yafeu, Mia, and Sam used iPads to draw pictures in Session Five, which showed that iPads had the same obligation as paper and pens in supporting children's painting. The touch-screen design of iPads provided children new opportunities for creating artwork, which changed the children's ways of sketching the lines, coloring, and keeping the pictures as digital portfolios.

Jenkins (2009) proposed an "ecological approach" to thinking about children's meaning making which is a helpful way of understanding what was happening between children, resources, and meaning making in the art program. This approach concerns the "interrelationship among different communication technologies, the cultural communities that grow up around them, and the activities they support" (p. 8). In the intergenerational art classes, technological resources (e.g., iPads and Internet) also supported young children for their literacy learning by generating "ecological approach". For example, technological resources extended opportunities of reciprocal sharing between two generations, such as Mia, with her elder partner, Mary Anne, explored with iPads and shared the pictures of underwater world that they had searched; and Susan, who noticed Yafeu's interests on digital devices, actively shared the knowledge of cellphone with Yafeu after the art classes.

### 5.1.2 Human-based resources

Children accessed human-based resources in their meaning making. In this study, human-based resources were the adults involved in the intergenerational art program: the art teacher Bridget, the education director Betsy, and elder adult participants. The data express key supports for meaning making that the children could draw on. They included: 1) instructions. For instance, in the intergenerational art classes, children received instructions on their art making or how to use iPads from the art teacher and elder adult participants; 2) personal experience. For example, Cliff showed Sam how much ink would be good to apply in Sam's artwork and used his personal experience to describe that the amount of ink should be like the amount of "toothpaste on the tooth brush" and "the size of a lima bean"; 3) affirmation, encouragement, and praise from adult participants. These human-based resources were recurrent, such as Cliff's praise and affirmation of Sam's artwork, which supported Sam to make meanings creatively and confidently showed his artwork to the class; and 4) interactions and reciprocal sharing between young child participants and adult participants, such as when Mia corrected her adult partner Dejon's spelling while Dejon was helping Mia to type the name of her artworks into her digital portfolio.

Human-based resources provided children opportunities for their literacy learning. Human-based resources also expanded young children's identity options by supporting semiotic resources to expand children's communication options (i.e., "an increase in communication options is linked to an increase in identity options" when children's idea

moved from one mode to another, Heydon, 2013, p. 126). For example, the art teacher Bridget provided participants explicit instructions on how to use semiotic resources (e.g., technological and material resources that were prepared to help participants' art making) to create their artworks and digital portfolios. Elder adult participants also provided their instructions to their young child partner, such as Mary Anne helped Mia to glue paper pieces together to create a collage. This shows that human-based resources supported children's processes of moving ideas across modes.

### 5.1.3 Contextual resources

As to contextual resources, seat allocation, layout of the classroom, supplies and facilities that participants could access, and the atmosphere of the whole classes were mainly available for children's meaning making in the intergenerational art classes. Tables 4.2, 4.3, and 4.4 and pertaining examples present how seats were arranged for participants by the art teacher. The seating allocation increased interactions between young child participants and elder adult ones and further provided children human-based resources in their processes of meaning making. Besides, the seating plan was not fixed which expanded children's possibilities of interacting with different adult participants. Figures 4.11, 4.12, 4.13, and 4.14 further detail how facilities and supplies were set out in the classroom. The spacious layout of the classroom enabled children to move around and access available resources arranged in the room to express themselves freely.

### 5.1.4 Children's funds of knowledge and funds of identity

The children's funds of knowledge and funds of identity also played a role in shaping their meaning making. Cultural and linguistic tools, derived from the children's worlds such as their family and community, were as accessed by the children to be combined in new ways within their meaning making. For example, in the intergenerational art classes, children's cultural, linguistic, and family backgrounds were instantiated in their meaning making. The findings demonstrate, for example, how Yafeu employed his knowledge about art making, which he learned from preschool, to help him to choose the color scheme for his artifacts in Session Five. Meanwhile, children's funds of identity were demonstrated when children "actively internalized their family and community resources (i.e., their funds of knowledge) to make meaning and to describe themselves" (Esteban-Guitart & Moll, 2014, p. 33). For example, this study found that children wrote their first names on their artifacts in different ways. As part of children's funds of knowledge, the first names held affordances related to children's alphabet knowledge, word recognition, and social and family's awareness. The various demonstrations of the first names then became part of children's funds of identity, which could differentiate one child from other children.

The literacy literature has found that children's interests, as part of their funds of knowledge, are "stimulated by the experiences they engage in with their families, communities, and cultures" (Hedges, Cullen, & Jordan, 2011, p. 188). Further, Pahl (1999) documented in her studies of children's multimodal literacy that, in their processes of meaning making, young

children firstly worked "in one particular mode…then moved across modes as their interests demands" (p. 17). Heydon further indicated that in her research, "movements (of meaning) from mode to mode were driven by (children's) interest and the affordances of modes" (Heydon, 2012, p. 53). Consistent with the above-mentioned research, the study also found that children's interests, which came from their "knowledge and experiences" (Albers, 2007, p.6), were "fundamental to the responses to the decisions" (Heydon, 2012, p. 52) of choosing and using various modes for their meaning making. For example, some children enjoyed the process of drawing or exploring with iPads. Such as Yafeu expressed his interests in exploring with iPads throughout the art classes; while Sam's digital artwork *Lava* and Mia's iPad artwork *A Flower Growing out of Gum on a Boat* documented their new experiences of drawing with iPads. Additionally some of the children seemed to be more interested in exploring painting with paper-based materials, such as Stella and her process of making artwork with watercolor. During these processes of meaning making, young children remixed their funds of knowledge with other resources to create their new combinations of meaning and then represented themselves in a unique way, which also formed part of their identity.

The findings of this study echo current literature related to semiotic resources for young children's meaning making, especially the call (e.g., Heydon, 2013) to see elders as important human-based resources for young children's communication. Further, this study's findings concur with the literature that sheds light on the significance of contextual resources and young children's funds of knowledge and funds of identity (e.g., Heydon, 2013).

## 5.2 How various types of resources worked together to influence young children's literacy learning?

Jenkins stated that "participatory culture shifted the focus of literacy from one individual expression to community involvement" (2009, p. 7). Based on the concept of participatory culture, Jenkins further proposed an "ecological approach" to digital media and learning. The ecological approach suggests that educators would do better to consider "the cultural community and activities" supported by various communication technologies rather than "only dealing with each technology in isolation" (p. 8). Borrowing Jenkins's notion of ecological approach from technological resources to all available resources for children's meaning making, the findings of this study show that, in intergenerational art classes, multiple types of resources worked together to build "a cultural community" for children's literacy learning. For example, at the stage of documenting their artworks in their digital portfolios, Mia followed Bridget's instructions and completed the documentation of her artworks with iPads. Simultaneously, she also named her painting *Unicorn Flower* based on her previous knowledge about. Here Mia combined various types of resources for her literacy learning—human-based resources (i.e., Bridget's instructions and assistance), semiotic resources (i.e., the iPad), and her funds of knowledge (i.e., her previous alphabet knowledge).

Current literacy education literature illustrates that different modes afford different potentials of meaning for young children's processes of meaning making (e.g., Bainbridge, Heydon, & Malicky, 2009; Heydon, 2013; Kress, 1997). The study found that, within multimodal

ensembles, all modes worked together to help young children to represent themselves to other people. Meanwhile, the children created semiotic chains when they moved their ideas across different modes. For example, as was mentioned above, Yafeu brought his knowledge of art making which he obtained from his preschool into his processes of creating the artwork in the intergenerational art classes. He moved the ideas related to "how bright the color was" (The interview of Yafeu's father, 19th May, 2016) from his funds of knowledge to his new multimodal ensemble—the picture *Max*, using bright yellow color to represent Cliff's shiny ring. The movement from Yafeu's funds of knowledge to his choice of bright yellow color helped also showed Yafeu's sharp observation in the processes of art making. As a result, children's funds of knowledge and the color interacted with each other to support Yafeu's meaning making.

The findings of the study also suggest that the relationship between different types of resources in a multimodal ensemble was harmonious "in an integrated whole" (Jewitt, 2009, p. 301). As they were combined by the children in their communication, they were "not random[ly] but with a view to collective and interrelated meaning" (MODE, 2012, para. 1). For instance, the layout of the picture and the use of color brightness, which were shown in Mia's artwork *Mountains*, worked together and enabled Mia's designing. This engagement of the modes of layout and color stretched Mia's expression and helped her to represent the scene that mountains arose in folds effectively.

## 5.3 Multiple resources and young children's identity formation

Cope and Kalantzis (2009) indicated that new literacies are embodied in "new social practices" which include new ways of participating in the society and "new forms of identity and personality" (p. 3). Cope and Kalantzis also suggested that the process of meaning making is the process of transformation where young children create multimodal ensembles with various available resources. These multimodal ensembles carry traces of young children's identities (e.g., Rowsell & Pahl, 2007) as "they revealed themselves as individuals, as members of families, and as members of their school" (Sanders & Albers, 2010, p. 9). Except for the expansive opportunities for young children's literacy practices, the findings of the study also suggest that various types of resources provided by the intergenerational art classes worked together to expand young children's identity options. For instance, in his artwork *Blue Sky*, Yafeu's experience of visiting his friend's farm house could be seen in the textual details—he drew a person with chicken feet because he saw chicken at the farm that he visited; and he also drew the grass, the soil, and the farm house. The multimodal ensembles that young children created in the art classes reflect their identities and how they represented them through multiple types of resources. The children's expressions also reflect their participation in the new social context of the art classes. Thus, the processes of creating multimodal ensembles provided young children with expanded identity options.

## 5.4 Implications of resources employed in young children's literacy learning in 21st century

The findings of this research expand the understanding of resources that can be employed by young children in their meaning making. The study also found that the affordances of different types of resources and children's interests influenced the children's processes of choosing and using resources for their expression. Moreover, the findings indicat that different types of resources were integrated by the children in their meaning making within the context of multimodal ensembles. Based on the findings, in this section, I discuss the implications for meaning-making resources that could expand young children's literacy and identity options in the 21st century.

As was mentioned in Chapter Two, researchers (e.g., Cope & Kalantzis, 2009; Heydon, 2013) stressed that, in the processes of meaning making, young children are not just sign users, but sign designers. Young children have been seen in the literature as active participants in meaning making (Kress, 2009). As designers of meaning (e.g., Albers & Harste, 2007; Heydon, 2013), young children have the capability of "exploiting particular modes in different contexts" (McKee, 2013, p. 82) and creating meanings through combining multiple modes in "multimodal composing processes" (Ranker, 2014, p. 130). The findings of the study show that, in the intergenerational art classes, young children gained expanded opportunities for their literacy learning through the encouragement of orchestrating multiple resources provided by the art projects. Various resources enabled children to "select the

mode and media that best suit their communication needs/desires" (Heydon, 2013, p. 105) in the art classes. Thus, the allocation of resources in the intergenerational art classes might enlighten educators has to purposefully establish a learning context and arrange available resources in order to provide more communication options for young children. Livingstone (2003) also indicated "in terms of personal development, identity, expression and their social consequences— participation, social capital, civic culture—these are the activities that serve to network today's younger generation" (p. 16). Combined with the ecological approach mentioned before, I therefore suggest that, instead of considering the affordance of one particular types of resources, educators might allocate multiple resources purposefully and think about the interrelationship among these resources. Such considerations will help educators to increase students' communication options and provide opportunities to engage them in interactions and activities that promise to allow the creation of new combinations for meaning-making.

Furthermore, the study found that young children's funds of knowledge and funds of identity were also part of available resources for their meaning making. The findings of this study also indicate that children's interests influence children's decisions of choosing and using resources for their expression. Young children's interests and desires to express their interests have been documented in the literature as powerful motivators for meaning making (e.g., Heydon, 2013; Kress, 1997; Phal, 1999). It was confirmed in this study that the children were semiotic producers who actively chose and employed multiple types of

available resources to create their unique combinations of meaning-making resources within their own contexts or cultures. Some researchers (e.g., Cope & Kalantzis, 2009; Nagle & Stooke, 2016) have also expressed that the process of creating unique combinations of available resources is the process of designing. They further viewed the process as the "moment of transformation" (Cope & Kalantzis, 2009, p. 177) when new available designs are created by children for their meaning making. The literature has documented that during the process of designing, children "renegotiated with their identities" (The New London Group, 1996, p. 97) and exerted their subjectivity in their representational processes. This study confirms these ideas. For example, Yafeu actively employed body language and other semiotic resources, with a combination of his personal experience of visiting his friend's farm house or previous knowledge of art making, to form his unique representation in Sessions Three and Session Five. Examples of findings like this also confirm literature that argues that making multimodal texts allows for the creation of a third space that links home and school literacy practices (e.g., Pahl & Kelly, 2005). Although recent research (e.g., Cumming, 2003; Hedges, Cullen, & Jordan, 2011; Tudge & Doucet, 2004) demonstrates that "the role of everyday experiences in families and communities as authentic learning opportunities that children eagerly engage in", some studies suggest "there was disjuncture in children's experiences between their homes and early-childhood centers" (Hedges, Cullen, & Jordan, 2011, p. 188). Since informal settings (e.g., families and communities) are "a rich source of children's prior knowledge, experience, and interests" (2011, p. 188), I propose that, educators need to be aware of young children's funds of knowledge acquired in their

families, communities and cultures. Educators might thus encourage children to make connections between their funds of knowledge and other types of available resources in order to maximize children's literacy practices and identity options.

Much of the literacy literature advocates that in the 21st century, children should be equipped with certain skills to "participate fully in public, community, and economic life" (The New London Group, 2000, p. 9). Some researchers have noted that these skills include not only individualized skills (i.e., skills that "used for personal expression", Jenkins, 2009, p. 20) but also social skills, which emphasize collective and creative meaning making, and cultural competencies (e.g., "ways of interacting within a larger community", p. 20). Consistent with the notion of the social, Heydon, Zhang and Bocazar (2017) talked about ethical curriculum through multimodality. They advocated that ethical curriculum would promote "harmonious collaborations in schools and communities" (Heydon & Wang, 2006, p. 35) and indicated the importance of establishing reciprocal relationships in classrooms. Since "to enact reciprocal relationships in classrooms means that teachers and children must be curricular informants" ( Heydon, Zhang, & Bocazar, 2017, p. 196), children need to be heard and supported by resources. Heydon, Zhang, and Bocazar (2017) interpreted these resources as "being epistemological, semiotic, and pedagogical" (p. 196), and included "at the very least…funds of knowledge and modal facility to express themselves; in pedagogical terms… adults as supporters who create a space for these multimodal expressions and who know how to listen to and interpret them" (p. 196). This study also found the importance of child and adult

collaboration and the establishment of reciprocal relationships. For example, Yafeu learned how to use charcoal to make shadows with the guidance of Bridget in the process of creating his shadow artwork *Ocean*; Mia understood how to glue multiple-shaped paper pieces together to make a collage, which was supported by Mary Anne's instruction and help; and adults who involved in the art classes helped all the child participants to learn how to use iPads to create their own digital portfolios. In turn, the children applied the resources creatively to "transfer their previous knowledge into new settings" (Cope &Kalantzis, 2009, p. 19), and then express themselves with multimodal ensembles effectively. The reciprocal and collaborative relationships also expanded opportunities for children's literacy practices, including gaining both individualized literacy skills and social skills. Thus, I further suggest that, when allocating resources for young children's literacy learning, educators might consider how to combine all available resources together to "create a climate where reciprocity is expected and fostered" (Heydon, Zhang, & Bocazar, 2017, p. 196) while emphasizing the social nature of literacy practices.

Finally, as was mentioned above, the findings of the study show that iPads drew children's attention and expanded children's communication options in the art classes. The Children used iPads to search for information as reference for their art making, drew digital pictures, and created digital portfolios. Researchers (e.g., Marsh, 2006; Merchant, 2008; Reinking, 2008) have previously indicated that the acceptance of new technology, especially digital technology, into literacy learning can provide more opportunities for young children's

literacy practices. When talking about digital media and learning, Jenkins (2009) also suggested that "some tasks may be easier with some technologies with others, and thus the introduction of a new technology may inspire certain uses" (p. 8). Research has stressed the importance of digital technologies in extending the boundaries of global communication in the 21st century (e.g., Kress, 2010). In the art classes, digital technologies were used with other media (e.g., pens, paint, etc.) to provide comprehensive resources to the children. I would thus advance the importance of educators using new media in purposeful, integrated ways that compliment a range of media.

## 5.5 Significance this study

This study has its significance both in theory and in practice. Theoretically speaking, concurrent with contemporary literacy literature, the study provokes an expanded understanding of resources for young children's literacy learning. This study offers multiple examples of what resources were available for young children's literacy learning in the intergenerational art classes and how young children chose and used resources for their meaning making. The findings of this research show that: 1) Except for semiotic resources (e.g., digital devices and materials for art making) that had explored by many research, human-based resources (e.g, instructions, reciprocal sharing, encouragement, and praise), contextual resources (e.g., seating allocation, the layout of the classroom, and the atmosphere of the art classes), and young children's funds of knowledge and funds of identity (e.g., language, culture, and family) should also be considered as available resources for young

children's meaning making; 2) the affordances that different resources for young children's meaning making and children's interests influenced their choices of resources and their ways of using resources to express themselves; 3) within multimodal ensembles, different resources worked together as an integrated whole to help young children to express themselves; and 4) multiple types of resources would increase young children's communicational options during the process of redesigned and further extended opportunities for young children's literacy practices and identity options. This study is designed to complement existing literature and offers situated insights into the relationship between human-based resources, contextual resources, young children's funds of knowledge and funds of identity, and semiotic resources (e.g., paper-based materials and digital devices). The study also gives special attention to digital devices and new technologies that young children used in their processes of meaning making.

The study also provides several practical suggestions and implications about resources for young children's literacy learning in 21st century:

1. In curriculum making, the study advocates the notion of ethical curriculum and further suggests multiple types of resources should be allocated to help to establish reciprocal and collaboration relationships among the whole classroom, in order to develop children's both individualized skills and social skills so that they can fully participate the society in 21st century;

2. In teacher's professional education, the study suggests that teachers should capitalize on children's funds of knowledge (e.g., children's interests), making connections between children's prior knowledge and experience with other types of resources to foster children's creative meaning making;
3. In designing pedagogy, the study advances that introducing new technological resources for young children's meaning making can cultivate new literacy practices for young children. Thus, combining new technological resources with other types of resources to support young children's meaning making and considering the interrelationship among these resources could help educators to increase students' communication options and identity options.

## 5.6 Conclusion

This study focused on different types of resources that were utilized by young children in their literacy learning. During the processes of meaning making, the child participants created their own unique multimodal ensembles by combining various available resources to express themselves. Various types of resources expanded the children's communication options. Meanwhile, traces of the children's identities were found in multimodal ensembles, which suggest the identity options that became available to them as they employed multiple types of resources for their representations. Based on the findings of the study, in the future, research on resources for young children's literacy learning is fundamental to explore how to

expand opportunities for young children's literacy practices and identity options in the domain of literacies.

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# Appendices

## Appendix A: Interview Protocol for Adult Participants

Western

**Project Title:** Learning Together Seattle (WSUU): A Case Study of Intergenerational Multimodal Literacy Curricula

INTERVIEW PROTOCOL FOR ADULT PARTICIPANTS

Information for Interviewer:

This interview is inductive and involves asking mainly general, open-ended questions designed to elicit stories and descriptions by the respondent. Focus on personal narratives that gain a deeper understanding of the respondent' experiences with various modes and media and the influence these experiences have on their sense of self, well-being, and generativity - an adult's concern for a commitment to promoting the well-being of future generations.

Using a number of general probes might be helpful. The purpose of probes in interviews is to enable the person being interviewed to provide as much detailed information as possible in their responses. Neutral probes encourage additional information, but do not suggest specific answers. Some examples of probes are "How is that?" or "In what ways?" and so on. You will also be asked at times to provide prompts that move the question around different contexts/situations.

The probes in this guide are a suggestion and you need not ask all probes. Gauge the participant's energy level and desire to continue to respond to probes. Ask periodically, "Are you able to continue" or "Do you have more you would like to share" to help judge when it might be time to draw the interview to a close or continue.

Interview Introduction:

- Introduce yourself

- Explain that interviews will be audio recorded
- Explain that the respondent may stop at any time or choose not to answer any question
- Ask if the respondent has any questions before you begin, e.g., "Feel free to ask me to clarify any question you don't understand."

**PART A – MULTMODAL AND MULTIMEDIA ENGAGEMENT**

**1. What do you like most about art-making/using the iPads?**

_____

*Follow up questions:* Do you think your reasons for liking art-making/using the iPads have something to do with:

***Who you are as a person*** (prompts: your own beliefs and values, attitudes, abilities?)

***Who is around you at the time of making art/using the iPads*** (prompts: family, friends, instructor?)

***The situation or context at the time of making art/using the iPads*** (prompts: available opportunities around you, community, structure/organization, accessibility?)

***Past experiences of making art/using digital technology?*** (If so, what experiences in particular?)

**2. How important is *making art/using digital technology such as the iPads* to you at this time in your life?**

_____

*Follow up questions:* Why do you think it is important/not important? What benefits (if any) do you think art-making/using digital technology like the iPads has had on your health or sense of well-being?

**3. Do you find *making art/using digital technology like the iPads* easier or harder to do than it used to be?**

_____

*Follow up questions:* Have you experienced any internal or external resistance and/or barriers/challenges to art-making/using the iPads now and or in the past? If so, what are these and where do you think they come from? (prompts: any stress, a conflict, a problem, a special challenge, physical barriers/difficulties, songs that are sung/style of art/specific

hardware or software?) What do you think is the easiest or most difficult part of art-making/using digital technology like the iPads?

**PART B – LIFE STORY NARRATIVE ABOUT ART-MAKING/USING DIGITAL TECHNOLOGY LIKE THE IPADS**

**4. What kinds of *making art/using digital technology* activities did you do earlier in your life?**

_____

(List all activities - prompts: At school? At home?

**5. How important was art-making/digital technology to you in your earlier life?**

_____

*Follow up question:* Why do you think it was important/not important?

**6. Can you tell me a childhood memory that you have of art making?**

_____

Can you think of a memorable moment involving art making?

(Prompts: What happened? What were you doing? When did it happen? Where did it happen? Who was involved? What were you thinking and feeling? Did this event change you in any way? If so, in what way?) [Note: Try to get respondent to focus on a specific event/episode.]

**7. Was there someone important who influenced your art making?**

_____

(Prompts: for example, a parent, a teacher, a family member, a friend?) Describe the most important person who had had an impact on your art-making. Specify the relationship you had or have with this person and the specific way in which he or she had (or continues to have) an impact on your art making experience.

**8. Was there someone whose art you loved? An artist that you adored?**

_____

*Follow up question:* What did you love about his/her art? Do you think he or she influenced your art making in some way? If so, in what way?

**PART C – IG MULTIMODAL CURRICULUM**

**9. What do you like the most about making art/communicating through digital technologies with the children?**

_____

*Follow up questions:* Do you think your reasons for liking doing these things with the children have something to do with:

***Who you are as a person*** (prompts: your own beliefs and values, attitudes, abilities?)

***Who is around you at the time of the activities*** (prompts: family, friends, instructor?)

***The situation or context is at the time of activities*** (prompts: available opportunities around you, community, structure/organization, accessibility?)

***Past experiences of art making/using digital technologies?*** (If so, what experiences in particular?)

**10. What do you think is the most important reason for making art/communicating through the iPads with the children?**

_____

**11. What do you think is the most difficult part of art making/communicating through the iPads with the children?**

_____

**12. How do you feel after class? (Do you feel any different from before the class?)**

---

**13. What do you think is the objective/goal of the classes with the children?**

_____

**14. Can you tell me one of your favorite/most special moments in the class? A favorite activity?**

_____

**15. What do you think the children learn from the project?**

_____

**16. Do you think the children learn something from you? Yes-->what? No-->why not?**

_____

**17. In your opinion, why do the other adults participate in the project?**

_____

**18. Would you continue to come to make art/use iPads with the children in the future? Why or why not?**

_____

Follow up questions: What do you think would help you make a contribution to others? What do you think would stand in your way or make it difficult for you to do it?

**Appendix B: Interview Protocol for Parents/Guardians of Child participants**

Western

**Project Title:** Learning Together Seattle (WSUU): A Case Study of Intergenerational Multimodal Literacy Curricula

INTERVIEW PROTOCOL FOR PARENTS/GUARDIANS OF CHILD PARTICIPANTS

Information for Interviewer:

This interview is inductive and involves asking mainly general, open-ended questions designed to elicit stories and descriptions by the respondent. Focus on personal narratives that gain a deeper understanding of the respondent' observations of child participants' experiences with various modes and media and the influence these experiences have on their literacies, identities, and relationships.

Using a number of general probes might be helpful. The purpose of probes in interviews is to enable the person being interviewed to provide as much detailed information as possible in their responses. Neutral probes encourage additional information, but do not suggest specific answers. Some examples of probes are "How is that?" or "In what ways?" and so on. You will also be asked at times to provide prompts that move the question around different contexts/situations.

The probes in this guide are a suggestion and you need not ask all probes. Gauge the participant's energy level and desire to continue to respond to probes. Ask periodically, "Are you able to continue" or "Do you have more you would like to share" to help judge when it might be time to draw the interview to a close or continue.

Interview Introduction:

- Introduce yourself
- Explain that interviews will be audio recorded
- Explain that the respondent may stop at any time or choose not to answer any question

- Ask if the respondent has any questions before you begin, e.g., "Feel free to ask me to clarify any question you don't understand."

**PART A – MULTMODAL AND MULTIMEDIA ENGAGEMENT**

**1. What is your child's name?**

**_____**

**2. What have you observed that your child likes most about art-making/using the iPads?**

_____

*Follow up questions:* Do you think your child's reasons for liking art-making/using the iPads have something to do with:

***Who s/he is as a person*** (prompts: own beliefs and values, attitudes, abilities?)

***Who is around at the time of making art/using the iPads*** (prompts: family, friends, instructor?)

***The situation or context at the time of making art/using the iPads*** (prompts: available opportunities around s/he, community, structure/organization, accessibility?)

***Past experiences of making art/using digital technology?*** (If so, what experiences in particular?)

**3. What have you observed about how important *making art/using digital technology such as the iPads* is to your child at this time in his/her life?**

_____

*Follow up questions:* Why do you think it is important/not important? What benefits (if any) do you think art-making/using digital technology like the iPads has had on your child's ability to communicate, form relationships, and understand themselves in the world?

**4. What have you observed about your child's ability to *make art/use digital technology like the iPads* since participating in the program?**

_____

*Follow up questions:* Have you observed your child experience any internal or external resistance and/or barriers/challenges to art-making/using the iPads now and or in the past? If so, what are these and where do you think they come from? (prompts: any stress, a conflict, a problem, a special challenge, physical barriers/difficulties, of art/specific hardware or

software?) For your child, what have you observed to be the easiest or most difficult part of art-making/using digital technology like the iPads?

**PART B – LIFE STORY NARRATIVE ABOUT ART-MAKING/USING DIGITAL TECHNOLOGY LIKE THE IPADS**

**5. What kinds of *making art/using digital technology* activities does your child participate in?**

_____

(List all activities - prompts: At child care? At home?

**6. Can you tell me a memory that you have of your child making art?**

_____

Can you think of a memorable moment involving your child making art?

(Prompts: What happened? What was the child doing? When did it happen? Where did it happen? Who was involved? What did you observe the child was thinking and feeling? Did this event change your child in any way? If so, in what way?) [Note: Try to get respondent to focus on a specific event/episode.]

**7. Is there someone important who influences your child's art making?**

_____

(Prompts: for example, a parent, a teacher, a family member, a friend?) Describe the most important person who had had an impact on the child's art-making. Specify the relationship the child had or has with this person and the specific way in which he or she had (or continues to have) an impact on his/her art making experience.

**PART C – IG MULTIMODAL CURRICULUM**

**8. What have you observed to be what your child likes the most about making art/communicating through iPads with the adults and his/her peers in the class?**

_____

*Follow up questions:* Do you think the reasons for your child liking to do these things has something to do with:

***Who is around you at the time of the activities*** (prompts: family, friends, elders, instructor?)

***The situation or context is at the time of activities*** (prompts: available opportunities around the child, community, structure/organization, accessibility?)

***Past experiences of art making/using digital technologies?*** (If so, what experiences in particular?)

**9. What do you think is the most important reason for making art/communicating through digital technology with the elders?**

_____

**10. What do you think is the most difficult part of art making/communicating through digital technology with the elders?**

_____

**11. What have you observed about how your child feels after class? (Does s/he seem to feel any different from before the class?)**

---

**12. What do you think is the objective/goal of the classes with the adults and children?**

_____

**13. Can you tell me one of your favorite/most special moments that you have observed relative to your child being involved in the class?**

_____

**14. What do you think the children learn from the class?**

_____

**15. Do you think the adults learn something from the children?**

_____

**16. In your opinion, why do the adults and parents of the other children in the class choose to participate in the project?**

_____

**17. Would you continue to bring your child to make art with older adults in the future? Why or why not?**

_____

## Appendix C: Letter of Information—Parents or legal guardians as interviewees

Western

**Project Title:** Learning Together Seattle (WSUU): A Case Study of Intergenerational Multimodal Literacy Curricula

LETTER OF INFORMATION
—PARENTS OR LEGAL GUARDIANS AS INTERVIEWEES

**Principal Investigator**
Rachel Heydon, PhD
Faculty of Education,
Western University

**Co-Investigator**
Susan O'Neill, PhD
Faculty of Education,
Simon Fraser University

### Introduction

You have been invited to participate in this study about the use of art and iPads within the Intergenerational Art class at Westside Universalist Unitarian (WSUU) congregation. Although the focus of the research will not be on you, you are invited to participate because your child takes part in the Intergenerational Art class at WSUU. The purpose of this letter is to provide you with information required for you to make an informed decision regarding your participation in this research.

### Why is this study being done?

This study builds on our previous research which found that people taking part in intergenerational programs benefit the most when there is a curriculum guiding the intergenerational program. We also know that digital technologies are changing the ways that people communicate. The purpose of this study is to develop multimodal curricula and pedagogies (that is, ways of communicating, learning, and teaching that bring together various modes of print, image, gesture, animation, music, and the like) that can be used in different intergenerational contexts. This study will focus on how iPads are used in the Intergenerational Art class at WSUU.

**How long will you be in this study?**

The research will take place within the scheduled Intergenerational Art class at WSUU from April 14, 2016 to May 19, 2016.

**What are the study procedures?**

If you agree to participate, you will be audio recorded while you are asked informal questions about your observations and experiences relative to your child's participation in the art class. If you do not wish to be informally interviewed or if you do not wish to be audio recorded, you will not be able to participate in this study. Your child will be able to participate in the normal course of the art class.

**What are the risks and harms of participating in this study?**

There are no known or anticipated risks or discomforts associated with participating in this study. There will not be any marks or grades assigned during the art class or in the research study.

**What are the benefits of participating in this study?**

You may not directly benefit from participating in this study. The information gathered from the research study may provide benefits to society as a whole which include contributing to the knowledge related to digital literacies, intergenerational learning, multimodal literacy, and literacy curriculum. This may enable other intergenerational multimodal curriculum projects that foreground digital tools to be established and built.

**Can participants choose to leave the study?**

If you decide to withdraw from the study, you have the right to request withdrawal of information collected about you. If you wish to have your information removed, please let the researcher know. There will be no negative implications for you or for your child. Your child will participate as normal in the art class.

**How will participants' information be kept confidential?**

All data collected will remain confidential and accessible only to the investigators of this study. Direct and/or indirect quotes from you might be used if the results of the study are published. The research data and recordings will be kept for the next seven years in a secure, password-protected location at Western University. Only members of the research team will have access to the research data. Representatives of Western University's Non-Medical Research Ethics Board may require access to your study-related records to monitor the conduct of the research.

The only time we will have to inform anyone of your participation in the study and provide them with a full name is if you are at risk of being hurt by someone or you are hurting someone else. In the situation where we were to observe someone being hurt, we are legally required to report our observations to the police.

**Are participants compensated to be in the study?**

You will not be compensated for your participation in this research.

**What are the rights of participants?**

Your participation in this study is voluntary. You may decide not to be in this study. Even if you consent to participate, you have the right to not answer individual questions or to withdraw from the study at any time. If you choose not to participate or to leave the study at any time it will have no effect on your status in the congregation or your child's participation in the art class.

We will give you new information that is learned during the study that might affect your decision to stay in the study.

You do not waive any legal right by signing this consent form

**Whom do participants contact for questions?**

If you have questions about this research study, please contact Dr. Rachel Heydon. If you have any questions about your rights as a research participant or the conduct of this study, you may contact The Office of Research Ethics.

Thank you very much for considering this request.

Sincerely,

Dr. Rachel Heydon

***This letter is yours to keep for future reference.***

## Appendix D: Letter of Information—Parent or legal guardian of child participant

**Project Title:** Learning Together Seattle (WSUU): A Case Study of Intergenerational Multimodal Literacy Curricula

LETTER OF INFORMATION

—PARENT OR LEGAL GUARDIAN OF CHILD PARTICIPANT

**Principal Investigator**

Rachel Heydon, PhD

Faculty of Education,

Western University

**Co-Investigator**

Susan O'Neill, PhD

Faculty of Education,

Simon Fraser University

### Introduction

Your child has been invited to participate in this study about the use of art and iPads within the Intergenerational Art class at Westside Universalist Unitarian congregation. Your child is invited to participate because s/he would like to take part in the Intergenerational Art class at WSUU. The purpose of this letter is to provide you with information required for you to make an informed decision regarding your child's participation in this research.

### Why is this study being done?

This study builds on our previous research which found that people taking part in intergenerational programs benefit the most when there is a curriculum guiding the intergenerational program. We also know that digital technologies are changing the ways that people communicate. The purpose of this study is to develop multimodal curricula and pedagogies (that is, ways of communicating, learning, and teaching that bring together various modes of print, image, gesture, animation, music, and the like) that can be used in different intergenerational contexts. This study will focus on how iPads are used in the art classes at WSUU.

### How long will your child be in this study?

The research will take place within the scheduled Intergenerational Art classes at WSUU from April 14, 2016 to May 19, 2016.

**What are the study procedures?**

If you agree to have your child participate, s/he may be photographed and audio and/or video recorded while creating works of art within the Intergenerational Art class at WSUU. Through informal conversation when your child arrives for class and during the art class, your child may be asked to talk about what s/he is making, her/his experiences in the intergenerational art class, and discuss her/his completed art projects. At the end of the class, your child may be asked informal questions in a short interview with a member of the research team. Your child will not need to spend any extra time outside of the art class to participate in the study unless s/he participates in the interview. The interview can be as brief as your child would like (e.g. 10 minutes) or may last up to 20 minutes, if your child so chooses. The interview will take place at WSUU.

The products that your child creates in art class (e.g., the content of his/her digital portfolio) may be copied and used in the study.

If your child does not wish to be audio or video recorded, s/he will not be able to participate in this study. S/he will, however, be able to participate in the normal course of the art class.

**What are the risks and harms of participating in this study?**

There are no known or anticipated risks or discomforts associated with participating in this study. There will not be any marks or grades assigned during the Intergenerational Art program or in the research study.

**What are the benefits of participating in this study?**

Your child may not directly benefit from participating in this study though s/he may benefit from participating in the art class. The information gathered from the research study may provide benefits to society as a whole which include contributing to the knowledge related to digital literacies, intergenerational learning, multimodal literacy, and literacy curriculum.

This may enable other intergenerational multimodal curriculum projects that foreground digital tools to be established and built.

**Can participants choose to leave the study?**

If you decide to withdraw your child from the study, you have the right to request withdrawal of information collected about your child. If you wish to have your child's information removed, please let the researcher know. There will be no negative implications for your child. Your child will participate as normal in the art class.

**How will participants' information be kept confidential?**

All data collected will remain confidential and accessible only to the investigators of this study. Since your child may appear in photographs or video recordings and WSUU will be named in publications and/or presentations of the study, full anonymity will not be possible. Your child's first name may be seen on the artifacts s/he constructs (though if the child includes information such an address it will be deleted). If the results are published, your child might be identified by her/his name, or by the photographs taken in the session. Also, direct and/or indirect quotes from your child might be used if the results of the study are published. The research data and recordings will be kept for the next seven years in a secure, password-protected location at Western University. Only members of the research team will have access to the research data. Representatives of Western University's Ontario Non-Medical Research Ethics Board may require access to your child's study-related records to monitor the conduct of the research.

The only time we will have to inform anyone of your child's participation in the study and provide them with a full name is if s/he is at risk of being hurt by someone or your child is hurting someone else. In the situation where we were to observe someone being hurt, we are legally required to report our observations to Child Protective Services.

**Are participants compensated to be in this study?**

No participants are compensated for their participation in this research.

**What are the rights of participants?**

Participation in this study is voluntary. You may withdraw consent or your child may refuse to participate, refuse to answer any questions or withdraw from the study at any time. Your child may participate in the art class even if s/he does not participate in the research study.

We will give you new information that is learned during the study that might affect your decision to agree to have your child stay in the study.

You do not waive any legal right for yourself or for your child by signing this consent form.

**Whom do participants contact for questions?**

If you have questions about this research study, please contact Dr. Rachel Heydon. If you have any questions about your rights as a research participant or the conduct of this study, you may contact The Office of Research Ethics.

Thank you very much for considering this request.

Sincerely,

Dr. Rachel Heydon

***This letter is yours to keep for future reference.***

**Consent Form – Parent or legal guardian of child participant**

**Project Title:** Learning Together Seattle (WSUU): A Case Study of Intergenerational Multimodal Literacy Curricula

**Principal Investigator:** Rachel Heydon, PhD, Faculty of Education, Western University
**Co-Investigator:** Susan O'Neill, PhD, Faculty of Education, Simon Fraser University

I have read the Letter of Information, have had the nature of the study explained to me, and I agree to have my child participate. All questions have been answered to my satisfaction.

I agree to have my child audio / video-recorded in this research.

☐ **YES** ☐ **NO**

I consent to the use of my child's personal, identifiable quotes obtained during the study in the dissemination of this research.

☐ **YES** ☐ **NO**

I consent to the use of my child's unidentified quotes obtained during the study in the dissemination of this research.

☐ **YES** ☐ **NO**

I agree to have my child's name used in the dissemination of this research.

☐ **YES** ☐ **NO**

I consent to the use of my child's artwork created during the intergenerational art class in the dissemination of this research.

☐ **YES** ☐ **NO**

Child Participant's Name:

_____

Child Participant's Year of Birth _____ Month of Birth _____

Name of Parent/Legal Guardian (please print):

_____

Signature of Parent/Legal Guardian:

_____ Date: _____

Person Obtaining Informed Consent (please print):_____

Signature:_____ Date:_____

## Appendix E: Letter of Information—Elder adults

Western

**Project Title:** Learning Together Seattle (WSUU): A Case Study of Intergenerational Multimodal Literacy Curricula

LETTER OF INFORMATION—ELDER ADULTS

**Principal Investigator**
Rachel Heydon, PhD
Faculty of Education,
Western University

**Co-Investigator**
Susan O'Neill, PhD
Faculty of Education,
Simon Fraser University

### Introduction

You have been invited to participate in this study about the use of art and digital media within the Intergenerational Art class at Westside Universalist Unitarian (WSUU) congregation. You are invited to participate because you are interested in taking part in the Intergenerational Art class at WSUU. The purpose of this letter is to provide you with information required for you to make an informed decision regarding your participation in this research.

### Why is this study being done?

This study builds on our previous research which found that people taking part in intergenerational programs benefit the most when there is a curriculum guiding the intergenerational program. We also know that digital technologies are changing the ways that people communicate. The purpose of this study is to develop multimodal curricula and pedagogies (that is, ways of communicating, learning, and teaching that bring together various modes of print, image, gesture, animation, music, and the like) that can be used in different intergenerational contexts. This study will focus on how iPads are used in the art classes at WSUU.

**How long will you be in this study?**

The research will take place within the scheduled Intergenerational Art program at WSUU from April 14, 2016 to May 19, 2016.

**What are the study procedures?**

If you agree to participate, you may be photographed and audio and/or video recorded while creating works of art within the art class at WSUU. Through informal conversations as you enter the art class, you may be asked to talk about what you are making, your experiences in the art class, and discuss your completed art projects. At the end of the class, you may be asked informal questions in a short interview with a member of the research team, and asked to clarify your understanding of the interactions within the class. You will not need to spend any extra time outside of the art class to participate in the study unless you participate in the interview. The interview can be as brief as you like (e.g. 10 minutes) or may last up to 30 minutes, if you so choose. The interview will take place in a location at WSUU of your choosing. The products you create in art class (e.g., the content of your digital portfolio) may be copied and used in the study. If you do not wish to be photographed, audio- or video-recorded, to include your artwork in the study data or to include verbatim quotes in the dissemination of the research, you will not be able to participate in this study.

**What are the risks and harms of participating in this study?**

There are no known or anticipated risks or discomforts associated with participating in this study. There will not be any marks or grades assigned during the art class or in the research study.

**What are the benefits of participating in this study?**

You may not directly benefit from participating in this study, though you may benefit from participating in the art class. The information gathered from the research study may provide benefits to society as a whole, which include contributing to the knowledge related to digital literacies, intergenerational learning, multimodal literacy, and literacy curriculum. This may

enable other intergenerational multimodal curriculum projects that foreground digital tools to be established and built.

**Can participants choose to leave the study?**

If you decide to withdraw from the study, you have the right to request withdrawal of information collected about you. If you wish to have your information removed, please let the researcher know. There will be no negative implications for you if you withdraw from the study. You may continue to participate as normal in the art class.

**How will participants' information be kept confidential?**

All data collected will remain confidential and accessible only to the investigators of this study. Since you may appear in photographs or video recordings and WSUU will be named in publications and/or presentations of the study, full anonymity will not be possible. Your first name may be seen on the artifacts you construct. If the results are published, you might be identified by your name, or by the photographs taken in the session. Also, direct and/or indirect quotes from you might be used if the results of the study are published. The research data and recordings will be kept for the next seven years in a secure, password-protected location at Western University. Only members of the research team will have access to the research data. Representatives of Western University's Non-Medical Research Ethics Board may require access to your study-related records to monitor the conduct of the research.

The only time we will have to inform anyone of your participation in the study and provide them with a full name is if you are at risk of being hurt by someone or you are hurting someone else. In the situation where we were to observe someone being hurt, we are legally required to report our observations to the police.

**Are participants compensated to be in this study?**

You will not be compensated for participating in this research.

**What are the rights of participants?**

Your participation in this study is voluntary. You may decide not to be in this study. Even if you consent to participate, you have the right to not answer individual questions or to withdraw from the study at any time. If you choose not to participate or to leave the study at any time it will have no effect on your status within the congregation.

We will give you new information that is learned during the study that might affect your decision to stay in the study.

You do not waive any legal right by signing this consent form.

**Whom do participants contact for questions?**

If you have questions about this research study, please contact Dr. Rachel Heydon. If you have any questions about your rights as a research participant or the conduct of this study, you may contact The Office of Research Ethics.

Thank you very much for considering this request.

Sincerely,

Dr. Rachel Heydon

***This letter is yours to keep for future reference.***

**Consent Form – Elder adults**

**Project Title:** Learning Together Seattle (WSUU): A Case Study of Intergenerational Multimodal Literacy Curricula

**Principal Investigator:** Rachel Heydon, PhD, Faculty of Education, Western University
**Co-Investigator:** Susan O'Neill, PhD, Faculty of Education, Simon Fraser University

I have read the Letter of Information, have had the nature of the study explained to me, and I agree to participate. All questions have been answered to my satisfaction.

I agree to have my name used in the dissemination of this research.
☐ **YES** ☐ **NO**

Name of Person Giving Informed Consent (please print):
_____

Signature of Person Giving Informed Consent:
_____ Date: _____

Person Obtaining Informed Consent (please print):_____
Signature:_____ Date:_____

## Appendix F: Letter of Information – Other adults, including volunteers

**Project Title:** Learning Together Seattle (WSUU): A Case Study of Intergenerational Multimodal Literacy Curricula

LETTER OF INFORMATION – OTHER ADULTS, INCLUDING VOLUNTEERS

**Principal Investigator**

Rachel Heydon, PhD

Faculty of Education,

Western University

**Co-Investigator**

Susan O'Neill, PhD

Faculty of Education,

Simon Fraser University

### Introduction

You have been invited to participate in this study about the use of art and digital media within the Intergenerational Art classes at Westside Universalist Unitarian (WSUU) congregation. Although the focus of the research will not be on you, you are invited to participate because you work with children and/or adults as they take part in the Intergenerational Art class at WSUU. The purpose of this letter is to provide you with information required for you to make an informed decision regarding your participation in this research.

### Why is this study being done?

This study builds on our previous research which found that people taking part in intergenerational programs benefit the most when there is a curriculum guiding the intergenerational program. We also know that digital technologies are changing the ways that people communicate. The purpose of this study is to develop multimodal curricula and pedagogies (that is, ways of communicating, learning, and teaching that bring together various modes of print, image, gesture, animation, music, and the like) that can be used in different intergenerational contexts. This study will focus on how iPads are used in the art class at WSUU.

### How long will you be in this study?

The research will take place within the scheduled Intergenerational Art class at WSUU from April 14, 2016 to May 19, 2016.

**What are the study procedures?**

If you agree to participate, you may be photographed and audio recorded and/or video recorded while supporting the elders and children as they create works of art within the art class at WSUU. While you will not be the focus of these videos and photos, your image and/or voice may be seen and/or heard. You may be asked informal questions about your observations and experiences relative to the art class. If you do not wish to be audio or video recorded, you will not be able to participate in this study. You will, however, be able to participate in the normal course of the intergenerational art class.

**What are the risks and harms of participating in this study?**

There are no known or anticipated risks or discomforts associated with participating in this study. There will not be any marks or grades assigned during the art class or in the research study.

**What are the benefits of participating in this study?**

You may not directly benefit from participating in this study. The information gathered from the research study may provide benefits to society as a whole which include contributing to the knowledge related to digital literacies, intergenerational learning, multimodal literacy, and literacy curriculum. This may enable other intergenerational multimodal curriculum projects that foreground digital tools to be established and built.

**Can participants choose to leave the study?**

If you decide to withdraw from the study, you have the right to request withdrawal of information collected about you. If you wish to have your information removed, please let the researcher know. There will be no negative implications for you. You will participate as normal in the art class.

**How will participants' information be kept confidential?**

All data collected will remain confidential and accessible only to the investigators of this study. Since you may appear in photographs or video recordings, full anonymity will not be possible. If the results are published, you might be identified by the photographs or videos taken in the session. Also, direct and/or indirect quotes from you might be used if the results of the study are published. The research data and recordings will be kept for the next seven years in a secure, password-protected location at Western University. Only members of the research team will have access to the research data. Representatives of Western University's Non-Medical Research Ethics Board may require access to your study-related records to monitor the conduct of the research.

The only time we will have to inform anyone of your participation in the study and provide them with a full name is if you are at risk of being hurt by someone or you are hurting someone else. In the situation where we were to observe someone being hurt, we are legally required to report our observations to the police.

**Are participants compensated to be in the study?**

You will not be compensated for your participation in this research.

**What are the rights of participants?**

Your participation in this study is voluntary. You may decide not to be in this study. Even if you consent to participate, you have the right to not answer individual questions or to withdraw from the study at any time. If you choose not to participate or to leave the study at any time, it will have no effect on your volunteer or employment status, or your status within the congregation.

We will give you new information that is learned during the study that might affect your decision to stay in the study.

You do not waive any legal right by signing this consent form

**Whom do participants contact for questions?**

If you have questions about this research study, please contact Dr. Rachel Heydon. If you

have any questions about your rights as a research participant or the conduct of this study, you may contact The Office of Research Ethics.

Thank you very much for considering this request.

Sincerely,

Dr. Rachel Heydon

***This letter is yours to keep for future reference.***

**Consent Form – Other adults, including volunteers**

**Project Title:** Learning Together Seattle (WSUU): A Case Study of Intergenerational Multimodal Literacy Curricula

**Principal Investigator:** Rachel Heydon, PhD, Faculty of Education, Western University
**Co-Investigator:** Susan O'Neill, PhD, Faculty of Education, Simon Fraser University

I have read the Letter of Information, have had the nature of the study explained to me, and I agree to participate. All questions have been answered to my satisfaction.

I agree to be audio / video recorded in this research.

☐ **YES** ☐ **NO**

I consent to the use of personal, identifiable quotes obtained during the study in the dissemination of this research.

☐ **YES** ☐ **NO**

I consent to the use of unidentified quotes obtained during the study in the dissemination of this research.

☐ **YES** ☐ **NO**

Name of Person Giving Informed Consent (please print):

_____

Signature of Person Giving Informed Consent:

_____ Date: _____

Person Obtaining Informed Consent (please print):_____

Signature:_____ Date:_____

## Appendix G: Participant Photographic Release Form—Child Parent Guardian

**Learning Together Seattle (WSUU):**

**A Case Study of Intergenerational Multimodal Literacy Curricula**

PARTICIPANT PHOTOGRAPHIC RELEASE FORM—CHILD PARENT GUARDIAN

I agree to have photographs of my child, my child's environment and art used in the following ways (please check all that apply):

In academic articles □ Yes □ No

In print, digital and slide form □ Yes □ No

In academic presentations □ Yes □ No

In media □ Yes □ No

In thesis materials □ Yes □ No

Name of Child Participant: _____ (please print)

Name of Parent/Legal Guardian: _____ (please print)

Signature of Parent/Legal Guardian: _____

Date: _____

Person Obtaining Consent: _____ (please print)

Signature of Person Obtaining Consent: _____

Date: _____

## Appendix H: Participant Photographic Release Form—Elders and Other Adults

Western

**Learning Together Seattle (WSUU):**

**A Case Study of Intergenerational Multimodal Literacy Curricula**

PARTICIPANT PHOTOGRAPHIC RELEASE FORM

—ELDERS AND OTHER ADULTS

I agree to have photographs of me, my environment and art used in the following ways (please check all that apply):

In academic articles □ Yes □ No

In print, digital and slide form □ Yes □ No

In academic presentations □ Yes □ No

In media □ Yes □ No

In thesis materials □ Yes □ No

Name of Participant: _____ (please print)

Signature of Participant: _____

Date: _____

Person Obtaining Consent: _____ (please print)

Signature of Person Obtaining Consent: _____

Date: _____

# Appendix I: Western NMREB Approval Form

Western Research

Research Ethics

**Western University Non-Medical Research Ethics Board**
**NMREB Full Board Initial Approval Notice**

**Principal Investigator**: Dr. Rachel Heydon
**Department & Institution**: Education\Faculty of Education,Western University

**NMREB File Number**: 107576
**Study Title**: Learning Together Seattle (WSUU): A Case Study of Intergenerational Multimodal Literacy Curricula
**Sponsor**: Social Sciences and Humanities Research Council

**NMREB Initial Approval Date**: February 26, 2016
**NMREB Expiry Date**: February 26, 2017

**Documents Approved and/or Received for Information**:

| Document Name | Comments | Version Date |
|---|---|---|
| Other | Elders & other adults photo release | 2015/12/18 |
| Other | Parent/guardian photo release | 2015/12/18 |
| Letter of Information & Consent | Other adults (volunteers) LOI/Consent | 2015/12/18 |
| Letter of Information & Consent | Parent/guardian as interviewee LOI/Consent | 2015/12/18 |
| Instruments | Parents interview protocol | 2015/12/18 |
| Instruments | Elders interview protocol | 2015/12/18 |
| Instruments | Children Interview protocol | 2015/12/18 |
| Western University Protocol | | 2015/12/23 |
| Letter of Information & Consent | Elder Adults | 2016/01/26 |
| Letter of Information & Consent | Parent/Guardian | 2016/01/26 |

The Western University Non-Medical Research Ethics Board (NMREB) has reviewed and approved the above named study, as of the NMREB Initial Approval Date noted above.

NMREB approval for this study remains valid until the NMREB Expiry Date noted above, conditional to timely submission and acceptance of NMREB Continuing Ethics Review.

The Western University NMREB operates in compliance with the Tri-Council Policy Statement Ethical Conduct for Research Involving Humans (TCPS2), the Ontario Personal Health Information Protection Act (PHIPA, 2004), and the applicable laws and regulations of Ontario.

Members of the NMREB who are named as Investigators in research studies do not participate in discussions related to, nor vote on such studies when they are presented to the REB.

The NMREB is registered with the U.S. Department of Health & Human Services under the IRB registration number IRB 00000941.

Ethics Officer, on behalf of Riley Hinson, NMREB Chair

Ethics Officer to Contact for Further Information: Erika Basile ___ Nicole Kaniki ___ Grace Kelly ___ Mina Mekhail ___ Vikki Tran ___

*This is an official document. Please retain the original in your files*


PANEL ON
RESEARCH ETHICS
Navigating the ethics of human research
TCPS 2: CORE
Certificate of Completion
This document certifies that
Zhen Lin
has completed the Tri-Council Policy Statement:
Ethical Conduct for Research Involving Humans
Course on Research Ethics (TCPS 2: CORE)
Date of Issue:
4 May, 2017

**CURRICULUM VITAE**

**Zhen (Molly) Lin**

## Education and Professional Development

Curriculum Studies & Literacy, **MA** Sept 2015–Aug 2017
Western University, London, ON

Teaching Chinese as a Second Language, **MEd** Sept 2013–Jul 2015
Shandong, China

Translation and Interpretation, **BA** Sept 2009–Jul 2013
Shandong, China

## Academic-related Experience (Main, 2015-2017)

**Reviewer** Feb 2017
14th Language and Literacy Researchers of Canada (LLRC) Pre-Conference

**Presenter** May 2017
Group D, 14th Language and Literacy Researchers of Canada (LLRC) Pre-Conference

**Member**
Language and Literacy Researchers of Canada (LLRC)
Canadian Society for the Study of Education (CSSE)
American Educational Research Association (AERA)

**Participant (Main)**

- Public Talk "Is language really without rhyme or reason? Engaging language learners with the 'why?' question." Oct 2016
- 21st Century Curriculum Symposium Aug 2016
- Western Research Forum Mar 2016
- Presentation "Why English metaphor should be on your radar." Oct 2015
- Comparative and International Education Conferences: Why, Where and How (to apply)? Oct 2015
- Graduate Student Conference on Teaching Sept 2015

## Teaching-related Experience (Main)

**Director**
Chinese Language Curriculum, Western Language Club (WLC) Sept 2015-Dec 2015

**Teaching Assistant**
School of International Cultural Exchanges, Shandong, China Oct 2013–Nov 2014

**Volunteer-Teaching Chinese as a Second Language**

Thailand Jul 2012-Sep 2012
Mongolia Jul 2011-Sep 2011

**Teacher-Teaching English as an Additional Language (Full-time internship)**
Linyi Experimental Secondary School, Shandong, China Mar 2011–Jul 2011

## Award and Scholarship (2015-2017)

**WGRS Entrance Scholarship** (2016)
Western University

**AER Graduate Scholarship for Literacy Studies in Education (2016)**

**WGRS Entrance Scholarship** (2015)
Western University

**AER Graduate Scholarship for Literacy Studies in Education (2015)**

## Community Engagement and Other Working Experience

**Office Assistant (Part time)**
London, ON Aug 2017-Now

**Communication Officer**
SU, Shandong, China Dec 2009–Jul 2012