

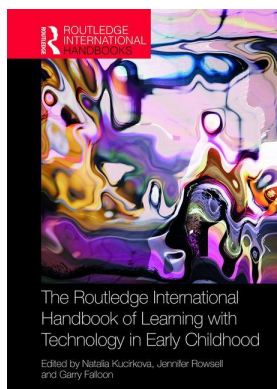
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### **Using mixed methods research with young children and their families in culturally, linguistically and socially diverse communities**

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# USING MIXED METHODS RESEARCH WITH YOUNG CHILDREN AND THEIR FAMILIES IN CULTURALLY, LINGUISTICALLY AND SOCIAALLY DIVERSE COMMUNITIES

*Jim Anderson, Ann Anderson, Ji Eun Kim and Marianne McTavish*

Several years ago during an introductory doctoral seminar, a student in the first month of his graduate program commented that he had decided he would “be doing a qualitative study” for his dissertation. When asked what problem he had identified and which research questions his study would address, he indicated that he had not thought that far ahead but he “definitely would not be doing a quantitative study.” Such intransigence is fairly common among educational researchers and the so-called *paradigm wars*, which presuppose the incommensurability of qualitative and quantitative research methods, are still very much alive and well in some quarters (Shannon-Baker, 2016). This state of affairs certainly applies to research in the area of literacy education which we focus on in this chapter.

Despite the omnipresent tension between these two research paradigms (e.g., Calfee & Sperling, 2010), a significant number of educational researchers employ mixed methods, believing that there are distinct advantages to be had by utilizing data gathering and data analysis techniques from each paradigm. Like Mesel (2013), we believe that “Empirical research . . . originates in challenges or problems posed in a specific field of practice. Researchers formulate research aims, define research questions, and choose methodologies in an attempt to answer these questions” (p. 750). That is, the research enterprise should be about solving significant education problems and/or finding answers to important questions and educational researchers need to employ the best inquiry tools available; to do so, we argue, sometimes necessitates mixed methods.

In this chapter, we first review the principles and tenets of mixed methods research (e.g., Creswell & Clark, 2011; Onwuegbuzie & Mallette, 2011) and its roots in eclecticism and pragmatism. As noted, the problem or issue and the emanating research question(s) will obviously influence the methods one utilizes in a study. However, given that the educational research milieu is evolving, we believe researchers will increasingly need to attend to other

factors, such as who is expected to read (or listen to or view) the findings or results of a study, for whom or for what purpose(s) is the research being conducted, who will it serve, the epistemology(ies) undergirding the research and/or claims that can be made based on the findings, the ethical and moral responsibilities of researchers and the purposes that the research aims to fulfill. Proposing that such factors or issues need to be considered when designing and conducting empirical studies, we demonstrate through examples from our own research with young children and families from working class homes and with immigrant and refugee families, how we utilized mixed methods in what we considered to be culturally and socially appropriate ways. We write from the perspectives of researchers working in Canada, although we believe that the issues we raise, and the perspectives or positions we offer, are similar to those in many other countries.

## Principles and tenets of mixed methods research

### Background

Over time, various terms have been used to describe studies that employ both quantitative and qualitative methods but currently, the name *mixed methods research* is most common and conventional (Creswell & Plano Clark, 2007). Mixed methods research involves the intentional incorporation of both quantitative and qualitative approaches in “the philosophical or theoretical framework(s), methods of data collection and analysis, overall research design, and/or discussion of research conclusions” (Shannon-Baker, 2016, p. 321), to answer an inquiry that a single method cannot address.

Some scholars call the divide (and sometimes, antagonism) between researchers aligned with qualitative approaches and those who identify with quantitative methods as a *paradigm war*, (Creswell & Plano Clark, 2007; Tashakkori & Teddlie, 1998). However, over the years, some researchers and scholars (e.g., Howe, 1988; Yin, 2006) have recognized, and argued for, the compatibility of, and commonalities between, quantitative and qualitative research methods. For example, Howe (1988) argued that the major tenets of quantitative and qualitative research methods are compatible, so that both approaches can be mixed and should be used in research. Indeed, four characteristics that need to be satisfied to ensure rigor and quality are common to both quantitative and qualitative research. These are: inclusion of all evidence, recognition of rival explanations, focus on significant results with implications and “investigatory expertise about the subject” (Yin, 1994, p. 82). Furthermore, both quantitative and qualitative research traditions have “a common goal: to understand and improve the human condition” (Reichardt & Rallis, 1994, p. 11). In addition, scholars have pointed out that using mixed methods helps to overcome some of the limitations of utilizing only one research method (e.g., Erzberger & Prein, 1997; Reichardt & Rallis, 1994; Sechrest & Sidani, 1995) and that utilizing mixed methods is a means of triangulation. Some researchers tend to view mixed methods as a research process, for example, using quantitative measures to gain an *etic* or more global understanding or perspective of a problem or issue and then using qualitative research methods to garner an *emic* or more nuanced, particularistic understanding or view of the same issue. For example, in their two phase study, Reese et al. (2003) used qualitative methods to document and analyze reading styles in parent-child shared book reading and then used quantitative methods to determine the relationship between the three reading styles they identified and measures of children’s early literacy knowledge. Of course, the process can be reversed. We next examine some of the conceptual backdrop informing mixed methods research.

### ***Philosophical/theoretical underpinning***

Pragmatism is a central paradigmatic foundation for mixed methods research. Pragmatism considers phenomena as encompassing “singular or multiple realities” (Creswell & Plano Clark, 2007, p. 24), allows for both objective and subjective points of view, recognizes researchers’ biased and unbiased perspectives, acknowledges possible causal, but unfixed relationships between events and/or phenomena, and legitimizes both deductive and inductive logic (Tashakkori & Teddlie, 1998).

As noted, in response to the so-called paradigm war, some researchers and scholars have argued for the necessity of adopting pragmatic stances in conducting literacy research (e.g., Dillon et al., 2004; Stephens & Pearson, 1992). According to Dillon et al. (2004), pragmatism can provide alternative ways to solve current problems in literacy research, including what some scholars contend has been the minimal impact of findings from literacy research on curriculum and pedagogy, and the continued and troubling underachievement of some children and youth, particularly those from marginalized groups.

According to Onwuegbuzie and Mallette (2011), studies in the literacy field tend to provide partial interpretations of the phenomena investigated, because of the inherent constraints of both qualitative and quantitative studies. For example, Lonigan et al.’s (1999) quantitative study showed a significant relationship between dialogic, parent-child shared reading and children’s early literacy development, but did not provide detailed descriptions of how parents and children co-constructed meaning through interactions during the reading. In contrast, Heath’s (1983) foundational qualitative study provided detailed descriptions of how parents and children from different socio-cultural contexts interacted during shared reading and other literacy events, but did not establish a relationship between these interactions and children’s literacy knowledge. Of course, it is important to point out that the studies had different research questions and were located within different disciplinary boundaries – Heath’s within ethnography and socio-linguistics and Lonigan et al.’s within developmental psychology. Nevertheless, the two studies, while important, provided a somewhat limited understanding of the shared reading phenomenon.

### ***Advantages of mixed methods research***

Mixed methods allow researchers to take advantage of the strengths of quantitative and qualitative approaches and to gain a more complete understanding of phenomena (Creswell, 2010). Quantitative studies provide insights “describing, explaining and predicting human phenomena” by presenting associations or relations among different variables, while qualitative approaches allow researchers to establish reasons and paths/methods in an observed phenomenon by “exploring, discovering, describing, and constructing” (Onwuegbuzie & Mallette, 2011, pp. 301–302). As described in the previous section, Lonigan et al.’s (1999) study showed the association between the two variables (parent-child interactions and children’s literacy development), while Heath’s (1983) study described in detail the ways parents and children shared texts during literacy events in three socio-cultural communities. A mixed methods study would provide more in-depth and nuanced understandings of the relationships between the two phenomena. Of course, it is important to reiterate that these two individual studies generated invaluable knowledge and indeed, for some research questions and educational issues, mixed methods is inappropriate. Nevertheless, mixed methods, when appropriate, can contribute to understanding issues and phenomena at both macro and micro levels (Bronfenbrenner & Evans, 2000). Scholars have pointed out that studies that employ mixed methods offer three major advantages over single

method approaches: (1) provision of answers to the research questions that cannot be answered by single method approaches, (2) provision of better/stronger inferences and (3) provision of “the opportunity for presenting a greater diversity of divergent views” (Tashakkori & Teddlie, 2003, p. 15).

Importantly, mixed methods enable researchers to answer questions that cannot be answered by mono-method research (Creswell & Plano Clark, 2007; Morse & Niehaus, 2016) and advance our understanding of “different aspects or levels of reality” (Erzberger & Prein, 1997, p. 144). That is, qualitative methods can provide exploratory understandings of phenomena while quantitative studies provide confirmatory understandings of them (Tashakkori & Teddlie, 2003). As mentioned, in practice, some researchers select and integrate different methods that can answer their inquiry and are not constrained or fettered by a single method or a particular paradigm or belief system or disciplinary boundaries (Mesel, 2013).

Mixed methods research allows researchers to examine social phenomena in more depth and in greater breadth (Yin, 2006) and thereby possibly provides more *accurate* inferences (Tashakkori & Teddlie, 2003). Moreover, Erzberger and Prein (1997) posit that convergent results of quantitative and qualitative approaches can increase the validity of the results, by providing complementarity (and serving a triangulation function), and thus allowing multiple inferences (Tashakkori & Teddlie, 2003). Indeed, some scholars propose that because mixed methods research involves various data sources and analyses, it might better explain social phenomena that occur in complex institutions and multifaceted realities, such as young children’s language and literacy development in homes, schools and communities than can qualitative *or* quantitative studies alone (Calfee & Sperling, 2010; Creswell et al., 2003).

Another advantage of mixed methods is that “divergent findings” provide opportunities to make different inferences, reflecting different perspectives (Creswell & Plano Clark, 2007; Tashakkori & Teddlie, 2003). According to Erzberger and Kelle (2003), divergent findings promote the “re-examination of the conceptual frameworks and the assumption[s] underlying” studies (Tashakkori & Teddlie, 2003, p. 17). Erzberger and Kelle (2003) contend that such re-examination should provoke “further analyses of the data in the form of possible transformation of data types to each other, internal validity audits, and design of a new study or phase for further investigation” (p. 17). In other words, checks and balances are embedded in mixed methods, a characteristic which we see as especially important in educational research.

Despite the advantages just outlined, some caution is called for in mixed methods research. For instance, this type of research requires an array of research skills and knowledge of data gathering and analysis, in both qualitative and quantitative domains, and it often requires more time and resources (Creswell & Plano Clark, 2007). Researchers need to have an adequate understanding about, and experience with, both quantitative and qualitative methods when conducting mixed methods research (e.g., Creswell & Plano Clark, 2007; Tashakkori & Teddlie, 1998) and importantly, know how to combine and integrate both research methods (Tashakkori & Teddlie, 2003). Thus, even though mixed methods research has strengths, before conducting a study, researchers should consider possible challenges when deciding whether using mixed methods is realistic.

While we wish to reiterate that the educational issue or problem and the research questions that flow from it should determine the method(s) used, we propose that other contextual factors also affect and influence that decision. In keeping with the pragmatic foundations of mixed methods, researchers need to be mindful of the changing educational landscape, and of changes in the academy. For example, differing perspectives sometimes come into play during the peer review process for journal articles, research grant applications and conference papers, for instance, reviewers steeped in quantitative tradition can be dismissive of studies that are

interpretive or that employ qualitative methods. Likewise, the culture of an academic department is also an important consideration in terms of career progress such as tenure and promotion, for instance, in some departments and units, there is a palpable disdain for quantitative methods.

### *Audience*

Historically, “curiosity driven research” has been prominent in universities and in the case of educational research, the audience or readerships has consisted mainly of other researchers, policy makers, administrators and educators/teachers. In the main, researchers have published their findings in academic journals and books (and book chapters) and presented them at scholarly conferences. However, the research milieu is evolving rapidly as there is less funding available from granting agencies to support curiosity driven research. Consequently, educational researchers increasingly conduct research collaboratively with business, community, governmental and not-for-profit agencies and organizations. Moreover, many universities are promoting community engagement and asking researchers and scholars to work more collaboratively with the broader community. By necessity then, the audience for our work is changing, as oftentimes the issues and problems identified and the questions posed are local and particular to a specific context, and in some cases, mixed methods is essential in order to provide different “evidences” and to demonstrate the nuanced relationships among evidences (Calfée & Sperling, 2010) to more diverse audiences. For example, in a large study of a bilingual family literacy program done collaboratively with government departments, a not-for-profit agency, school districts and community groups, we needed to ascertain if the program made a difference to children’s literacy learning, whether the program promoted social inclusion, and if and how families were becoming familiar with and comfortable in Canadian schools. Using mixed methods was essential to addressing these questions (Anderson et al., 2011) in ways that *spoke* to all stakeholders involved in the project in different capacities, as well as to others interested in family literacy programs and immigrant and refugee families.

### *Ethics*

Of course, ethical principles such as causing no harm, ensuring confidentiality and obtaining informed consent from participants need to guide all research studies. However, we also believe that researchers have an ethical obligation to consider different perspectives and interpretations, especially when the studies potentially have a significant impact on people. We concur with Denzin (1978) that there are inherent biases in “any particular data source, investigator, and . . . method” (p. 14) and likewise agree that using mixed methods can help ameliorate this issue. Furthermore, as just noted, we foresee an increasing need for researchers to work closely and collaboratively with communities and other groups in identifying educational issues and problems that need to be addressed and the research questions that flow from them. Indeed, questions identified from an emic perspective helps ensure that findings will be relevant and address real issues and problems in practice. For example, leading international indigenous scholar Linda Tuhiwai Smith (1999) recommends working collaboratively with communities to identify research questions as an essential principle in conducting research with Indigenous people. Because research questions should determine the appropriate method(s) for answering them, we argue that researchers have an ethical responsibility to use methods that can best answer the questions at hand and meet the needs of the people who participate in research studies. And, not

to oversimplify, but in some contexts and for some issues and problems that need more in depth understandings, mixed methods will be most effective.

### *Impact*

Traditionally, research impact has been measured largely by citation counts, a circuitous situation, as it accounts for how much researchers cite each other. Although citation counts and such will likely continue to be used to measure research impact, there is increasing recognition of the limitations of such measures. For example, the Social Sciences and Humanities Research Council of Canada, one of three funding agencies supported by the Government of Canada, requires dissemination plans for funded projects that go beyond the traditional publishing venues, such as papers presented at academic and scholarly conferences, books and book chapters and journal articles. Mixed methods, we believe, provide data that can demonstrate impact in a number of ways that fit with evolving, broader notions of impact. For example, in an intergenerational literacy program with preschoolers and their parents from immigrant and refugee families, we used Normal Curve Equivalent pre and post scores on norm-referenced tests to demonstrate to the funders that the program was having a significant impact on the adults and children's literacy learning (Purcell-Gates et al., 2012). On the other hand, to show further impact, we used the extensive field notes and detailed, critically reflective journals that the teachers kept identifying challenges within the program, what "worked" for the families, the adjustments in curriculum and pedagogy that we needed to make and so forth (Anderson et al., 2012).

University graduates: Traditionally, university-based researchers have carried out a great deal of research in education, but this situation is changing due to several factors. First, many universities are hiring fewer faculty members in the research stream. For example, the Conference Board of Canada (2015) reported that while the number of PhD graduates had increased dramatically, relatively few of them were obtaining positions as researchers and scholars in universities. They reported, "More than three-fifths of PhDs are employed in diverse careers outside the academy – in industry, government, and non-government organizations – drawing on their skills as researchers and critical thinkers to improve policy, organizational performance, innovation, and economic and social well-being" (n.p.). This trend is predicted to continue and indeed, some people within academe are calling for "re-visioning" doctoral studies (e.g., University of British Columbia, 2016) and we speculate an emphasis on developing skill sets necessary to conduct mixed methods research will be a critical part of this renaissance. That is, it appears that researchers will increasingly work outside the academy and will need the knowledge and skills to address a range of questions posed by diverse communities and groups.

In summary then, there are ethical, logistical and practical reasons for using mixed methods in educational research. Next, we illustrate how we used mixed methods in our own research with young children and their families.

### **Using mixed method approaches**

Having provided some background for using mixed methods research, we now turn to how we have employed this approach in our own work in collaboration with various organizations and communities. In this section, we argue using a compendium of strategies, carefully chosen to suit the research question(s), enables us to serve a multitude of important purposes significant to the people who live and work in their communities, and which also contribute to knowledge that can be mobilized in other contexts.

### ***Observations and field notes***

Observations, including general observations in the “field” and specific observations of participants, fall under one of the many qualitative, interpretive methods that enable the researcher to understand the culture and structure of individuals and/or the community s/he is researching. Taken together, observations and field notes offer the opportunity to gather rich and detailed data that enable an intense account “in situ” and a “fullness of understanding” (Fine, 2015, p. 530) of people, their communities and their activities. In the case of participant observation, the researcher can actively experience the motivation and dynamics of the behavior observed and effectively cross the boundaries between being an insider and an outsider.

Field observations are typically accompanied by field notes; that is, inscribed material or narrative offering “thick description” (Geertz, 1973, p. 6) of events within the context in which they occurred, so that others can interpret them as vividly as possible. These notes generally are first person accounts written from the investigator’s perspective, but may also include third person accounts of what individuals in the research context saw, did or reacted to. In these thick descriptions, the reader is provided with views of the data from multiple vantage points (Silverman & Patterson, 2015).

### ***Examples of using observations and field notes***

As previously mentioned, we used field notes extensively during an action research project called Literacy for Life (LFL) (Purcell-Gates et al., 2012), conducted by two of the authors of this chapter. The family literacy program, delivered over two years, enabled us to work collaboratively with three different cohorts of immigrant and refugee families in western Canada. Our goal was to build the program around children’s and parents’ out-of-school literacy lives, honoring the parents’ wishes to prepare their children for Canadian, English-speaking classrooms, to support the adults in their own English literacy learning, through engaging in socially situated, real-life literacy activities for both parents and children (see Anderson, Purcell-Gates, Jang, & Gagne, 2010; Anderson et al., 2012, for a more detailed description). Classes were held twice a week for two hours, and the early childhood classes were loosely structured so that we could take advantage of opportunities to *incorporate real-world, or authentic literacy activities* that were presented to us. In order to gauge the effectiveness of instruction and to explore the effects of engaging students in real-life literacy activity, the early childhood educators carefully observed the children as they participated in, and reacted to, the activities and events presented to them, and took extensive field notes during each session. The field notes, along with the teachers’ reflections on each session, were subsequently circulated, commented on and discussed during the weekly meetings of the research group. The field notes provided rich data enabling us to make changes to upcoming instruction and to increase fidelity to the criteria that we had developed for “real-life” literacy activities. Here is an excerpt from the field notes recorded by one of the early childhood educators during a typical early childhood classroom activity with the three- and four-year-old children.

*Making birthday party banners. This activity was planned but took on a spontaneous nature. We were waiting for others to arrive because I wanted as many children as possible to participate in the planned activities. The girls wanted to cut paper while we waited, so I gave them some old chart paper that had been folded and generally abused. While they were cutting we were talking about the birthday plans we had made last day, and how R’s birthday was going to be tomorrow. As she was cutting, N reminded me that we had made a birthday supply list and that we were*



*going to make decorations. Interestingly, she was cutting the paper in long strips, so we decided to make them into birthday banners. She kept cutting and I kept printing [the words and expressions that] . . . they wanted on the banners. It turned out we made a total of seven, one for each of us with a simple Happy Birthday \_\_\_\_\_ and the person's name. As we completed them, we taped them up and decorated them with stickers. I was amazed at how this project became their own, and how they kept going back and pointing to the words, trying to recognize their names from the others.*

At that week's meeting of our research group, we determined that this was a good example of an activity that involved self-motivation, language practice and emergent literacy, demonstrating these young children's increasing understanding of the intentionality of print – namely, the notion that print carries meaning (Purcell-Gates, 1996). These observations and the subsequent rich qualitative descriptions added immeasurably to the corpus of data we collected to address the research question of the effectiveness of the family literacy program, as well as the challenges and issues that arose as we developed and implemented it. For example, we analyzed the field notes and compared levels of participation and engagement with the results from the Test of Early Reading Ability-3 (Reid et al., 2001) and the literacy sub-tests of the Canadian Adult Achievement Tests (CAAT). This analysis provided a more nuanced understanding of what worked in the program, what factors seemed to contribute to literacy learning, as well as concerns and issues that we needed to address.

### **Interviews**

Conducting interviews with research participants is another source of qualitative data that enables researchers to obtain deeply contextual accounts of the participants' experiences relevant to the research question and their interpretation of these experiences (Schultze & Avital, 2011). Of course, interviews can be analyzed quantitatively and we have done so in some of our analyses. Olson (2011) states that when interviews are used as a data collection strategy, the goal is to engage the participant in a particular type of conversation to ensure quality information is obtained. Immigrant and refugee family participants often require special accommodations as they may be considered "vulnerable" research participants. Vulnerable research groups are those who may have been subjected to crises with little or no resources or support, and are considered at-risk to the consequences of those experiences (Chambers, 1983). The researcher's main objective in the research interview is to think carefully and ethically about the participants' increased vulnerability to talk about experiences. Added layers we needed to consider in this complex task involved in interviewing young immigrant and refugee children included the following: conducting interviews through an interpreter who was familiar to and with the children and their families, ensuring that our questions were culturally appropriate and would not trigger memories of traumatic experiences that the children and families may have encountered, establishing trust and support and finding a suitable setting to conduct the interview to ensure privacy and comfort and to maintain the confidentiality that we had guaranteed all participants.

### **Examples of using interviewing**

In our work, we have used interviews in several studies with young refugee and immigrant children and their families. Specifically, McTavish (2009) used an open-ended interview protocol to gain information on eight-year-old Rajan's information literacy practices at home and school. We also used similar interviewing techniques with the refugee mothers and preschoolers in the

LFL program (Purcell-Gates et al., 2012) to help us better understand their literacy practices in the countries prior to their arrival in Canada, their current literacy practices in their homes and communities and the literacy practices that they wanted to learn. In this case, with the assistance of interpreters, we were able to gain a richer understanding of what we needed to attend to in the program to meet the unique needs and desires of the families with whom we worked. This was important to this study as the families' attendance in the LFL program was voluntary, and we worked diligently to ensure they returned each week. Furthermore, it helped ensure that we were meeting the central aim of the program, which was to engage immigrant and refugee families in authentic or real-life literacy experiences.

### *Focus groups*

Typically, focus groups involve five to ten people from a particular cohort with shared experiences (Riazi, 2016). The interviewer acts as a moderator and asks open ended or semi-structured questions. There are criticisms of this type of interviewing in that some people may dominate the conversation or unduly influence the group (Riazi, 2016). Thus, the moderator needs to play a key mediational role by ensuring all participants have equal opportunity to contribute and by probing responses which appear to have been influenced by what others previously have said. Focus groups tend to be more conversational, and in some ways less stilted than more formal interviews.

A variation of the focus group technique that is sometimes used in indigenous communities is the talking circle. Essentially, this process involves participants sitting in a circle, with each person taking a turn and commenting or elaborating on previous points. This is thought to be a more culturally appropriate approach to data gathering with First Nations (indigenous) people in Canada, for example (e.g., Hare & Anderson, 2010), and helps ensure a more equitable distribution of turn-taking and also discourages individuals from dominating the conversation.

### *Examples of using focus groups*

Anderson and his colleagues employed focus groups in the *PALS in Immigrant Communities* project. They first generated a series of open-ended questions, based on their original research questions as to the efficacy of the programs and concerns and issues that arose, which they had recorded in field notes and reflective journals. This was a bilingual family literacy program, so the interviewer asked the questions in English, while the cultural worker in each community translated into the families' first language. The families usually answered in their home language and the cultural worker translated into English and the interviewer or moderator either acknowledged the response, and if necessary, invited further comment or elaboration or asked a supplementary follow-up question, before moving on to the next one. Focus group sessions were audio-recorded in their entirety, translated where necessary and then analyzed. As with the interviews described earlier, the focus group sessions provided families an opportunity to identify which aspects of the program were working well for them, which aspects were not working well or needed adjustment and concerns and issues they had. The interviews were also confirmatory in that our observations and field notes indicated that the families seemed to be enjoying the program, the children were displaying evidence of learning early literacy and the families were engaging in the activities we were providing. Taken together, the analysis of the field notes, the focus group sessions and the results of the normed test that we describe later, indicated that the program was having a positive impact on children's early learning, and that

the families valued the program. But in the focus group sessions, the families also raised concerns and issues that had not previously surfaced and we recognized that there were aspects of the program that needed to be modified to make it a better fit for families.

### ***Artifacts***

Collecting and using artifacts, or documentary materials, as a data source, is fundamentally not very different from observations, field notes or interviews (Merriam & Tisdell, 2015). Finding relevant materials to collect and analyze as artifacts is dependent on the research question(s) or inquiry, and requires a systematic procedure for collection. Artifacts include materials such as samples of an adult's writing from their homes or children's spontaneous nursery rhymes in the playground. Artifacts may also be generated by participants for the researcher to learn more about the events or situation under study, and are commonly used in action, or participatory, research. For example, a researcher might ask a participant to keep a diary or journal during the course of the study, or produce a piece of artwork in response to an experience or critical incident in their lives. Researchers sometimes collect auxiliary documents that supplement and support a research project but are not the sole focus of the investigation (Altheide & Schneider, 2013). For example, in a study we are currently conducting in a socially disadvantaged neighborhood of families' access to, and use of, digital tools at home, we are collecting and analyzing the messages about young children and digital technology found in community newspapers and on the websites of local organizations.

### ***Examples of using artifacts***

In the LFL study (Anderson et al., 2012), we collected artifacts as evidence of the children's emerging literacy behaviors over the course of the study in several different ways. For example, after initial modeling by the teachers, we asked at the beginning of each session that the children "sign in" on an attendance sheet. This served not only to indicate their presence in an authentic way; it served as a record of their growth in printing their name over time (a skill they would need to use later in a classroom). Similarly, the teachers collected writing and drawing samples and took photos of the children engaged in literacy activities. The teachers then added contextualizing information and dates to accompany the materials collected. In McTavish's (2009) study, writing samples, drawings, flow charts, projects and photographs were collected to document Rajan's literacy practices at school and at home. In both studies, artifacts served in triangulation with other data collected, to present an in-depth picture of the phenomena under study.

### ***Standardized tests***

Our work is grounded in a literacy as social practice perspective (e.g., Heath, 1983; Street, 1995); that is, how literacy is defined, its functions and purposes, how it is learned and taught and the value ascribed to it, vary across cultural and social contexts (Clay, 1993). However, we also recognize that funding agencies and organizations sometimes require "evidence" that reflects what Street called an "autonomous" view of literacy. For as Purcell-Gates et al. (2012) point out, this "construct of literacy has gained sufficient political traction that research into the teaching of reading and writing is funded, and the results accepted, primarily by the degree to which the research relies on such end-point measures of literacy ability" (p. 397).

### *Examples of using standardized tests*

In the Parents As Literacy Supporters in Immigrant Communities (PALS), a bilingual literacy project in which we worked with more than 500 families from four linguistic groups (Anderson et al., 2011), we used the *Test of Reading Ability-2* (TERA-2) (Reid et al., 1989) to document children's emerging knowledge and understanding of print and how it works. The test is designed for children aged three to eight, and was therefore suitable for the three- to five-year-olds who participated in the program. We first determined that the TERA-2 was reliable and valid. The researchers and research assistants who administered the test had attended the sessions of the bilingual family literacy program, and therefore the children were familiar with them. Although the TERA-2 measures children's knowledge of English print literacy, a trained cultural worker from the children's communities who the children knew provided the directions and prompts in English, and then translated them into the children's home language. Because it was not feasible (or ethically justifiable) to have a control group or to utilize a delayed treatment design in the year long program, we used the Normal Curve Equivalent Scores, essentially comparing the average pre- and post-test scores of the children in the program with the average scores of children in the norming group (e.g., Grant & Leavenworth, 1988).

In combination with the qualitative data from our field notes, interviews with the parents, focus group sessions and so forth, the results of the TERA-2, which showed a large effect size or impact, reassured the program funders that the program was effective and it continues, funded by a governmental agency, nearly two decades after its implementation. Many of the families who were curious about their children's literacy development were reassured by the results, as were the program developers who were committed to delivering a program that made a difference in children's early literacy learning.

### **Discussion**

As we have shared how we employed various data gathering techniques in studies with young children and their families in culturally, linguistically and socially diverse communities, it is important to reiterate that our analyses involved looking across the data sets, looking for patterns, confirmations and contradictions. The example just shared about how we used qualitative and quantitative data synergistically in the PALS in Immigrant Communities project, is illustrative of this process.

As we employed the various techniques in our studies, we always tried to ensure that we did so in a manner that reflected the cultural, linguistic and social context of the participants. For example, when we administered the TERA-2 in the PALS project, a person with whom the children were familiar and who knew them, provided the directions and the prompts in their home language and in English. Likewise, we conducted the focus groups in English and in the families' first language, translating when necessary and encouraging the participants to code-switch as necessary. Furthermore, we have modified techniques such as using the talking circle with First Nations families because it is a better fit with their practices, than the more free flowing, spontaneous focus group format.

We have also attempted to demonstrate how using mixed methods to address the needs of various audiences or consumers of research results. For example, we believe the results of the TERA-2 that demonstrated that the program had a large effect size (or impact) on children's early literacy knowledge played an important role in ensuring continued funding from the Government of Canada agency that initially funded the project. Alongside these results, the insights that we were able to provide based on the data from our field notes and the focus group sessions, provided a portrait of the program that was effective, but was also respectful of families who are

sometimes quite vulnerable and responsive to their needs. Likewise, the families told us in the focus groups that while they intuitively “knew” that their children were acquiring or learning valuable knowledge and skills through participating in the program, they found the results confirmatory and reassuring. Meanwhile, other researchers and practitioners have become aware of both the positive results of the program, as well as some of the concerns and issues that arose, through publications in more traditional venues such as book chapters and journal articles. For example, a teacher from South America recently was in contact, buoyed by the positive impact as evidenced by the results of the TERA-2 but also querying how the slippage in promoting families’ first language – a central goal of the program – that we had documented in our field notes, might be addressed.

It is also important to point out that at times, we integrated both qualitative and quantitative domains. For example, in the LFL study, we coded the teachers’ field notes and their reflective journals and then quantified the categories and identified the challenges that the teachers had encountered according to their frequency. Likewise, in the PALS in Immigrant Communities project, we coded the children’s artifacts, using the extant literature on young children’s writing and representation (e.g., Ferreiro & Teberosky, 1982; Kress, 2005) to develop the categories. Again, we quantified the different categories, and, for example, were surprised that workbook pages were the second most frequent form of writing and representing in the sample (Anderson et al., 2017). In essence, we were quantifying the qualitative data and we propose that mixed methods research lends itself to this type of cross-over and integration.

Although we attempt to collect and analyze data and share results in a concurrent manner, that is sometimes not possible. For example, in the study just described, our field notes gathered through participant observation in the program sessions indicated that most of children’s emergent literacy development was progressing well. However, because we were using gains in the Normal Curve Equivalent scores on the TERA-2 from the beginning of the program (early October) to the end (late May), we really could not compare and contrast that data with those from our field notes and the focus group sessions until the end of the program.

In conclusion, we propose that the evolving milieu in research will likely lead to greater prominence in educational research. With the examples we provided from our own studies, we have attempted to demonstrate how we used mixed methods in thoughtful ways, reflecting the contexts in which we conducted the research. Our hope is that we have also shown how we used data from the various methods in integrated, holistic ways, and that by doing so, we were able to present more in-depth and nuanced understanding of the phenomenon we were studying – the implementation of family literacy programs with young children and caregivers from immigrant and refugee families. We have also endeavored to show how mixed methods can broaden the ways in which we conceptualize impact.

## References

- Altheide, D. and Schneider, C. (2013) *Qualitative media analysis*. London: Sage.
- Anderson, J., Anderson, A., Friedrich, N. and Teichert, L. (2017) *Parents As Literacy Supporters (PALS) in immigrant and refugee communities*. Paper presented at the 20th European Conference on Literacy, Madrid, Spain, July.
- Anderson, J., Friedrich, N. and Kim, J. (2011) *Implementing a bilingual family literacy program with immigrant and refugee families: The case of Parents As Literacy Supporters (PALS)*. Vancouver, BC: Decoda Literacy Solutions. [www.decoda.ca/wp-content/uploads/PALS-in-Immigrant-Communities-Research-Report-Feb-2011-2.pdf](http://www.decoda.ca/wp-content/uploads/PALS-in-Immigrant-Communities-Research-Report-Feb-2011-2.pdf).
- Anderson, J., Purcell-Gates, V., Jang, K. and Gagne, M. (2010) *Implementing an intergenerational literacy program with authentic literacy instruction: Challenges, responses, and results*. Ottawa, ON: Canadian Council on Learning.

- Anderson, J., Purcell-Gates, V., Lenters, K. and McTavish, M. (2012) Real-world literacy activity in pre-school. *Community Literacy Journal* 8 (2) 75–95.
- Bronfenbrenner, U. and Evans, G.W. (2000) Developmental science in the 21st century: Emerging questions, theoretical models, research designs and empirical findings. *Social Development* 9 (1), 115–125.
- Calfee, R. and Sperling, M. (2010) *On mixed methods: Approaches to language and literacy research*. New York: Teachers College Press.
- Canadian Adult Achievement Tests*. Toronto, ON: Pearson Canada Assessment.
- Chambers, R. (1983) *Rural development: Putting the last first*. Longman: London.
- Clay, M. (1993) Always a learner: A fable. *Reading Today*, 3, 10.
- Conference Board of Canada. (2015) Where are Canada's PhDs employed? [www.conferenceboard.ca/topics/education/commentaries/15-01-06/where\\_are\\_canada\\_s\\_phds\\_employed.aspx](http://www.conferenceboard.ca/topics/education/commentaries/15-01-06/where_are_canada_s_phds_employed.aspx).
- Creswell, J.W. (2010) *Research design: Qualitative, quantitative and mixed methods approaches*. Thousand Oaks, CA: Sage Publications.
- Creswell, J.W. and Plano Clark, V.L. (2007) *Designing and conducting mixed methods research*. Thousand Oaks, CA: Sage Publications.
- Creswell, J.W. and Plano Clark, V.L. (2011) *Designing and conducting mixed methods research*. Thousand Oaks, CA: Sage Publications.
- Creswell, J.W., Plano Clark, V.L., Gutmann, M.L. and Hanson, W.E. (2003) Advanced mixed methods research designs. In: Tashakkori, A. and Teddlie, C. (eds.) *Handbook of mixed methods in social behavioral research*. Thousand Oaks, CA: Sage Publications, 209–240.
- Denzin, N.K. (1978) *The research act: A theoretical introduction to sociological methods*. New York: Praeger.
- Dillon, D.R., O'Brien, D.G. and Heilman, E.E. (2004) Literacy research in the next millennium: From paradigms to pragmatism and practicality. In: Ruddell, R.B. and Unrau, N.J. (eds.) *Theoretical models and processes of reading*. Newark: International Reading Association, 1530–1556.
- Erzberger, C. and Kelle, U. (2003) Making inferences in mixed methods: The rules of integration. In: *Handbook of mixed methods in social and behavioral research*, 457–488.
- Erzberger, C. and Prein, G. (1997) Triangulation: Validity and empirically-based hypothesis construction. *Quality & Quantity* 31, 141–154.
- Ferreiro, E. and Teberosky, A. (1982) *Literacy before schooling*. Exeter, NH: Heinemann Books.
- Fine, G. (2015) Participant observation. In: Wright, J. (ed.) *International Encyclopedia of the social & behavioral sciences* (2n edition). Amsterdam: Elsevier, 530–534.
- Geertz, C. (1973) *The interpretation of cultures*. New York: Basic Books.
- Grant, E.S. and Leavenworth, R.S. (1988) *Statistical quality control, sixth edition*. New York: McGraw Hill.
- Hare, J. and Anderson, J. (2010) Transitions to early childhood for Indigenous children and families in Canada: Historical and social realities. *Australian Journal of Early Childhood* 35 (2), 19–27.
- Heath, S.B. (1983) *Ways with words: Language, life and work in communities and classrooms*. Cambridge: Cambridge University Press.
- Howe, K.R. (1988) Against the quantitative–qualitative incompatibility theses, or dogmas die hard. *Educational Researcher* 1, 10–16.
- Kress, G. (2005) *Before writing: Rethinking the path to literacy*. London: Routledge.
- Lonigan, C.J., Anthony, J.L., Bloomfield, B.G., Dyer, S.M. and Samwel, C.S. (1999) Effects of two shared-reading interventions on emergent literacy skills of at-risk preschoolers. *Journal of Early Intervention* 22 (4), 306–322.
- McTavish, M. (2009) 'I get my facts from the internet': A case study of the teaching and learning of information literacy in in-school and out-of-school contexts. *Journal of Early Childhood Literacy* 9 (1), 3–28. doi: 10.1177/1468798408101104.
- Merriam, S.B. and Tisdell, E.J. (2015) *Qualitative research: A guide to design and implementation*. <http://ebookcentral.proquest.com>.
- Mesel, T. (2013) The necessary distinction between methodology and philosophical assumptions in health-care research. *Scandinavian Journal of Caring Sciences* 27, 750–756.
- Morse, J.M. and Niehaus, L. (2016) *Mixed method design: Principles and procedures*. New York: Routledge.
- Olson, K. (2011) *Essentials of qualitative interviewing*. Walnut Creek, CA: Left Coast Press.
- Onwuegbuzie, A.J. and Mallette, M.H. (2011) Mixed research techniques in literacy research. In: Duke, N.K. and Mallette, M.H. (eds.) *Literacy research methodologies*. New York: Guilford Press, 301–330.
- Purcell-Gates, V. (1996) Stories, coupons and the *TV Guide*: Relationships between home literacy experiences and emergent literacy knowledge. *Reading Research Quarterly* 31 (4), 406–428.

- Purcell-Gates, V., Anderson, J., Jang, K., Gagne, M., Lenters, K. and McTavish, M. (2012) Measuring situated literacy activity: Challenges and promises. *Journal of Literacy Research* 44 (4), 132–141.
- Reese, E., Cox, A., Harte, D. and McAnally, H. (2003) Diversity in adults' styles of reading books to children. In: van Kleeck, A., Stahl, S.A. and Bauer, E.B. (eds.) *On reading books to children, parents and teachers*. Mahwah, NJ; Lawrence Erlbaum Associates, pp. 37–57.
- Reichardt, C. S. and Rallis, S. F. (eds.) (1994) The qualitative–quantitative debate: New perspectives. *New Directions for Program Evaluation*, 61. San Francisco: Jossey-Bass.
- Reid, D., Hresko, W. and Hammill, D. (1989) *Test of early reading ability-2*. Austin, TX: PROED.
- Reid, D., Hresko, W. and Hammill, D. (2001) *Test of early reading ability-2*. Austin, TX: PROED.
- Riazi, A.M. (2016) *The Routledge encyclopedia of research methods in applied linguistics*. Abingdon: Routledge.
- Schultze, U. and Avital, M. (2011) Designing interviews to generate rich data for information systems research. *Information and Organization* 21 (1), 1–16. doi: 10.1016/j.infoandorg.2010.11.001.
- Sechrest, L. and Sidani, S. (1995) Quantitative and qualitative methods: Is there an alternative? *Evaluation and Program Planning* 18 (1), 77–87.
- Shannon-Baker, P. (2016) Making paradigms meaningful in mixed methods research. *Journal of Mixed Methods Research* 10 (4), 319–334.
- Silverman, R.M. and Patterson, K.L. (2015) *Qualitative research methods for community development* (1st edition). New York: Routledge. doi: 10.4324/9781315797762.
- Smith, L.T. (1999) *Decolonizing methodologies: Research and indigenous peoples*. London: Zed Books.
- Stephens, D. and Pearson, P.D. (1992) Multiple perspectives on multiple perspectives. In: Beach, R., Green, J.L., Kamil, M.L. and Shanahan, T. (eds.) *Multidisciplinary perspectives on literacy research*. Urbana, IL: National Conference on Research in English, pp. 343–363.
- Street, B. (1995) *Literacy in theory and practice*. Cambridge: Cambridge University Press.
- Tashakkori, A. and Teddlie, C. (1998) *Mixed methodology: Combining qualitative and quantitative approaches*. Thousand Oaks, CA: Sage Publications.
- Tashakkori, A. and Teddlie, C. (2003) Major issues and controversies in the use of mixed methods in the social and behavioral sciences. In: Tashakkori, A. and Teddlie, C. (eds.) *Handbook of mixed methods in social behavioral research*. Thousand Oaks, CA: Sage, 3–50.
- University of British Columbia (2016) *2016 Ph. D. Career outcome survey*. Vancouver, BC: Faculty of Graduate Studies. [www.grad.ubc.ca/about-us/news/ubc-phd-career-outcomes-report-website-now-available](http://www.grad.ubc.ca/about-us/news/ubc-phd-career-outcomes-report-website-now-available).
- Yin, R.K. (2006) Mixed methods research: Are the methods genuinely integrated or merely parallel? *Research in the Schools* 13 (1), 41–47.