# The Use and Value of Mixed Methods Research in Social Work

**Josphine Chaumba**

***Abstract:*** *The complexity of social problems addressed by the social work profession makes mixed methods research an essential tool. This literature review examined common quantitative and qualitative techniques used by social work researchers and what mixed methods research may add to social work research. Surveys and in-depth interviews were the most common quantitative and qualitative data collection methods, respectively. The t-test was the most frequently used quantitative data analysis method. Although thematic analysis was the most common qualitative data analysis method, 12% of the qualitative data analysis techniques were not specified. Mixed methods research adds three important elements to social work research: voices of participants, comprehensive analyses of phenomena, and enhanced validity of findings. For these reasons, the teaching and use of mixed methods research remain integral to social work.*

***Keywords:*** *Mixed methods research, social work*

There is increasing recognition of the importance of combining quantitative and qualitative research methods (hereafter mixed methods research) when conducting social work research and evaluation (Cowger & Menon, 2001; Grinnell & Unrau, 2008; Padgett, 1998, 2008; Yegidis & Weinbach, 2009). At its most basic, mixed methods research refers to research in which investigators use "both qualitative and quantitative approaches or methods in a single study or program of inquiry" (Tashakkori & Creswell, 2007, p. 4). Nevertheless, potential obstacles to the use of mixed methods research in social work have been reported and these include misunderstanding over components that could be integrated in a single study, and training in either qualitative or quantitative methods but not both (Padgett, 1998).

This article explores the use of mixed methods research in social work through a systematic review of studies that combined quantitative and qualitative methods in published social work journals. The main aims of this literature review were two-fold. First, to understand the common quantitative and qualitative techniques used by social work researchers and second, to explore what mixed methods research may add to social work research. This information may be useful to social workers who are planning to use mixed methods research. Most important, knowledge on how to mix quantitative and qualitative methods is needed so that social workers are equipped to conduct and consume mixed methods research. After this introductory section, an overview of mixed methods research is presented highlighting connections between qualitative, quantitative, and mixed methods research, including when and how mixing occurs. This is followed by the method used to select articles for this review, after which the findings, discussion, and implications of the research effort are articulated.

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## Review of the Literature

This literature review provides an overview of key characteristics of qualitative and quantitative methods and their connection to mixed methods in relation to goals, sampling, data collection, and data analysis. Whereas the main goal of quantitative research is to test existing theories and understand connections among particular variables through a deductive research process, primary goals of qualitative research include comprehending multifaceted worlds of study participants and associated subjective meanings and processes using an inductive research process (Padgett, 2008; Rubin & Babbie, 2008). Clearly there are unique advantages and disadvantages associated with qualitative and quantitative forms of inquiry, which may render each method suited to particular research questions. Hence, "the goal of mixed methods research is to draw on the strengths and minimize the weaknesses of both types of research" (Connelly, 2009, p. 31). As the social work profession advances its understanding of complex social problems such as child abuse, poverty, and substance abuse, mixed methods research will allow exploration of generalizable findings on specific measurable outcomes while capturing the influence of external contexts and subjective processes in a single study (Hopson & Steiker, 2008).

In view of the above-mentioned goals of quantitative, qualitative, and mixed methods research, sampling, data collection, and analysis methods characteristic of each form of inquiry are reviewed. For instance, the logic underlying quantitative and qualitative sampling varies (Klenke, 2008). The principal reason for sampling in quantitative research is to select individuals that are representative of the population, and this is best achieved through the use of larger sample sizes and random sampling procedures so that the researcher can estimate the representativeness of the sample to facilitate generalizability (Creswell, 2008; Patton, 2002; Rubin & Babbie, 2008). In contrast, the primary rationale for sampling in qualitative research is to select "information-rich cases for study in-depth" so that the researcher can learn about the issues of central importance to the purpose of the research (Patton, 2002, p. 230). This is best achieved through purposive or theoretical sampling, and the sample size is determined when the point of saturation is reached as marked by redundancy in participants' responses (Klenke, 2008). Consistent with the varying logic between qualitative and quantitative sampling, mixed methods sampling honors the two parallels of representativeness and information-rich cases, and the sample size varies depending on the research strand and questions (Teddlie & Yu, 2007).

Even though distinctions between quantitative and qualitative data collection strategies may be blurred because of similar terminology, the form of data that are gathered differs. Whereas qualitative research seeks textual data that capture the context such as words and images, quantitative research collects numbers with less emphasis on context (Creswell & Plano Clark, 2007; Padgett, 1998). Qualitative and quantitative researchers may use similar terminology when referring to methods of data collection such as surveys, interviews, or observations (Axinn & Pearce, 2006; Johnson & Turner, 2003), but differ on issues that are emphasized during the data collection process. For instance, when using observations quantitative researchers may use rating scales or count frequencies whereas qualitative researchers may emphasize processes or interactions in

the setting. Similarly, quantitative surveys typically consist of structured questionnaires with embedded standardized scales, whereas qualitative surveys use open-ended questions (Weathington, Cunningham, & Pittenger, 2010). Given the differences in the type of data collected for quantitative versus qualitative research, mixed methods research emphasizes the collection of multiple forms of data, such as both numbers and words or images (Johnson & Christensen, 2007). In addition, there are specific decisions to be made at this stage, especially for concurrent studies, regarding whether the same types of questions or concepts will be used to collect data for both strands (Creswell & Plano Clark, 2011).

There are marked differences in the data analysis procedures for quantitative research and qualitative research. Quantitative data analysis seeks to quantify phenomena including identifying statistical relationships among variables, differences between groups, or change over time, whereas qualitative data analysis aims at making sense of the text by searching for themes and patterns in the data (Creswell, 2008; Johnson & Christensen, 2007). Methods of qualitative data analysis include thematic coding, grounded theory coding, and narrative analysis (Flick, 2009). On the other hand, quantitative data analysis methods can be categorized as descriptive and inferential statistics. Whereas descriptive statistics summarize how variables of interest are distributed in the sample by describing what the data show, inferential statistics are used to make conclusions about the data. Examples of descriptive statistics include frequencies, mean, median, and standard deviation, while statistical tests such as analysis of variance (ANOVA), chi-square, *t*-tests, Pearson's product moment correlation (*r*), and regression are examples of inferential statistics (Rubin & Babbie, 2008). Although mixed methods researchers continue to rely on the unique methods of quantitative or qualitative data analysis, they tend to use a variety of data analysis techniques from both forms of inquiry in a single study (Creswell & Plano Clark, 2011).

Having compared key characteristics of qualitative, quantitative, and mixed methods research, this section delves deeper into the process of doing mixed methods research. Prominent scholars in this form of inquiry have provided guidance on how to combine qualitative and quantitative methods (Cowger & Menon, 2001; Creswell & Plano Clark, 2007, 2011; Greene, 2007; Padgett, 1998, 2008). Foremost are the key decisions that researchers need to resolve prior to conducting a mixed methods study, and these are: (1) whether the quantitative and qualitative methods will be implemented at the same time (concurrent), in two distinct phases (sequential), or in three or more phases that combine concurrent and sequential elements (multiphase), (2) the relative weight of the two approaches, that is, whether there will be more emphasis on one method over the other or both methods will have equal weighting, and (3) when and how the quantitative and qualitative methods will be mixed (Creswell & Plano Clark, 2007, 2011). Determination of how and when mixing occurs is discussed in the remainder of this section.

Lodico, Spaulding, and Voegtle (2006) caution that "just adding a couple of open-ended questions to a quantitative measure does not constitute a true mixed-methods study" (p. 282). In order to clarify how and when mixing occurs, Creswell and Plano Clark (2011) envisage four possible points. It is worth noting that a study may have

primary and secondary points of mixing, and examples of primary points of mixing from the reviewed studies are included.

The first possible point of integration is *at the design level*, where the overall plan of the research involves embedding one approach within a design based on the other type. For instance, a qualitative technique can be embedded within an experimental design, as illustrated by Sanders and Roach (2007). In their evaluation of a family support services intervention, Sanders and Roach used a quantitative pre-test post-test non-equivalent groups design with embedded qualitative methods.

The second point of integration is *during data collection*, where results from one strand are used to shape the research questions, sampling, or data collection instruments for the other strand. For example, a researcher may start off with in-depth interviews and use the findings from this qualitative study to construct a survey instrument for use in the quantitative part, or conduct a survey and use the results to identify cases for follow-up, in-depth interviews. Varas-Díaz and Marzán-Rodríguez (2007) developed an instrument, Emotions Associated with AIDS Inventory, for use in the quantitative part of the study, drawing from the findings from in-depth interviews that had explored practitioner emotions associated with interacting with people living with HIV/AIDS. The third point of integration is *during data analysis*. At this stage results from a qualitative study can be transformed to numerical data and analyzed using quantitative methods, as demonstrated by Redman (2008) who used categories from qualitative findings as the dependent variables for quantitative data analysis.

The fourth point of integration is *during interpretation*, where the researcher merges the qualitative and quantitative strands by comparing or contrasting findings from the two data sets. While this is the only point of integration for researchers who use procedures with separate qualitative and quantitative strands, synthesizing what was learned from mixing the two methods in the discussion section is anticipated in mixed methods studies (Creswell & Plano Clark, 2011). For instance, McAuley, McCurry, Knapp, Beecham and Sleed (2006) discuss how the data from the two methods converged. On the other end, Nicotera (2008) discusses how mixed methods research aided in understanding differences between neighborhoods. It is important to note that merging findings at the interpretation stage can be challenging, as Padgett (2009) stated, "Perhaps the most daunting challenge is integrating findings from the two 'sides', especially, when the findings conflict" (p. 104).

Given the potential challenges associated with mixed methods research, what does mixed methods research add to social inquiry that qualitative or quantitative methods alone may not achieve? To answer this question, the value of mixed methods research is considered drawing from literature on the purposes or rationales that drive the use of mixed methods inquiry and mixed methods research designs. A useful framework for classifying the purposes of mixed methods research was devised by Greene, Caracelli, and Graham (1989) and also reported by Greene (2007). Table 1 summarizes the five main purposes of mixed methods research, highlighting their descriptions, goals, and benefits in a table format for comparison and clarification.

*Table 1. Purposes of Mixed Methods Research Adapted from Greene (2007) and Desimone (2009)*

| Purpose | Description | Goal | Benefit |
|---|---|---|---|
| Complementarity | Different methods are used for different facets of the same phenomena | Enrichment, elaboration, or clarification of results | Increases the depth and confidence in interpretation as results from one method clarify or illustrate results from the other method |
| Development | Involves the sequential use of different methods in the development of the study for sampling or instrumentation purposes | Use the results of one method to inform the other method | Takes advantage of inherent method strengths for better understanding; e.g., results from a questionnaire can be used to identify issues for in-depth study |
| Expansion | Different methods are used for different phenomena or questions | Expand the scope or breadth of a study | Enables study to answer more questions of interest |
| Initiation | Different methods are used for different facets of the same phenomena with the goal of identifying contradiction | Non-convergence of results | May lead to new questions or rephrasing of the problem or phenomena under study |
| Triangulation | Use of mixed methods to answer the same question | Correspondence of results across different methods | Enhanced validity of results as the combined methods offset biases of either a quantitative or qualitative only study |

Researchers may have multiple purposes for using mixed methods in a single study, such that there can be primary and secondary reasons for the choice of mixed methods (Bryman, 2006; Greene, 2007). A review of 232 mixed methods studies by Bryman (2006) using Greene and colleagues' framework established that complementarity and expansion and were the most frequently cited reasons accounting for 29% and 25% of the studies, respectively. It is important to note that following this review of 232 articles, Bryman developed an expanded classification of possible purposes of mixed methods research that can be a useful resource when planning a mixed methods study. Stating at least one reason for adopting mixed methods research is critical when planning and reporting a mixed methods research study (Creswell & Plano Clark, 2011), because, when the rationale is explicated, readers are presented with an opportunity to assess the value of combining quantitative and qualitative methods.

Apart from relying on the frameworks of Greene and colleagues (1989) or Bryman (2006) to identify the rationale for a mixed methods study, articulating the adopted mixed methods research design may point to the underlying primary purpose of a mixed methods study (Creswell & Plano Clark, 2011). For instance, Creswell and Plano Clark (2007) distinguished four main types of mixed methods research designs with associated rationales, and these are:

1. *Triangulation, Concurrent, or Parallel Design* which entails separate quantitative and qualitative data collection and analysis within the same timeframe, and merging of data during interpretation for various reasons that may include validating findings from one method, gaining a complete understanding of phenomenon under study, or confirming findings.

2. *Embedded Design,* a concurrent design where a qualitative part is embedded in a quantitative study, or vice versa, so that the findings of one part (e.g. qualitative) are used to support or explain findings from the other method. This can take the form of an experiment with embedded interviews or observations to understand the process or participant experiences. This design can be useful in research that seeks to develop or gain a complete understanding of interventions.

3. *Exploratory Sequential Design*, a sequential design in which a *qualitative* study conducted in the first phase informs a *quantitative* study conducted in the second phase. When using this design, qualitative findings can be used to guide the development of a quantitative instrument or theory development when hypotheses from qualitative findings are validated or tested using quantitative methods.

4. *Explanatory Sequential Design,* a sequential design in which a *quantitative* study conducted in the first phase informs a *qualitative* study conducted in the second phase. With this design, the results of the qualitative design can be used to explain quantitative findings, or quantitative findings can be used to guide sample selection for the qualitative part (Creswell & Plano Clark, 2007, 2011)

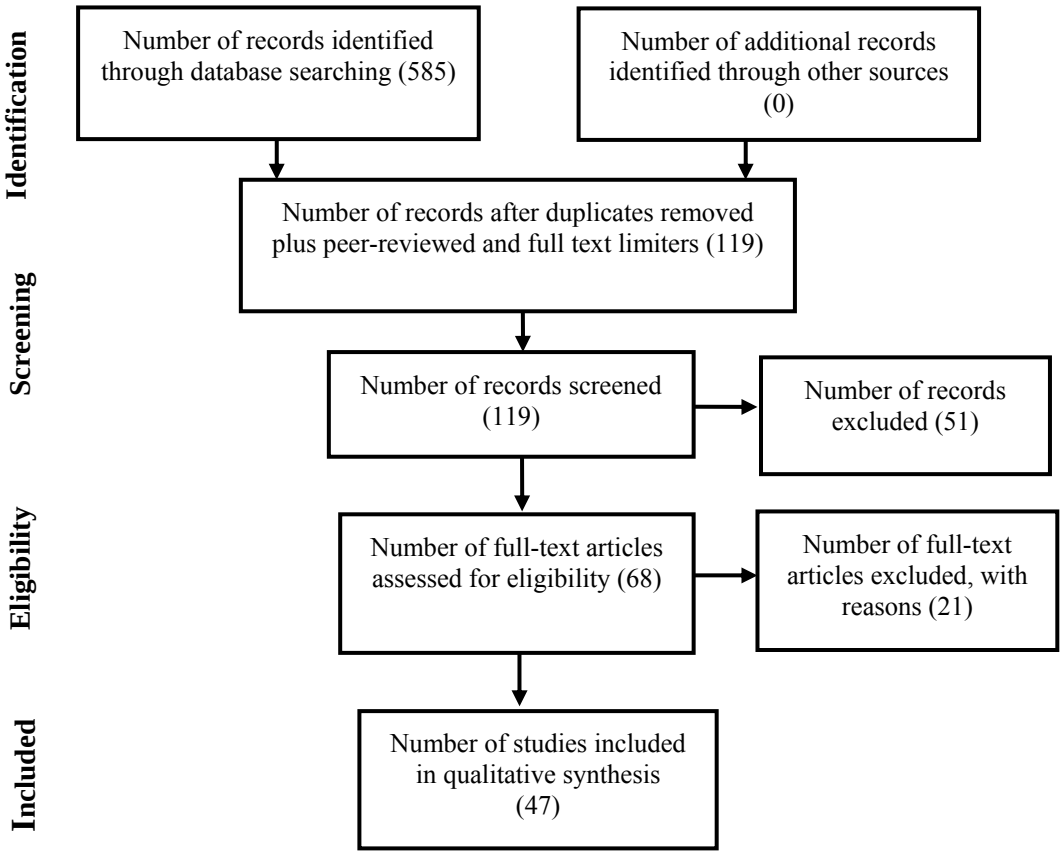
In sum, if researchers clearly define their mixed methods design and its associated primary purpose, the potential value of combining qualitative and quantitative methods is expressed in addition to enhancing the study's rigor and quality (Creswell & Plano Clark, 2011). Having highlighted the key characteristics of qualitative and quantitative research, the question of when and how mixing occurs, and the purposes of mixed methods research, the method and findings of the systematic review are presented next.

## Method

A systematic literature search in *Social Work Abstracts, PsycINFO, Academic Search Complete, MEDLINE, Family & Society Studies Worldwide, Sociological Collection, CINAHL, Family Studies Abstracts, and PsycARTICLES* was conducted to identify research articles that had used mixed methods research. The literature search was conducted in August 2010 using the EBSCOhost's advanced search option with "mixed methods" and "social work" as the search terms. The search yielded 585 articles published between 1995 and 2010. After the removal of duplicates and limiting the

search to peer reviewed and full text articles, the sample was reduced to 119. Abstracts were then reviewed to identify research studies that had combined qualitative and quantitative methods. Conceptual articles and literature reviews were excluded during this stage of the review leaving 68 full text articles that were further assessed for eligibility. During this stage, 21 articles were excluded. Figure 1 shows a PRISMA Statement flow diagram of the article selection process according to the guidelines by Moher, Liberati, Tetzlaff, Altman, and The PRISMA Group (2009).

*Figure 1: The Prisma Statement Illustrating the Flow of Information Through the Different Phases of the Systematic Review.*




Articles were included in the synthesis if the study procedures involved the use of both quantitative and qualitative techniques and demonstrated at least one point of integration either at the design level, during data collection or analysis, or interpretation in accordance with the classification by Creswell and Plano Clark (2011). In addition, the articles were reviewed for two other key mixed methods research features. First, the purpose of mixed methods research was evaluated using the framework by Greene and colleagues (1989) that identifies complementarity, triangulation, expansion, initiation, and development as the main purposes of mixed methods research. Second, the type of

mixed methods research was determined using the classification by Creswell and Plano Clark (2007) emphasizing four research designs, namely, triangulation/concurrent/ parallel design, embedded design, exploratory sequential design, and explanatory sequential design. Data were extracted using an adapted coding scheme informed by O'Cathain, Murphy, and Nicholl (2007). The coding form included the following categories, focus of study, purpose or rationale for mixing methods, type of mixed methods design, focus of the quantitative and qualitative parts, point where mixing occurred, qualitative methods of data collection and analysis, and quantitative methods of data collection. Table 2 summarizes the 47 articles that were synthesized in this literature review in line with the categories in the coding form.

After completing the literature review table, frequency counts were performed to establish the types and number of times specific qualitative and quantitative methods were used in the reviewed articles. In addition, drawing from the stated foci of the qualitative and quantitative parts, the researcher inferred elements that mixed methods research may add to social work. The study's main findings are presented next.

## Results

To understand where mixing occurred in the reviewed studies, analyses of the extracted data showed that the most frequently used point of integration was the interpretation stage, accounting for 62% (n = 33) of all the 53 points of integration represented in the articles. Integration at the design level accounted for 24% (n = 13) and data collection and data analysis stages accounted for 13% (n = 7) each. The other main findings of this review are organized according to: 1) common methods of qualitative and quantitative data collection, 2) common methods of qualitative and quantitative data analysis, and 3) key areas addressed by the qualitative and quantitative strands.

*Table 2. Published Social Work Journal Articles used in the Literature Review*

| Author | Focus of Study | Primary Purpose of Mixed Methods Research | Mixed Methods Research Design | Focus of Qualitative Part | Focus of Quantitative Part | Where Mixing Occurred | Qualitative Data Collection & Analysis Methods | Quantitative Data Collection & Analysis Methods |
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| Abel & Campbell (2009) | Assessment of teaching approaches | Triangulation | Triangulation | Students' perceptions | • Students Perceptions<br>•Differences in outcomes | Interpretation | Focus Groups<br><br>Open & Axial Coding | Survey<br><br>Descriptive and Inferential statistics<br>•Chi Square Test |
| Antle & Collins (2009) | Evaluation of a breast cancer support group | Complementarity | Embedded | Respondents' perspectives and experiences | •Measure key variables<br>•Examine variable relationships | Design level | Survey questionnaire with qualitative questions<br><br>Thematic analysis<br><br>Descriptive and inferential statistics- ANOVA and Pearson's *r* | |
| Ayón & Lee (2009) | Evaluation of a Neighborhood Leadership Program | Expansion | Explanatory | Participants' experiences on use of skills | Measure Leadership Skills and Knowledge | Design level | In-depth interviews<br><br>Open-coding | Survey<br><br>Descriptive and inferential statistics<br>• T-test |
| Beecher (2009a) | Influence of the medical model on treatment of individuals with schizophrenia | Complementarity | Triangulation | Practitioner views | Measure key variables | Interpretation | Web-based survey<br><br>Thematic analysis | Secondary data<br><br>Descriptive and inferential statistics<br>• ANOVA<br>• Kruskal Wallis |
| Beecher (2009b) | Practitioner views toward families and barriers to collaboration | Complementarity | Triangulation | Practitioner experiences & views | Examine variable relationships | Interpretation | Web- based survey<br><br>Thematic analysis | Survey<br><br>Descriptive and Inferential statistics<br>• ANOVA • *t*- test |

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| Bellamy et al. (2006) | Effects of group leadership on group functioning | Triangulation | Triangulation | Group activities and interactions | Exploration of differences | Data Analysis | Observations<br><br>Coding | Transformed qualitative codes<br><br>Descriptive and Inferential statistics<br>• *t*- test • Pearson's *r*<br>• Chi-Square |
| Berger, Otto-Salaj, Stoffel, Hernandez-Meier, & Gromoske (2009) | Barriers and facilitators of transferring motivational interviewing into practice | Expansion | Embedded | •Perceived barriers & facilitators<br>• Needs and expectations | Measure key variables | Design level | Focus groups<br><br>Grounded theory | Survey<br><br>Descriptive and Inferential statistics<br>• Pearson's *r* |
| Boateng (2009) | Social capital & Liberian refugee women's well-being | Triangulation | Triangulation | Participants' experiences & shared issues | Measure dimensions of social capital | Interpretation | ▪In-depth interviews<br>▪Focus groups<br>▪Photographs<br><br>Constant comparative analysis | Survey<br><br>Descriptive statistics |
| Bryan, Flaherty, & Saunders (2010) | Evaluation of Adoption Support for Kentucky Program | Development | Exploratory | Gather information to guide the development of a quantitative survey | • Examine survey instrument's measurement structure<br>• Describe program participants | Data collection | Focus groups<br><br>Open coding | Survey<br><br>Descriptive and Inferential statistics<br>• Cronbach's alpha<br>• ANOVA |
| Butler (2006) | Evaluation of the Senior Companion Program | Triangulation | Triangulation | Participants' experiences | Measure key constructs | Interpretation | Open-ended questions on questionnaire<br><br>Open coding<br><br>Descriptive and Inferential statistics<br>•Pearson's *r* •*t*-tests •chi-square | |

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| Campbell (2008) | Stakeholder experiences with compulsory admission to psychiatric hospitals, and the use of the Mental Health Review Tribunal (MHRT) in Northern Ireland | Triangulation | Triangulation | Views of a range of stakeholders e.g. clients and key informants | Describe experiences, knowledge and views on the adequacy of mental health law and policy, and the Tribunal system | Interpretation | •focus groups<br>•key informant interviews<br>•document analysis<br><br>Thematic Analysis | Survey<br><br>Descriptive Statistics |
| Carpenter, Barnes, Dickinson, & Wooff (2006) | Evaluation of a postgraduate program | Expansion | Embedded | Students' experiences and process of implementation | •Measure key outcomes<br>•Assess changes in students' perceptions of their knowledge and skills | Design level | Participant observation<br>Focus groups<br>Individual interviews<br><br>Thematic analysis | Survey<br><br>Descriptive and Inferential statistics<br>•ANOVA/ANCOVA<br>•t-tests<br>•Cronbach's alpha |
| Chan, Chi, Ching, & Lam (2010) | Student perceptions of learning | Complementarity | Embedded | Students' transactions | Student's ratings of the approach used to facilitate learning | Design Level<br><br>Interpretation | ▪Videotape recordings<br>▪Telephone interviews<br><br>Thematic analysis | Surveys<br><br>Descriptive statistics |
| Chan, Mok, Po-ying, & Man-chun (2009) | Evaluation of a teaching method | Complementarity | Embedded | Students' transactions | Measure effectiveness of approach | Design level | ▪Videotape recordings<br>Telephone interviews<br><br>Content analysis | Surveys<br><br>Descriptive statistics |
| Cheung (2008) | Resilience among older immigrant couples | Triangulation | Triangulation | Respondents' lived experiences | Measure key variables | Interpretation | In-depth Interviews<br>Narrative Analysis | Survey<br><br>Descriptive statistics |

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| Daftary (2009) | Factors that shape elected leaders' decision making | Complementarity | Triangulation | Explore process | Examine variable relationships | Interpretation | Ethnography<br><br>No specified method of data analysis | Survey<br>Descriptive and Inferential statistics<br><br>•Structural equation modeling |
| Fernandez (2008) | Outcomes of children in foster care | Complementarity | Embedded | Process of interactions | Evaluate outcomes | Design level | In-depth interviews<br><br>No specified method of data analysis | Survey<br><br>Descriptive and Inferential statistics<br>• Chi-Square<br>• *T*-test |
| Freedman (2009) | Examination of local food environments | Triangulation | Triangulation | Participants' perceptions | Identify the types of food stores and food items | Interpretation | In-depth Interviews<br><br>Thematic analysis | Food audit – Survey<br><br>Descriptive statistics |
| Gallagher, Malone, & Ladner (2009) | Teamwork among school psychologists, counselors, and social workers | Triangulation | Triangulation | Perceptions of the team process | Measure attitudes and perceptions about teamwork | Interpretation | Open-ended questions on survey<br><br>Content analysis<br>Survey<br><br>Descriptive and Inferential statistics<br>• Pearson's $r$ | |
| Gioia (2006) | Work delay in young adults with schizophrenia | Triangulation | Triangulation | Participants' experiences and meanings of work | Pre and post illness history | Interpretation | Semi-structured face to face interview<br>Descriptive statistics<br>(In-depth interview) Thematic analysis | |
| Gioia & Brekke (2003) | Knowledge and use of ADA provisions among people with schizophrenia | Triangulation | Triangulation | Participants' experiences and meanings of work | Pre and post illness history | Interpretation | Semi-structured face to face interview<br>Descriptive statistics<br>Thematic analysis | |
| Hernandez et al. (2009) | Provision of workplace accommodations | Complementarity | Triangulation | Employer perceptions on providing workplace accommoda-tions | Data on accommoda-tions | Interpretation | Focus group<br><br>Content analysis | Survey<br><br>Descriptive statistics |

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| Hodge & Boddie (2007) | Personal spiritual characteristics and understanding of religion | Complementarity | Triangulation | Participants' definitions of key variables | Measure key variables | Interpretation | Survey Instrument with structured & open ended questions<br><br>Thematic analysis<br><br>Descriptive statistics<br>Inferential – chi square, t- test, ANOVA | |
| Hodge & Limb (2009a) | Validation of an ecomap assessment tool for use with American Indians | Triangulation | Triangulation | Strengths and limitations of the concept and suggestions for improvement | Assess consistency of assessment tool | Interpretation | Questionnaire with structured & open ended questions<br><br>Constant Comparative Method<br><br>Descriptive and Inferential statistics – Pearson's *r*, *t*-test, ANOVA | |
| Hodge & Limb (2009b) | Validation of a spiritual assessment tool for use with American Indians | Triangulation | Triangulation | Strengths and limitations of the concept and suggestions for improvement | Assess consistency of assessment tool | Interpretation | Questionnaire with structured & open ended questions<br><br>Constant Comparative Method<br><br>Descriptive statistics and Inferential Pearson's *r* | |
| Hodge & Roby (2010) | Coping among women living with HIV/AIDS | Triangulation | Triangulation | Participants' coping strategies | ▪Measure perceptions on the usefulness of coping strategies<br>▪Examine variable relationships | Data analysis<br><br>Interpretation | Questionnaire with structured & open ended questions<br><br>Constant Comparative Method<br><br>Descriptive statistics<br>Inferential – chi-square, Pearson's *r*, *t*-test, ANOVA | |
| Huyck, Ayalon, & Yoda (2007) | Validation of assessment tool | Triangulation | Triangulation | Participants' experiences | Assess changes in outcome over time | Design level<br><br>Interpretation | In-depth interviews<br><br>Observations<br><br>Grounded theory | Survey<br><br>Descriptive and Inferential statistics<br>▪Cronbach's Alpha |

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| Lee, H. & Eaton (2009) | Older adult Korean immigrants' perceptions & response to financial abuse | Triangulation | Triangulation | Perceptions and responses to a financial abuse case vignette | Measure key variables | Interpretation | In-depth interviews<br><br>Grounded theory | Survey<br>Descriptive and inferential statistics<br>▪Logistic Regression |
| Lee, S. et al. (2008) | HIV vaccine acceptability among ethnically diverse persons | Complementarity | Triangulation | Social issues, concerns, barriers and motivators of HIV vaccine acceptability | Measure consumer preferences | Interpretation | Focus Group<br><br>Thematic analysis | Conjoint analysis<br><br>Descriptive and inferential statistics<br>▪ *t*-test<br>▪ANOVA |
| Leslie, Weckerly, Plemmons, Landsverk, & Eastman (2004) | Evaluation of a project protocol | Triangulation | Triangulation | Experiences of stakeholders | Measure key variables | Interpretation | Interviews<br><br>Thematic analyses | Survey<br>Descriptive and inferential statistics<br>▪T-test<br>▪Chi-Square |
| Maiter (2004) | Cultural sensitivity and cultural competence in child protection | Triangulation | Triangulation | Perceptions of parents and child welfare workers | Examine differences in responses between parents and child welfare professionals | Interpretation | Survey- Instrument with structured & open ended questions<br><br>Content analysis<br><br>Descriptive statistics<br>Inferential – Mann-Whitney U | |
| McAuley, McCurry, Knapp, Beecham, & Sleed (2006) | Evaluation of a family support program | Triangulation | Triangulation | ▪Participants' experiences with parenting stress<br>▪Perceptions of services | Assess maternal and child wellbeing | Design level<br><br>Interpretation | In-depth Interviews<br><br>No specified method of data analysis | Survey<br><br>Descriptive and Inferential Statistics<br>▪ ANOVA |
| McCarter (2009) | Minority overrepresentation in the juvenile justice system | Triangulation | Triangulation | Participants' perceptions | Examine variable relationships | Interpretation | In-depth Interviews<br><br>Coding | Secondary Data Analysis<br><br>Descriptive and Inferential Statistics<br>▪ Logistic regression |

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| Nicotera (2008) | Measurement of the concept of neighborhood | Triangulation | Triangulation | Children's descriptions of their neighborhoods and neighboring experiences | Measure neighborhood characteristics | Data Analysis<br><br>Interpretation | Document Analysis<br><br>Content Analysis<br><br>Constant Comparative | Secondary Data<br><br>Transformed qualitative data<br><br>Descriptive Statistics<br>Inferential Statistics<br>Chi- Square |
| Park, Knapp, Shin, & Kinslow (2009) | Social engagement experiences of older men in assisted living facilities | Purpose not Stated | Explanatory | Participants' social engagement experiences | Measure well-being & social engagement variables | Data collection | In-depth interviews<br>Coding | Survey<br><br>Descriptive Statistics<br>Inferential Statistics<br>Chi- Square<br>T-tests |
| Rakfeldt (2005) | Evaluation of dialectical behavior therapy | Purpose not Stated | Embedded | Participants' experiences and interactions | Measure outcomes | Design level | In-depth Interviews<br>Focus Groups | Survey<br><br>Descriptive Statistics<br>Inferential Statistics<br>Chi- Square<br>T-tests |
| Redman (2008) | Coping-related motives for substance use | Triangulation | Triangulation | Respondents' meanings & motives | Examine variable relationships | Data analysis | Survey with open-ended and closed questions<br><br>▪ Grounded theory for qualitative data<br><br>▪ Descriptive and Inferential Statistics<br>▪ Discriminant Analysis | |
| Redmond, Guerin, & Devitt (2008) | Attitudes of social work students | Expansion | Triangulation | Participants' future plans | Measure variables | Interpretation | Survey with open-ended and closed questions<br>Focus group for qualitative data collection<br><br>▪ Content Analysis for qualitative data<br><br>▪ Descriptive and Inferential Statistics<br>▪ Friedman's Analysis of Variance | |

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|---|---|---|---|---|---|---|---|---|
| Sanders, R., & Roach (2007) | Evaluation of family support services | Triangulation | Embedded | Family views and service expectations | Measure outcomes and change after intervention | ▪ Design level<br>▪ Interpretation | In-depth interviews<br>▪ No specified method of qualitative data analysis | Survey<br><br>Descriptive and Inferential statistics<br>▪ *T*-test |
| Sanders, S., Ott, Kelber, & Noonan (2008) | Grief reactions | Triangulation | Triangulation | Lived experiences | Measure grief levels | Interpretation | In-depth Interviews<br><br>Coding | Survey<br>Descriptive and Inferential Statistics<br>▪ *T*-tests<br>Chi-square |
| Smith & Roberts (2009) | Young parents' antenatal & postnatal needs | Triangulation | Triangulation | Add detail and context to survey findings | Measure variables | Interpretation | Focus Group<br><br>Thematic analysis | Survey<br><br>Descriptive and Inferential Statistics<br>▪ Chi-square (Fishers' Exact Test) |
| Tolmie et al. (2009) | Needs of older people in cardiac rehabilitation | Triangulation | Triangulation | Participants' experiences | Measure key study variables | Interpretation | In-depth interviews<br><br>Framework Analysis | Surveys<br><br>Descriptive and Inferential Statistics<br>▪ Kruskal-Wallis<br>▪ One Way ANOVA<br>▪ Mann-Whitney U |
| Varas-Díaz & Marzán-Rodríguez (2007) | Role of Emotions in HIV/AIDS Stigmatization | Development | Exploratory | Perceptions of people living with HIV/AIDS and associated emotions | ▪Measure the different emotions<br>▪Examine differences | Data collection | In-depth Interviews<br><br>Thematic analysis | Survey<br><br>Descriptive and Inferential Statistics<br>▪ *t*-tests |
| Waldrop (2007) | Caregiver grief | Triangulation | Embedded | Participants' experiences | Measure dimensions of distress | Design level | Survey with open-ended and closed questions<br><br>▪ Open and axial coding of qualitative data<br><br>▪ Descriptive and Inferential Statistics<br>▪ *t*-tests | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Yamatani, Engel, & Spjeldnes (2009) | Caseload standards for child welfare workers | Triangulation | Triangulation | Examine caseload service tasks in their context | Classify & record case management tasks | Interpretation | Focus Group<br><br>No specified method of data analysis) | Direct Observation<br>Document Review<br><br>Descriptive statistics |
| Yoo (2003) | Organizational characteristics and client outcomes | Expansion | Triangulation | Perceptions of the organization | Measure key outcomes e.g. job satisfaction | Interpretation | In-depth interviews<br><br>Grounded theory | Document Review<br>Survey<br><br>Descriptive Statistics and Inferential<br>▪ T-test |
| Yoon (2009) | Role of leadership, community cohesion and mental health in community rebuilding after a flood | Complementarity | Embedded | ▪ Views on elected leadership<br>▪ Identify community assets<br>▪Check convergent validity of data from surveys | Measure outcomes and examine variable relationships | Design level | ▪In-depth Interviews<br>▪Document review<br><br>No specified method of qualitative data analysis | Survey<br><br>Descriptive and Inferential Statistics<br>▪ Spearman's correlation |

### Common Methods of Qualitative and Quantitative Data Collection

Table 3 presents all the methods of qualitative and quantitative data collection used in the reviewed articles. In-depth interviews were the most common qualitative data collection method, accounting for 41% of all the qualitative techniques reported in the articles, whereas surveys represented 55% of all the quantitative data collection techniques.

*Table 3. Methods of Qualitative and Quantitative Data Collection*

| **Qualitative** | | **Quantitative** | |
|---|---|---|---|
| **Type** | **Count (%)** | **Type** | **Count (%)** |
| In-depth Interviews | 21 (41) | Surveys | 30 (55) |
| Focus Groups | 13 (25) | Close-ended Questions in Questionnaire | 12 (22) |
| Open-ended Questions in Questionnaire | 12 (24) | Observations with Rating Scale | 4 (7) |
| | | Secondary Data | 3 (5) |
| Document Review | 3 (6) | Document Review | 2 (4) |
| Web-based Survey | 2 (4) | Transformed Data | 2(4) |
| | | Conjoint Analysis | 1(2) |
| **Total** | **51** | | **54** |

### Common Methods of Quantitative and Qualitative Data Analysis

Table 4 shows all the qualitative and quantitative data analysis methods employed in the reviewed articles. Thematic analysis accounted for 29% of all the qualitative data analysis techniques and *t*-test represented 30% of all the quantitative data analysis methods. Whereas all the quantitative data analysis techniques were elaborated, 12% of the qualitative data analysis techniques were not specified.

### Key Areas Addressed by the Qualitative and Quantitative Strands

The key areas addressed by the qualitative and quantitative strands in the reviewed articles are summarized in Table 5. Drawing from Table 5 three elements that mixed methods research adds to social work were categorized. First, mixed methods research adds voices of study participants to social work research. Understanding participants' experiences and views constituted 68% of the stated foci of the qualitative strand in the mixed method studies. The need to understand and incorporate client views and perspectives is central to social work practice and research because it is the means through which social workers are equipped to become the voice for their respective clientele (Fernandez, 2008).

*Table 4. Methods of Qualitative and Quantitative Data Analysis*

| Qualitative | | Quantitative | |
|---|---|---|---|
| **Type** | **Count (%)** | **Type** | **Count (%)** |
| Thematic Analysis | 14 (29) | *t*-test | 18 (30) |
| Open Coding | 10 (21) | Chi-Square | 12 (19) |
| Content Analysis | 6 (12) | ANOVA | 11 (20) |
| Constant Comparative Method | 6 (12) | Pearson's *r* | 7 (12) |
| Not specified | 6 (12) | Cronbach's alpha | 3(5) |
| Grounded Theory | 5 (10) | Logistic Regression | 2 (3) |
| Framework Analysis | 1(2) | Mann-Whitney U | 2 (3) |
| | | Discriminant Analysis | 1(2) |
| | | Friedman's Analysis of Variance | 1(2) |
| | | Spearman's Correlation | 1(2) |
| | | Structural Equation Modeling | 1(2) |
| **Total** | **48** | | **59** |

*Table 5. Focus of Qualitative and Quantitative Parts*

| **Focus of Qualitative Part** | **Number (%)** | **Focus of Quantitative Part** | **Number (%)** |
|---|---|---|---|
| Participants' Experiences | 20 (39) | Measure/Describe key constructs | 38 (69) |
| Participants' Views/Perspectives e.g. with program or intervention | 15 (29) | Examine variable relationships | 7 (13) |
| Examine Process e.g. caseload service tasks in their naturalistic setting, interactions between case workers and clients | 7 (16) | Examine differences | 7 (13) |
| Validity Issues e.g. check convergent validity | 7 (14) | Validate Instrument Structure | 3 (5) |
| Instrument Development | 1 (2) | | |
| **Total** | **50** | | **55** |

Second, mixed methods research allows for comprehensive analyses of phenomena. Central to this category is the realization that a single phenomenon can be best understood from different angles, such as perceptions held by the participants, underlying factors or process as well as the measurable or quantifiable trends and outcomes. To this end the foci of the reviewed studies illustrated these aspects with 29% of the focus areas related to capturing participants' views/perspectives, 16% examining processes, 69% measuring or describing key constructs, and 13% examining variable relationships. For instance, in his study of the factors associated with community rebuilding after a flood, Yoon (2009) used quantitative methods to examine relationships between various outcomes, whereas qualitative methods were used to gather views about elected leadership from diverse informants and to understand other important community assets. After data analyses, Yoon found that while elected leaders' ability to mobilize resources was significantly related to financial recovery, this specific community's symbolic meaning as the first town chartered by African Americans in the United States was also an important asset in the rebuilding process. Thus, the ability to simultaneously measure outcomes and capture the context, processes, and participants' views enable mixed methods research to achieve a more holistic analysis of phenomena.

Third, mixed methods research enhances the validity of findings. A basic foundation of mixed methods research is the notion of triangulation whereby "two or more methods that have offsetting biases are… intentionally used to assess the same conceptual phenomenon" (Greene et al., 1989, p. 256). In addition, "triangulation of methods can provide opportunities for testing alternative interpretations," such as the influence of context on the observed results (Polit & Beck, 2007, p. 310). Validation of instrument structure accounted for 5% of all the quantitative strand foci whereas efforts to enhance validity, such as by checking for convergent validity, represented 14% of the qualitative strand foci. For example, in their study of well-being of mothers with families under stress, McAuley and colleagues (2006) used quantitative methods to assess the levels of parenting stress and depression among the mothers and qualitative methods to gather their experiences with parenting stress. After analyzing the quantitative data, these authors found that the mothers had high levels of parenting stress and depression, results which were supported by the symptoms reported by the mothers in the qualitative interviews. Validity is enhanced when comparisons of results obtained across the quantitative and qualitative methods and data support each other (Greene et al., 1989).

## Discussion and Social Work Implications

To build our knowledge on the current state of mixed methods research in social work, this literature review examined the common quantitative and qualitative methods used by social work researchers and inferred the value of mixed methods research for social work based on the foci of the qualitative and quantitative strands. Similar to reviews in other disciplines, surveys and interviews were the most common methods of quantitative and qualitative data collection, respectively (Bryman, 2006; O'Cathain et al., 2007). The dominance of in-depth interviews is acceptable because in-depth interviews facilitate access into participants' cultures and perspectives, and shift authority away from the researcher to the participants (Goodman, 2001). The recognition of document

review as a method of gathering both qualitative and quantitative data is a positive development that may allow increased use of existing agency data by social work researchers, and thereby promote collaboration with social work practitioners.

Thematic analysis and *t*-tests were the most common methods of qualitative and quantitative data analysis, respectively. Of particular concern 6 out of the 52 (12%) qualitative data analysis techniques used in the reviewed articles were not specified. This finding raises questions regarding the incorporation of qualitative research procedures. Failure to elaborate on the qualitative data analysis methods may indicate possible difficulties in ensuring an acceptable balance to the integration of the quantitative and qualitative techniques. Cognizant of the challenges associated with achieving competency in both qualitative and quantitative research, the promotion of team work when conducting mixed methods studies is encouraged (Padgett, 2009; Plano Clark, Huddleston-Casas, Churchill, O'Neil Green, & Garrett, 2008). In addition, explicit teaching of mixed methods research in social work is warranted to familiarize social workers with mixed methods research terminology and procedures.

The studies reviewed demonstrate that there are added advantages in using mixed methods research in social work. By allowing comprehensive analyses of phenomena mixed methods research echoes principles of social work practice that require social workers to "study things holistically, in context, and from more than one frame of reference" (Cowger & Menon, 2001, p. 477). Given that social workers represent vulnerable populations, capturing the voices of our client groups may be integral to their emancipation and empowerment (Fernandez, 2008; O'Cathain et al., 2007). For these reasons, the teaching and use of mixed methods research remain integral to social work.

This article would not be complete without an acknowledgment of the limitations of this study. First, the reviewed articles do not represent a comprehensive list of all possible mixed methods articles in social work. Second, the researcher's subjective judgment influenced the review process and understanding of the reviewed articles. Despite these limitations, this study represents a preliminary attempt to systematically review the use and value of mixed methods research in published social work articles. Most important, it provides social work researchers with examples of published mixed methods studies and advances our understanding of the value of mixed methods research in social work.

## Conclusion

This literature review examined the common quantitative and qualitative methods in published social work articles and what mixed methods research may add to social work. Mixed methods research's ability to simultaneously capture measurable outcomes, context, participants' voices, and process underscores its value to social work research. Giving voice to study participants and allowing for a holistic analysis of complex social problems may advance the development of useful knowledge and provide a richer understanding of the populations that we serve. Even though the idea of mixing qualitative and quantitative methods is not new to social work practice, there is need for more research to understand how mixed methods research is taught and embraced in

social work. Social work educators and researchers may play a pivotal role in ensuring adequate training to conduct, consume, and assess mixed methods research.

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