CUISR:

Community – University Institute for Social Research

A Mixed Method Approach to Quality of Life in Saskatoon

by Heather Dunning

Building Healthy Sustainable Communities

Community-University Institute for Social Research

CUISR is a partnership between a set of community-based organizations (including Saskatoon District Health, the City of Saskatoon, Quint Development Corporation, the Saskatoon Regional Intersectoral Committee on Human Services) and a large number of faculty and graduate students from the University of Saskatchewan. CUISR's mission is "to serve as a focal point for community-based research and to integrate the various social research needs and experiential knowledge of the community-based organizations with the technical expertise available at the University. It promotes, undertakes, and critically evaluates applied social research for community-based organizations, and serves as a data clearinghouse for applied and community-based social research. The overall goal of CUISR is to build the capacity of researchers, community-based organizations and citizenry to enhance community quality of life."

This mission is reflected in the following objectives: (1) to build capacity within CBOs to conduct their own applied social research and write grant proposals; (2) to serve as a conduit for the transfer of experientially-based knowledge from the community to the University classroom, and transfer technical expertise from the University to the community and CBOs; (3) to provide CBOs with assistance in the areas of survey sample design, estimation and data analysis, or, where necessary, to undertake survey research that is timely, accurate and reliable; (4) to serve as a central clearinghouse, or data warehouse, for community-based and applied social research findings; and (5) to allow members of the University and CBOs to access a broad range of data over a long time period.

As a starting point, CUISR has established three focused research modules in the areas of Community Health Determinants and Health Policy, Community Economic Development, and Quality of Life Indicators. The three-pronged research thrust underlying the proposed Institute is, in operational terms, highly integrated. The central questions in the three modules—community quality of life, health, and economy—are so interdependent that many of the projects and partners already span and work in more than one module. All of this research is focused on creating and maintaining healthy, sustainable communities.

Research is the driving force that cements the partnership between universities, CBOs, and government in acquiring, transferring, and applying knowledge in the form of policy and programs. Researchers within each of the modules examine these dimensions from their particular perspective, and the results are integrated at the level of the Institute, thus providing a rich, multi-faceted analysis of the common social and economic issues. The integrated results are then communicated to the Community and the University in a number of ways to ensure that research makes a difference in the development of services, implementation of policy, and lives of the people of Saskatoon and Saskatchewan.

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Abstract

Increased use of both qualitative and quantitative methods in quality of life projects and a lack of discussion specific to operationalizing the mixed method's twin goals of confirmation and comprehension have necessitated an examination of how to effectively work within a mixed method framework.

The Community-University Institute for Social Research (CUISR) conducted a quality of life study in Saskatoon, Saskatchewan in 2000/2001. Data was collected via a telephone survey, focus groups, and face-to-face interviews. Using both qualitative and quantitative data from the CUISR Quality of Life Project, the goal of this research was to create a mixed method strategy for quality of life research by explicitly operationalizing confirmation and comprehension.

To accomplish this goal, four questions common to both the face-to-face interview (qualitative) and telephone survey (quantitative) from the Project were used as "case questions." Specifically, the research objectives were to operationalize the two goals of mixed method research and, from this, develop a strategy for using mixed methods in quality of life research. Despite similar questions asked in the interview and telephone survey, it proved to be very difficult to confirm the results of either method. Comprehension also proved challenging to operationalize and was therefore defined as a process. The resulting strategy is offered as a dynamic, rather than definitive structure.

This report is intended to provide an overview of my two-year thesis research, funded under CUISR's Quality of Life module. The full results are presented in my thesis, which can be obtained by contacting CUISR or the Department of Geography at the University of Saskatchewan, or by consulting the University of Saskatchewan Library.

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Introduction to the Concept of Quality of Life

> "Saskatoon is more a community than just a place to live."
>
> - Interview participant, Low SES, P20[1]

> "In practice, … professional research findings must be validated by ordinary knowledge before they are accepted and used. … Quality of life is a prime example of ordinary knowledge."
>
> - (Lindblom and Cohen, 1979, quoted in Myers, 1988: 352)

According to Lui (1976: 10), "there are as many quality of life definitions as there are people." Disciplines such as psychology, sociology, and nursing science all have discipline-specific definitions, and geography is no exception. The concept of "quality of life" can also be classified under many different terms, ranging from "well-being," "life quality," "healthy cities indicators," and "sustainability indicators." This can complicate the understanding and application of quality of life concepts. For the purposes of the thesis, Myers' (1987: 108) geographical definition was used: "the shared characteristics residents experience in places (for example, air and water quality, traffic, or recreational opportunities) and the subjective evaluations residents make of those conditions."

[1]SES=socioeconomic status; P=interview participant number.

If the concept of quality of life is difficult to define, assess, and weave into policy activities at the national or neighbourhood level, why study it at all? Myers (1988: 347) has stated that, "[t]he notorious ambiguity of the concept [quality of life], its blatant political use, and the technical complexity of scientific research on the topic, all may have dissuaded professional planners from addressing it."

However, researchers have recently come to believe that quality of life indicators should be neither a substitute for action nor expected to single-handedly bring about change (Besleme, 1997). Indicators can be important for: reflecting trends in a community over time; acting as an information base for larger policies (Besleme, 1997); enriching the goal-setting processes (Myers, 1988); and helping to examine the relationship between social and environmental indicators (adapted from Bates, Murdie, and Rhyne, 1996a).

Despite the issues noted above, Canadian cities are becoming increasingly interested in measuring quality of life for a variety of reasons (e.g. Hamilton-Wentworth, Toronto, Winnipeg). While quality of life can be difficult to define and assess, academics, governments, and communities recognize that pursuing quality of life research is a worthwhile undertaking.

Until recently, quality of life has mainly been measured quantitatively, through the use of surveys and secondary data sources (e.g. census data). The rise of community participation in quality of life projects has increased the use of alternate quantitative (e.g. telephone surveys) and qualitative (e.g. interviews) methods. Using more than one method of analysis is referred to as a "mixed method" approach (or sometimes termed "methodological triangulation"). Various disciplines (e.g. psychology, health sciences) have placed increased importance on using a mixed method approach (Thurmond, 2001; Goldberg et al, 1999). The two main goals of employing a mixed method approach are to confirm the results of either method and/or to gain a more comprehensive understanding of the phenomena under study. For example, comparing results from a mail-out questionnaire to responses from in-depth interviews (i.e. using quantitative and qualitative methods) may serve to confirm or disconfirm the results of either method. Uncovering and understanding the similarities and discrepancies between quantitative and qualitative results may lead to more focused public debate and policy directions.

Introduction to the Thesis Research

The CUISR Saskatoon Quality of Life Project (2001): Background

In 2000/2001, the Community-University Institute for Social Research (CUISR) conducted a quality of life study in Saskatoon, Saskatchewan. Working in partnership with the community, the CUISR Quality of Life Project focused on identifying quality of life

indicators and, more importantly, sought to determine how these indicators could help effect meaningful change at the community and government levels for improving quality of life (CUISR, 2001a). The study was comprised of three data collection phases. A random telephone survey was conducted in Phase I (December 2000 to January 2001), and nine focus groups and 90 face-to-face interviews were held in Phases II (February 2001) and III (Spring 2001), respectively. The focus groups were made up of residents not easily reached by telephone (such as the underemployed, youth, and seniors). The face-to-face interviews were conducted with a random sub-sample of those who participated in the telephone interview and were selected to represent the three neighbourhood types in Saskatoon, classified as Low, Middle, or High socioeconomic status (SES) neighbourhoods.

I had some familiarity with the initial CUISR Saskatoon Quality of Life Project, analyzing focus group data and conducting a preliminary analysis of the face-to-face interviews as a research intern in summer 2001. The results of these analyses were incorporated into a briefing paper prepared for a Public Policy Forum held in Saskatoon entitled, "Building a Caring Community: Quality of Life in Saskatoon" (CUISR, 2001b). The briefing paper highlighted the telephone survey and interviews and provided a sample of the policy landscape.

Significance of Research

There are two main problems in quality of life research. First, with an increase in quality of life projects that use more than one method to gather qualitative and quantitative data, there is little quality of life research to guide the design, analysis, and relationship between methods (Perlesz and Lindsay, 2003; Andrews, 2001; Deacon, Bryman, and Fenton, 1998; Shih, 1998). For example, how should interview and survey results be organized? Should interview results be relegated simply to support the quantitative data, acting as vignettes? What happens when qualitative and quantitative data contradict each other?

The mixed method literature does not outline specific steps for formally integrating or comparing results from two different methods. Despite this hurdle, using a mixed method approach for confirmation and comprehension of results is still considered a beneficial component to any study (Thurmond, 2001; Sporton, 1999). However, few quality of life studies have formally examined the issues of assessing qualitative and quantitative results derived from a single study (Andrews, 2001).

The second problem encountered in quality of life studies is the tendency to use data from different geographic scales, sources, and time periods (e.g. combining 1996 Census data with 1998 Saskatchewan Health data). These two problems, methodological and geographical, have the potential to weaken the understanding or validity of quality of life results and have yet to be fully addressed. This research will address these two problems by using qualitative and quantitative data from a common data source.

Research Question, Objectives, and Methodology

This study's goal was to examine how to effectively employ a mixed method framework in a quality of life study. Two objectives were used to accomplish this goal. First, four common questions from CUISR's Saskatoon Quality of Life telephone survey (quantitative) and face-to-face interviews (qualitative) were used as "case questions" to operationalize the two goals of mixed method research, confirmation and comprehension. The results from the first objective fed into the second, that of developing a research approach for applying mixed methods in quality of life research. The intended outcome is to benefit Saskatoon residents by creating more meaningful project results and focused policy discussions.

For the mixed method goal of confirmation, the interview transcripts were coded for response frequency and then statistically compared to the telephone survey results using a chi-square analysis. This was done to determine whether there was indeed a difference in how these two groups responded to each of the four case questions. For the goal of comprehension, the interview transcripts were coded for themes that arose from the four case questions using a grounded theory approach. This was done to provide better comprehension of both the survey and interview results and to explain discrepancies and/or similarities (as determined by the confirmation exercise) between the two.

The results of operationalizing the mixed method goals of confirmation and comprehension were then used to inform the second objective of developing a research approach for applying mixed methods in quality of life research.

Quality of Life Literature Review

Prior to the 1970s, traditional objective indicators (e.g. crime or income levels) were accepted as suitable predictors of human behaviour (Day and Weitz, 1977). However, in the early 1970's, social scientists concluded that quality of life was more than a city's financial position or a country's Gross Domestic Product (Miringoff, 1996; Pacione, 1982). Factors such as tenure type, number of doctors, and parks and green space were recognized as contributing to quality of life (CUISR, 2001a; Rogerson et al, 1989, Pacione, 1986).

By the late 1970s and into the 1980s, there was a marked shift in how quality of life was defined and measured. Subjective measures were used to mediate the weaknesses associated with using objective indicators to measure quality of life (Abrahms, 1977). The definition of quality of life became more holistic, covering environmental, social, economic, and political spheres of life. However, quality of life was still measured quantitatively, such as through the creation of quality of life indexes and models where a single number would represent the level of quality of life.

Further into the 1980s, the focus of quality of life studies turned to the city level (as opposed to the state/provincial or regional level) and non-traditional data sources were utilized, such as those from city administrative departments and health departments. It was soon apparent that the quality of life of a city's "sub-areas" (i.e. neighbourhoods) could be studied alongside the city's quality of life as a whole (Sawicki and Flynn, 1996).

There is currently a shift away from trying to quantitatively create a single-numbered index for quality of life. For quality of life projects to be relevant to citizens, community participation in the project is now regarded as crucial. There are now many different methods for tapping into community quality of life such as mail-out surveys, face-to-face interviews, and community forums. With a proliferation of methodologies, the issue of data interpretation becomes apparent.

Quantitative Quality of Life Studies

One example of a quantitative quality of life project is CMHC's "Community Model of the Lived Environment" (COMLE) (Sherwood, 1996). This pilot project was initiated in 1996, and used as participants the residents of Toronto, Quebec City, and Fort McMurray, Alberta. The COMLE model attempted to measure quality of life objectively, while also acknowledging that quality of life is ultimately subjective. At the end of the pilot project, the City of Fort McMurray offered some revealing comments both about gathering quality of life information and implementing the COMLE model. In its conclusions, the City stated that, "at the smaller municipal level, [decisions are] made more on the basis of a 'feel' for the community as opposed to the analysis of statistical information" (Sherwood, 1996: C-5). CMHC's pilot project demonstrated that using more than one method of assessing quality of life in a community could be very rewarding in certain contexts.

A second example, the Federation of Canadian Municipalities (FCM), developed the Quality of Life Reporting System (QOLRS) (which is also a part of Environment Canada and Canada Mortgage and Housing Corporation's (CMHC) "Sustainable Community Indicators Program") to monitor the social, economic, and environmental health of communities. FCM produced two quality of life reports (FCM, 1999, 2001) with the goal of "improving the quality of life in all communities by promoting strong, effective and accountable municipal governments" (FCM , 2001: 1).

There are other existing quantitative indices that measure related quality of life aspects. There are a number of "well-being" indices, for example, that measure how well a nation or region is faring economically or socially. The Genuine Progress Indicator (GPI), the Economic Well-being Index, and the Index of Social Health are all examples of alternate quality of life indices (Sharpe, 1999).

Qualitative Quality of Life Studies

Few quality of life studies have taken a purely qualitative approach to examining urban quality of life. A study conducted in the Toronto neighbourhoods of Lawrence Heights

and Riverdale in 1997 is one exception (Raphael, Steinmetz, and Renwick, 1998a, 1998b). According to its research team, the subjective nature of quality of life perceptions precluded them from using a quantitative approach. Interviewing residents was the only method used to gather data and determine what was important to their quality of life. A community report was produced for each neighbourhood based on those interviews.

Mixed Method Quality of Life Studies

The City of Hamilton, in conjunction with the non-profit group Vision 2020, began an on-going quality of life project in 1999 (Vision 2020, 1999). The overall aim of the indicator project is to monitor change in fourteen theme areas. Data for the indicators are gathered indirectly from many secondary sources, such as Census Canada and health and education records.

Over one hundred people from community organizations and different sectors of the community came together to choose the initial indicators for inclusion in the survey. After the first report was released in 1999, feedback was solicited from fourteen task forces (corresponding to each theme area in the report) and the general public. It should be noted that community consultations were only used to pick indicators from secondary sources for the survey. The project used public input through community forums, but only in the pre- and post-report phases, not during analysis. While still an important exercise, community members were relegated to "assessing" the quantitative assessment of Hamilton's sustainability.

The Sustainable Calgary project was started by a group of concerned citizens in 1996 as an on-going project (Sustainable Calgary, 2001). Over 2000 people participated in six "indicator think tank" sessions to come up with the initial indicators. Like the Hamilton project, Sustainable Calgary also made presentations of the first report to the community for feedback on the results and suggestions for additional indicators.

After their analysis, Sustainable Calgary prioritized four theme areas, including creating a sense of community assessment tool and supporting and promoting a culture of simplicity. It is important to note these two priority theme areas because they are quite hard to measure quantitatively. How, for example, would a massive shift in people's views of private and public lifestyles be measured quantitatively?

Summary

Until recently, researchers have not considered *how* quality of life is investigated. While there are many examples of how quality of life is measured quantitatively (e.g. weighting variables) (Rogerson et al, 1989), quality of life research lacks a systematic means for examining alternate methods, such as using a qualitative or a mixed method approach. The lack of such a methodological discussion in the academic literature, however, has not stopped community projects from using both methods.

Mixed Methods Literature Review

The never-ending research on examining quality of life solely through quantitative methods is surprising given the complex nature of quality of life. There is a notable lack of published discussion on the use of mixed methods in geography, especially quality of life work.

Qualitative and Quantitative Defined?

The differences between qualitative and quantitative research are usually presented as two different ways of viewing and measuring/assessing reality, often termed a "dualism." According to Winchester (2000: 3), qualitative research is "concerned with elucidating human environments and human experiences within a variety of conceptual frameworks." Specific qualitative methods can include case studies, participant observation, interviews, and interpretive analysis. Taylor (2000: 69) defines quantitative research as making "valid and objective descriptions of phenomena [and] to discover principles and laws which can be generated to the larger population." Quantitative methods can include surveys, statistical tests, and controlled experiments.

Many researchers consider this apparent dualism between qualitative and quantitative research approaches to be artificial (e.g. Tashakkori and Teddlie, 2003; Bryman, 2001). The main debate revolves around the philosophical assumptions attached to qualitative and quantitative research.

Mixed Methods

A mixed method approach was originally an outgrowth of the "triangulation of methods" movement. The main goal of triangulation is to confirm a study's result(s) by using qualitative and quantitative methods. A mixed method approach now goes beyond the initial purposes of triangulation (confirmation of results), using it to gain a better understanding (comprehension) of results, discover new perspectives, or develop new measurement tools (Greene et al, 1989 in Tashakkori and Teddlie, 1998: 43).

In general, there are two broad goals for using mixed methods—confirmation and comprehension of results (Thurmond, 2001; Shih, 1998). Confirmation is broadly defined as the convergence of findings from two different data sets and has been operationalized by two general approaches in the literature. First, researchers have used various statistical techniques to confirm mixed method results and determine whether differences between two groups are simply due to chance or there is, indeed, a real difference between the two groups. This is accomplished by, first, quantifying the qualitative data (e.g. frequency of responses), and then statistically comparing the qualitative frequencies to the quantitative data. However, considerable problems have been documented concerning trying to quantify qualitative data (Hugentobler et al, 1992), such as how to deal with single-case findings (i.e. outliers) or how to classify a response "into a code that was not identified or didn't exist before" (Thurmond, 2001: 256).

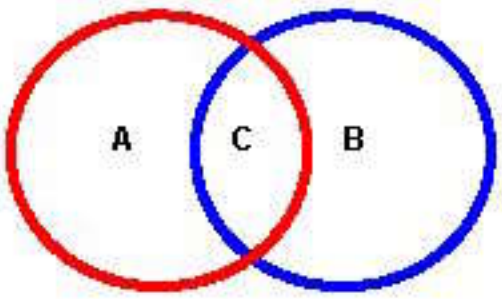
To mediate these potential problems, Mitchell (1986: 25) suggests a second approach for confirmation, "conceptual validation," which she defines as a:

> search for logical patterns of relationships and meanings between the variables measured by either or both qualitative and quantitative methods. The integration of both types of data could lead to a more in-depth conceptual understanding of a particular phenomenon. Hypotheses could then be generated from this conceptual analysis for testing in a subsequent study.

The second goal of mixed methods, comprehension, brings together qualitative and quantitative research approaches to provide a more comprehensive and detailed understanding of the phenomenon under study and/or explain certain anomalies in the data. Some interpret comprehension as actually accelerating a researcher's understanding of a phenomenon (Morse, 2003).

While a review of how confirmation is defined and operationalized provides some guidance to satisfy the first objective—operationalizing the goals of confirmation and comprehension—such a review was less helpful in understanding how comprehension is operationalized. The end of Mitchell's (1986) description of conceptual validation, however, proved to be quite revealing. Confirmation was suggested to be linked to the process of comprehension, indicating that the two concepts are not mutually exclusive. An adapted version of Mitchell's diagram of confirmation and comprehension (**Figure 1**) demonstrates the relationship between confirmation and comprehension.

Figure 1. Confirmation and Comprehension: Related Concepts.



A or B = unique differences (method bound)

C = similar differences (not method bound, confirmation)

A + B + C = comprehensive picture

Source: Adapted from Mitchell (1986: 22).

Despite the lack of clarity in using mixed methods, a mixed method approach is still employed in a wide range of topic areas in both the health and social sciences (Bond, Valente, and Kendall, 1999; Goldberg, 1999; Winkvist and Akhtar, 1997; Kay, Guernsey De Zapien, Altamirano Wilson, and Yoder, 1993). There are many benefits and drawbacks to mixed method research. Comparing qualitative and quantitative results from one study may increase a researcher's confidence in his / her data. Such comparisons may also provide an opportunity to revisit existing theories or better understand the phenomenon under study.

Using more than one method of data collection and analysis, however, can increase the cost in time, human resources, and money to carry out a comparison of qualitative and quantitative results. There is also the question of whether it is appropriate to examine qualitative and quantitative data for confirmation and comprehension when each method contains specific theoretical underpinnings.

Summary

According to Morse (2003: 191) mixed methods is not about "mix-and-match research," and that using ad hoc methods can be a threat to validity if attention is not paid to each one's methodological assumptions. Creswell, Plano Clark, Gutman, and Hanson (2003: 216) point to the importance of project design and its relationship to the research question when carrying out a mixed method study. Deacon et al (1998) also argue that if, at the first sign of "trouble," a researcher will instinctively fall back on the method with which they are most comfortable, there is no point in choosing a mixed method design.

Research objectives also affect the sequence of data collection and analysis. Newman, Ridenour, Newman, and DeMarco Jr. (2003), for example, created a typology of research purposes, asking whether the given purpose of research is to predict, add to the knowledge base, have a personal, social, institutional, and/or organizational impact, measure change, understand complex phenomena, test new ideas, generate new ideas, inform constituencies, or examine the past. Asking these questions better informs project design and methods to be used.

Based on the conclusions of Morse (2003), Newman et al (2003), and Creswell et al (2003), it is the intent of how the two methods are used that differentiates it from a formal mixed method approach.

McKendrick (1999: 48), a population geographer, states that: "The degree of difference between methods is potentially one of the most interesting issues with which multimethod debate could engage, although as yet it has received scant attention." The literature reviews of quality of life and mixed method research serve to justify examining the application of a mixed method approach for studying quality of life.

METHODOLOGY

Four common questions from the CUISR Quality of Life interview schedule and telephone survey were examined to achieve the thesis' two objectives: (1) operationalization of the two goals of mixed methods (confirmation and comprehension); and (2) proposing a mixed method approach to quality of life research**.** Secondary qualitative and quantitative data from the CUISR Quality of Life Project were used as the basis for the thesis.

DATA ANALYSIS

The interview and survey questions that were compared came from four theme areas: satisfaction with overall quality of life (Case Question 1); neighbourhood characteristics important to quality of life (Case Question 2); neighbourhood belonging (Case Question 3); and neighbourhood friendliness (Case Question 4). The total number of interview transcripts for a given case question varied from 82 to 84 and the total number of survey responses varied from 938 to 957. The interview and survey sample size variation was dependent on whether the interview or survey participant answered a given case question.

To facilitate operationalization of confirmation and comprehension, interview transcripts were coded for frequency of responses to a given case question and reasons behind popular interview and survey themes.

CONFIRMATION

Approximately 30 interviews and 300 telephone surveys in each neighbourhood type (Low, Middle, and High SES) were statistically and conceptually compared for confirmation. For statistical confirmation, a chi square test was used to compare the frequency of responses in the interview transcripts and survey data to determine whether there was a significant difference between the two groups (Maclaren, 1981).

If there was a lack of statistical confirmation between the interview and survey results, two approaches, based on the general experiences of Perlesz and Lindsay (2003) and Deacon et al (1998), were used to help explain the result. First, a re-examination of the initial interpretation of interview responses took place both by re-examining interview participants' statements and noting what was not discussed by interview participants. The second approach was to review the original design of the CUISR Quality of Life Project, such as wording of the interview or survey question and/or the context in which the interviews and surveys were conducted.

A lack of statistical confirmation led to a review of interview responses (or lack thereof) and the project design. This suggested that the concepts and processes of confirmation and comprehension were not mutually exclusive.

Problems were expected in quantifying the qualitative data, including the possibility of not being able to completely operationalize the statistical confirmation. A second

approach, "conceptual validation," was also employed to determine whether it was a plausible method for evaluating confirmation of the interview and survey data (Mitchell, 1986). Conceptual validation has received little attention in the literature and has rarely been operationalized. This made it difficult to outline a firm conceptual validation methodology prior to the start of the research.

Conceptual validation was used in two instances. First, interview results were examined to see whether they contained similar relationships to those previously found by CUISR (2001a) to be statistically significant in the survey. In the second instance, conceptual validation was used for Case Question 2 (Neighbourhood Conditions Important to Quality of Life) because response categories were descriptive rather than ordinal. This prevented employing statistical confirmation. Given the nature of the response categories, conducting conceptual confirmation was a fairly straightforward exercise because differences between the interview and survey responses were immediately apparent.

Following the techniques used for statistical confirmation, other methods were used to help explain the lack of confirmation between interview and survey results, such as re-examining interview participants' responses, interview and survey context, and project design. The process involved in interpreting unconfirming results led to further comprehension of the given case question and was another indication that confirmation and comprehension were not mutually exclusive concepts.

Comprehension

There is a lack of discussion on operationalization, as well as criteria that suggests when comprehension is met (Shih, 1998). This made it difficult to outline a detailed methodology on the operationalization of comprehension before the start of this research. Despite a lack of discussion in the literature regarding organization and interpretation of qualitative data sources, a method for analyzing the interview transcripts was needed. A grounded theory approach to code the interview transcripts was chosen to gain more detail around a selection of important interview and survey themes, going beyond a simple frequency count of responses.

Summary

Ultimately, understanding the operationalization of confirmation and comprehension could be reached only after looking at their interplay in the four case questions. This research acted as a case study to improve upon the shortcomings of such operationalization, with a full discussion of confirmation and comprehension offered in the next section.

Results

The first objective of this research was to operationalize the two goals of mixed method research, confirmation and comprehension. The results of this objective informed the second objective, that of creating a practical approach to effectively manage qualitative and quantitative results by using a quality of life project as a case study. The following describes the main results from the four case questions used to inform the operationalization of confirmation and comprehension.

Case Question 1: Assessment of Overall Quality of Life

Almost the same proportion of interview and survey participants responded similarly to this case question, and chi square tests determined that the differences were not significant. A mixed method approach was also able to provide a wider understanding of some of the confirming and diverging interview and survey relationships.

Confirmation of results

Analysis of interview transcripts (n=82) revealed that 65.8% of respondents for all neighbourhood types stated that they were satisfied with their quality of life, 25.6% were somewhat satisfied, and 8.5% were not satisfied. The survey results (n=950) revealed that 62.2% of respondents rated their quality of life as excellent or very good, 29.4% answered good, and 8.4% said that is was fair or poor. A chi square test revealed that the difference between the two samples was not significant (chi square = 0.528, significance level (S.L.) = 0.05). This result indicated that the slight difference between the interview and survey samples was due to chance, not any real difference between the two samples.

To carry out conceptual validation, three statistical relationships found in the survey were compared with similar relationships in the interview data. CUISR's prior analysis of the telephone data found that satisfaction with external structures was positively related to quality of life. A single variable, income level, was also found to be positively related to overall quality of life, while another single variable, age group, was negatively related to overall quality of life. The community quality of life items and importance of personal relationships items did not help to explain overall quality of life.

While the interviews could not address the relationships between age group, income, and overall quality of life, the interview responses were able to partially confirm a positive relationship between satisfaction with external structures and overall quality of life, as well as a lack of association between community quality of life items and overall quality of life. The interview results could not, however, confirm a lack of association in the survey between the importance of personal relationships and overall quality of life. Many participants from all neighbourhood types expressed the importance of having good family supports or relationships as contributing to their overall quality of life.

Comprehension of results

Using a mixed method approach for this case question aided uncovering some aspects of quality of life not completely captured by the telephone survey, notably a lack of association between quality of life and importance of personal life items in the survey. Using a mixed method approach was also beneficial for further exploring the why behind particular variables affecting overall quality of life.

Many of the reasons for the importance of family pertained to successfully raising (past or present) children. This gave interview participants a feeling of accomplishment and contributed to a positive quality of life. Proximity to family was also mentioned in terms of provided support:

> I feel that I have a great life. … Over the years, I've learned and right now I am in an area where I feel like I am very happy with my life, with my family. I think I have accomplished a lot of things with my kids. They are all doing well. They have education. They went to University and they are all on their own and doing very well (Low SES, P45).

CUISR analysis of the survey data revealed that satisfaction with external structures (e.g. city and neighbourhood) affected overall quality of life (CUISR, 2001a). Interview data confirmed this survey finding, with satisfaction with city being the most frequently cited response as to why interview participants were satisfied with their overall quality of life. The interview data were able to reveal two main reasons why satisfaction with city contributed to interview participants' quality of life. The first reason was Saskatoon's relatively small size (which was, for example, seen as increasing accessibility to services and recreation), and the second was the number of organized and informal recreational activities available for families and children in Saskatoon.

Case Question 2: Neighbourhood Conditions Important to Quality of Life

Statistical confirmation could not be conducted on this question because the interview and survey responses produced quite different results. Lack of confirmation between the interview and survey results, however, actually contributed to a wider comprehension of confirmation operationalization, survey and interview design, and how people responded to certain questions. For this case question, it was very important to refer to the interview data to explain the lack of confirmation between interview and survey results and to further explore why certain neighbourhood conditions were important to quality of life.

Confirmation of results

When survey respondents were asked to name three neighbourhood conditions important to their quality of life, the only response was about the importance of protection services (e.g. fire and police). In other words, the first, second, and third choice for most important neighbourhood condition was protection services.

The uniform response to this survey question begged a different approach to analyzing the question. An alternate analysis was employed to ensure that the protection services choice was not covering other choices in the survey by its large response numbers. This survey question was further explored by looking at the top three answers within the first choice: (1) protection services; (2) condition of roads; and (3) safety from violent crime. As protection services and safety from violent crime are related concepts, this indicated a strong sentiment among Saskatoon residents for a safe and protected city.

For the most part, the interview responses contrasted with the survey results. The top three interview responses for Case Question 2 were: (1) quality of neighbours (e.g friendly, approachable, active); (2) close proximity to neighbourhood services; and (3) safety and crime issues, and parks and recreation (virtually tied for third). The only confirmatory response between the interviews and survey was the importance of safety and crime issues and protection services, respectively. Because of the disparate results obtained above, no attempt was made to statistically confirm the interview or survey data results.

Comprehension of results

Explanations behind the common neighbourhood conditions would have been difficult to obtain by using statistical techniques alone (e.g. regression analysis) because none of the explanations given in the interviews were formulated as questions in the survey. The disparate results obtained by using a mixed method approach also prompted a closer examination of the survey design and interview schedule.

The importance of safety and crime issues (interview) and protection services (survey), for example, was the only common finding in the two sets. Using a mixed method approach to examine this question brought out three linkages between: (1) neighbourhood cleanliness and enhanced feelings of safety (with a clear neighbourhood gradient according to SES); 2) good neighbours and increased feelings of safety; and (3) high neighbourhood stability (in terms of home ownership) and improved feelings of safety. The following statement from a Low SES interviewee highlights the importance placed on cleanliness and safety:

> Just neighbours that clean up their yards and neighbours that talk to you so you feel safe going out (Low SES, P05).

While all neighbourhood types expressed the importance of safety to their neighbourhood quality of life, there was a clear neighbourhood gradient as to who expressed both the importance of safety and experienced unsafe events in their neighbourhood. Low SES neighbourhoods were concerned with safety issues and experienced unsafe events in their neighbourhood, whereas High SES neighbourhoods, while concerned with safety issues, did not necessarily experience unsafe events in their neighbourhood. Interview respondents in the Middle SES neighbourhood type fell in between this neighbourhood gradient, noting that petty crimes (e.g. vandalism and break and enters) occured in their neighbourhood, but that they had not experienced these events firsthand.

The importance of quality neighbours to quality of life was the most prominent interview theme, but did not appear in the survey results. Quality neighbours were usually described as homeowners or long term renters. The importance of neighbours was linked to many different aspects, such as safety, neighbourhood stability, neighbourhood belonging, and friendliness (additional details about neighbourhood belonging and neighbourhood friendliness will be discussed in later sections).

In looking at why quality neighbours are regarded as contributing to quality of life, differences appeared to be based on neighbourhood type. Low SES interview participants desired quality neighbours to increase feelings of safety in the neighbourhood. High SES interview participants spoke about the benefits of good neighbours not in terms of safety, but rather of increasing friendliness and the social aspect of the neighbourhood.

The importance of close proximity to services in Saskatoon was the second most prominent theme in the interview results (after importance of quality neighbours). Interview participants spoke about the importance of being located close to a school, the South Saskatchewan River/Meewasin Valley Trail, and/or their place of work. The most common location theme that arose from the interviews, however, was the importance of close proximity to "everyday services" (e.g. grocery stores, gas stations, pharmacies).

Examining the importance of close proximity to everyday services revealed that interview participants in all neighbourhood types spoke about being located close to a bundle of services, rather than just one particular service. A closer examination of close proximity to everyday services revealed a slight neighbourhood SES gradient when talking about to which services they liked to be close. Low SES interview participants stressed the importance of being located to "basic services" (e.g. grocery stores, pharmacies), whereas High SES interview participants highlighted their satisfaction in being close to services not considered "basic," such as malls, hardware stores, and movie theatres.

In this case question, a mixed method approach was able to not only demonstrate the importance of close proximity to various services and amenities (a question not asked in the survey) but also revealed that different neighbourhood types appreciate being located close to different types of services and amenities.

Case Question 3: Neighbourhood Belonging

Conducting statistical confirmation for Case Question 3 produced drastically different results. Lack of confirmation forced a re-examination of the confirmation process and necessitated additional probing of the interview results. Comparing the interview and survey results also uncovered potential questions to ask in further iterations of the interview and/or survey.

Confirmation of results

The first iteration of coding the interview transcripts (n=84) revealed that, for all neighbourhood types, when asked whether they felt a part of their neighbourhood, 65.4% of participants answered in the affirmative, 14.2% said somewhat, and 20.2% answered no. In comparison, the survey results (n=941) for a similar question revealed that, for all neighbourhood types, 24.2% said yes, 51.1% said somewhat, and 24.7% answered in the negative. A chi square test revealed that the difference between the two samples was significant (chi square = 69.89, S.L. = 0.05). This indicated that the difference between the interview and survey samples was due to a real difference between the interview and survey sample, not simply due to chance.

Three reasons can possibly explain the large disparity between the interview and survey results. First, while the wording of the interview and survey question related to neighbourhood belonging was similar, the underlying intent differed. The survey question probed the degree of neighbourhood belonging by using the words, "How much…." The wording of the interview question, on the other hand, was interested in whether the interview participant felt a part of their neighbourhood and why, probing less so the degree of neighbourhood belonging.

Second, interview participants had different views on the definition of their "neighbourhood." Some interview participants, for example, felt a part of their immediate neighbourhood, but not the entire neighbourhood as defined by political boundaries.

Third, research has demonstrated that responses depend on the context in which the question is asked. Sensitive or personal topics may also dissuade participants from answering honestly (de Leeuw and van der Zouwen, 1988). The effect of context on interview and survey responses goes beyond the purpose of this research, but it is important to discuss given that any of the four case questions may be perceived by interview participants as too sensitive.

Another interesting interview finding was that the reasons why interview participants stated that they did not feel a part of their neighbourhood were the exact opposite of those who stated that they felt a part of theirs. Reasons as to why interview participants did not feel a part of their neighbourhood included: noninvolvement in neighbourhood activities; unpleasant neighbours; and their social circles being located outside their neighbourhood. Conversely, participants noted that they felt a part of their neighbourhood

when they had friendly neighbours, they were involved in neighbourhood activities, and their social circles were located in the neighbourhood. This in itself can be regarded at as a confirmatory result.

Comprehension of results

Using a mixed method approach to examine Case Question 3 revealed two important aspects that would not have been uncovered had only one method of analysis been used—the reasons why participants did or did not feel a part of their neighbourhood and how they defined neighbourhood boundaries.

Interview results revealed that good neighbours, neighbourhood involvement, and having friends and connections within the neighbourhood were all contributing factors to neighbourhood belonging.

Attachment to other neighbourhoods or communities other than one's own also related to a second interview finding concerning neighbourhood definition. Interview participants used their own definition of neighbourhood even though they were shown a map of their neighbourhood boundaries at the interview's start. Interview participants defined their neighbourhood using different benchmarks. Some interview participants defined their neighbourhood along social lines (e.g. where they socialize most often or the extent of their friendship system in the neighbourhood), while others defined it using physical boundaries (e.g. street system).

Neighbourhood stability, defined by interview participants as a high level of home ownership, was also important in feeling a part of the neighbourhood. Neighbourhood stability, in turn, affected other factors, such as feelings of safety.

In this case question, the reasons as to whether interview participants felt a part of their neighbourhood are not found in the survey questions. This precludes any statistical analysis of the survey data as to the effect on neighbourhood belonging of good neighbours, neighbourhood involvement, and attachment to other communities. In this instance, the interview data revealed new potential questions in further iterations of the survey or other interviews, such as why one feels a part of their neighbourhood. Last, the interview results on neighbourhood boundary definition and neighbourhood stability provide valuable background information for interpreting future survey and interview results that address issues of neighbourhood quality and stability.

Case Question 4: Rating of Neighbourhood Friendliness

A lack of statistical confirmation between interview and survey results was not a disadvantage for this case question. Using a mixed method approach prompted a closer look at how people described friendliness in their neighbourhood. This closer examination revealed that the definition of friendliness was not uniform, but rather subjective. What constituted a friendly neighbourhood for one person did not necessarily meet the criteria for someone else. The statistically significant difference regarding how the interview

and survey groups answered also prompted a closer revision of the intent of both the interview and survey question related to neighbourhood friendliness.

Confirmation of results

The first iteration of coding the interview transcripts (n=82) revealed that, for all neighbourhood types, 70.7% of interview participants stated that they lived in a friendly neighbourhood, 21.9% said that they lived in a somewhat friendly neighbourhood, and 7.3% responded that they did not live in a friendly neighbourhood. In comparison, the survey results (n=957) revealed that, for all neighbourhood types, 40% rated the friendliness of their neighbourhood as excellent or very good, 42.8% as good, and 17.3% as fair or poor. A chi square test revealed that the difference between the two samples was significant (chi square = 29.63, S.L. = 0.05). This indicated that the difference between the interview and survey samples was real, not simply due to chance.

The three reasons used to explain the discrepancy between the interview and survey results in Case Question 3 can be applied here, as well. The interview question asked whether the interview participant felt a part of their neighbourhood and why. The survey question, on the other hand, focused on rating neighbourhood friendliness (excellent, very good, good, fair, poor).

Comprehension of results

Lack of confirmation between the interview and survey results was not necessarily a discouraging result because it prompted a deeper examination of how interview participants described a friendly neighbourhood. One main issue that arose from the interview results was the subjective definition of friendly. For some interview participants, the presence of unpleasant activities in their neighbourhood contributed to a negative or mixed rating, while for others such activities did not influence their opinions.

The degree of social contact and communication was another way that interview participants described their neighbourhood's friendliness. Many interview participants described their neighbourhood as friendly even though they did not have close contact with their neighbours—a simple "hello" in passing was enough social contact to assess their neighbourhood as friendly. For others, a friendly neighbourhood was one where residents had relatively close social relationships.

Discussion of Results

Given the increased use of qualitative and quantitative methods in quality of life projects, this study's goal was to examine how to effectively employ a mixed method approach in a quality of life study. The first objective of this research was to operationalize confirmation and comprehension, something that is rarely explicitly carried out in the literature (Perlesz and Lindsay, 2003; Deacon et al, 1998). The results of this first objec-

tive informed the second objective of proposing a mixed method approach to quality of life research. This research contributed to closing the gap in quality of life methodology and will benefit Saskatoon residents by creating more meaningful quality of life results and focused policy discussions.

The operationalizing confirmation and comprehension "results" are discussed in the form of seven benefits gained from using a mixed method approach from the four case questions. These benefits are then used to discuss a mixed method approach for quality of life research.

Summary of Confirmation

Confirmation is defined in the literature as obtaining the same result(s) for a given research question using two different methods (in this case, qualitative and quantitative). Using mixed methods for confirmation has generated much criticism because of the many barriers involved in statistically confirming qualitative and quantitative results, such as problems in quantifying qualitative data, comparing different theoretical frameworks, and making sense of dissonant results (Thurmond, 2001; Hugentobler, Israel, and Schurman, 1992). Perlesz and Lindsay (2003) also state that given the complexity of social science research, divergent results are to be expected more often than confirmation. These problems were all encountered in this research. Overall, a lack of confirmation was found, in varying degrees, in all case questions, especially those concerning neighbourhood conditions, belonging, and friendliness.

Operationalizing a procedure to carry out confirmation was less than successful. The barriers faced, however, led to a better understanding of both confirmation (statistical and conceptual) and comprehension. Divergent results forced further exploration of practical and conceptual reasons for the lack of confirmation. In many instances, it was the lack of confirmation that led to new and valuable insights into a given case question. These new insights would not have been obtained by using only a single method. The problems encountered in trying to operationalize confirmation indicated that the concepts of confirmation and comprehension were not mutually exclusive, which corroborates Mitchell's (1986) research.

Summary of Comprehension

Comprehension is defined as uncovering another aspect of a given research question that would not have been uncovered through a single method. After an examination of the literature and four case questions, it was concluded that comprehension is a process rather than a static procedure. That this process is case-specific makes creation of a static list of guidelines inadvisable.

The case-specific operationalization of comprehension, however, does not preclude other researchers from informing their application of comprehension by using other researchers' methodologies. Researchers have called for an increase in the number of published studies that outline how convergent and divergent mixed method results were

handled (Perlesz and Lindsay, 2003; Deacon et al, 1998). Until mixed method research addresses these requests, their use may not be a practical approach for community studies.

Benefits of Using Mixed Methods in the Saskatoon QOL Case Study

Seven distinct benefits were derived from using a mixed methods approach in examining four similar questions in the CUISR Saskatoon Quality of Life interview schedule and survey instrument: (1) possible inclusion of additional questions in future iterations of the survey; (2) variation in how participants in surveys and interviews respond to questions; (3) definition of a "neighbourhood condition"; (4) awareness of other sources of information; (5) operationalization of confirmation and comprehension; (6) how people define neighbourhood; and (7) how people define friendly. The discussion is organized according to the case question from which the benefit was derived (**Table 1**). Ultimately, using mixed methods was an iterative process, so the list of benefits is not an exhaustive one.

Table 1. Benefits of a Mixed Method Approach: Results from the Four Case Questions.

Case Question	Benefit
1. Satisfaction with Overall Quality of Life	Revealed additional questions to be asked in further iterations of the QOL project
2. Neighbourhood Conditions Important to Quality of Life	Variation in how people responded to this question (what is important to QOL is that with which people may be already satisfied) Refined understanding of "neighbourhood condition" via presumptuous wording of question Revealed additional questions to be asked in further iterations of the QOL project* Questioned whether all popular interview themes need to be included in future iterations of the QOL project
3. Neighbourhood Belonging	Refined understanding of confirmation operationalization Revealed additional questions to be asked in further iterations of the QOL project* Refined understanding of the definition of neighbourhood
4. Neighbourhood Friendliness	Refined understanding of the definition of friendliness Refined understanding of the operationalization of confirmation*

*** This is a duplicate benefit. Duplicate benefits were not included in the finally tally of the overall benefits of using a mixed method approach**

In Case Question 1 (Satisfaction with Overall Quality of Life), lack of confirmation between interview or survey results did not prevent additional analyses from taking place. The importance of close proximity to services and access were significant themes that arose in Case Question 2 (Neighbourhood Conditions Important to Quality of Life), for example, but were not found in the survey results. Questions related to location and access (e.g. to amenities, services, parks, work) were absent from the survey, suggesting that inclusion of questions related to location and access in further iterations of the survey and interviews would be valuable additions.

In Case Question 2 (Neighbourhood Conditions Important to Quality of Life), five main benefits were derived from using a mixed method approach. First, an initial interesting survey result was the overwhelming importance of protection services, either by looking at the top three survey results or the top three first choices in the interviews. The alternative approach to examining this survey question—looking at the top three answers for the first important neighbourhood condition—added safety from violent crime and condition of roads as neighbourhood conditions important to quality of life. This alternative approach to examining this survey question still revealed that survey respondents valued a safe and protected city quite highly. While employing a mixed method approach was not responsible for uncovering this peculiar survey result, it still suggested that caution should be taken in future survey interpretations.

Second, when interview participants were asked which neighbourhood conditions were important to their quality of life, they usually already had what they stated was important to their quality of life (albeit a more prominent response in the Middle and High SES neighbourhood type). Those who had good location relative to services, for example, were more apt to respond that close proximity to services was an important neighbourhood condition. This raises warning flags that perhaps survey respondents may have answered similarly.

A third benefit from using a mixed method approach was a wider understanding of how people define a neighbourhood characteristic. A lack of confirmation between the two results was partially explained by the presumptuous wording of the survey question: "Next I am going to read you a list of conditions and services *that affect quality of life in your neighbourhood*. I want you to rate each condition as either excellent, very good, good, fair, or poor" (emphasis added). The question presupposed that the list of neighbourhood conditions was important to most everyone's quality of life and that those listed were indeed considered "neighbourhood conditions." The wording of this question may have unintentionally shaped respondents' views of what elements constituted quality of life in their neighbourhood. While it is true that most of the proposed neighbourhood conditions listed in the survey influence quality of life, the survey question should not be explicitly stated as such.

A fourth benefit from Case Question 2 is being aware of other sources of information aside from the CUISR QOL project. For example, interview participants noted the

importance of living in a diverse neighbourhood, but this question was absent in the survey. While one can state that a neighbourhood diversity question should be included in further iterations of the survey, this is not necessarily so, for additional data and information can be obtained from other sources. The City of Saskatoon, for example, includes a Neighbourhood Ethnic Diversity Index (based on data from Statistics Canada and the National Atlas of Canada) in each *Neighbourhood Profiles Report* (City of Saskatoon, 1998). A survey question regarding perception of neighbourhood diversity, however, could be included in future iterations of the survey (or interviews) to supplement existing quantitative data. Identifying other potential sources of data and information could strengthen analysis, reduce research costs, or prevent replication of existing surveys and ideas.

Case Questions 3 and 4 are examined simultaneously because of their overlapping topic areas. The fifth benefit from using a mixed method approach was the additional information gained from operationalizing confirmation. The sixth and seventh distinct benefits from using a mixed approach was how the terms neighbourhood and friendliness were defined. As previously discussed, interview participants defined their neighbourhood boundaries differently, using, for example, social relationships or physical barriers.

Summary of the Seven Benefits

Ultimately, the benefits of using a mixed method approach are not revealed unless a researcher actually employs a mixed method approach. In all four case questions, a mixed method approach not only contributed to a more comprehensive understanding of these questions, but also contributed to the operationalization of confirmation and comprehension, and contributed to an enhanced understanding of mixed method project design. Based on the literature reviews and results and discussion of the thesis research, the following is a potential approach to using mixed methods in quality of life research.

A Mixed Method Approach to Quality of Life Research

The seven benefits derived from operationalizing the two goals of mixed methods (confirmation and comprehension) were the central results of this research, and fed into the following four proposed guidelines for using a mixed method approach in quality of life research (**Table 2**).

Summary of Guidelines

The four proposed guidelines touch on issues of research purpose, mixed method goals, project design, data analysis, and methodology. The combination of the seven benefits gained from operationalizing a mixed method approach and the resulting four guidelines serve to address the thesis' second objective of proposing a mixed method approach to quality of life research. This produced a dynamic rather than a static approach to using mixed methods in quality of life research.

Table 2. Four Guidelines for Employing a Mixed Method Approach.

Guideline	Description
1. Define a research purpose and question	Affects the methods chosen and direction of data collection and analysis.
2. Make a conscious choice to use a mixed method design	Managing the data analysis phase is made extremely difficult if a mixed method approach is not pre-planned or conducted ad hoc.
3. Prepare in advance for dissonant results	Dissonant, not confirming, results are more common. This can increase project time-lines and resources, but also add to a greater understanding of the research question.
4. Be clear ("transparent") about the methodology used for: • mixed method project design • achieving confirmation and/or comprehension • interpreting confirming or "unconfirming" (dissonant) results	Describing a transparent methodology is important for four reasons: • designing a formal mixed method approach is still in its early stages • increasing our understanding of confirmation and comprehension • informing other research projects on mixed method data interpretation • demonstrating the pros and cons of conducting mixed method research

Published research on the operationalization of the data analysis stage using a mixed method approach has only just begun (Perlesz and Lindsay, 2003) and is one of the contributions of this research to quality of life and mixed method literature.

Research Limitations

Four main limitations were identified: time constraints; coding difficulties; sample sizes; and the broad nature of quality of life. First, considerable time was required to analyze the qualitative and quantitative data, first separately, and then together. The demands on the time required for analysis in a mixed method research project was not emphasized in the literature and is an important practical finding for such research.

Second, there were also challenges in properly coding interview transcripts. While the coding process can never be a perfect (nor desirable) objective exercise, it is important to document the coding process and the nature of any challenges.

Third, smaller sample sizes lead to less reliable results, especially compared with much larger sample sizes (Levin and Fox, 1994; Delucchi, 1983). Problems encoun-

tered in using a chi square test prompted caution against using statistical confirmation in mixed method research, itself an important research finding. Employing statistical confirmation, however, was still beneficial for uncovering project, interview, and survey design concerns. Conceptual validation was just as important to uncover interview and survey design concerns, as well as to develop a more comprehensive understanding of important interview and survey themes.

Fourth, quality of life is a wide-reaching topic. Detailed issues around the four case questions could have been explored in much greater depth. However, the focus of this research was to operationalize a mixed method approach for quality of life research, not to conclusively determine factors that affect quality of life, neighbourhood belonging, neighbourhood friendliness, and important neighbourhood conditions.

Future Research

The results and limitations of the thesis suggest several avenues for future research in mixed method and quality of life investigations. While an increasing number of research studies in the social sciences can be labeled as mixed method research, few examples exist of how these studies have dealt with confirming mixed method results and the process of comprehension, especially in the quality of life literature. Given the increase in community participation and use of qualitative and quantitative methods in quality of life projects, a large gap exists regarding the methodology involved in mixed approaches to quality of life research. Additional published research on using a mixed approach in quality of life studies is required, with this thesis acting as a preliminary contribution. The thesis demonstrated that the data analysis phase is the most challenging of all in a mixed method design. Future research should therefore focus on decisions involved in mixed method data analysis.

Each one of the case questions examined also opened up many avenues to explore in future quality of life research. In Case Question 1 (Satisfaction with Overall Quality of Life), issues of proximity to family and the balance between personal and structural factors on quality of life came to the fore. The relationship between personal and structural quality of life factors also appeared in Case Questions 2 (Neighbourhood Conditions Important to Quality of Life) and 3 (Neighbourhood Belonging) in terms of how interview participants defined neighbourhood conditions and boundaries. This brought up the larger issue of measuring quality of place versus quality of life (Sawicki and Flynn, 1996; Andrews, 2001).

The results of this research have demonstrated that a deeper comprehension can be gained by using a mixed method approach for the goals of both comprehension and confirmation of results. While it was generally beneficial to use a mixed method approach in this case study, such benefits were not obtained easily. This indicates that employing a mixed approach may have varying degrees of success when used in different contexts, such as larger cities or rural centres.

Conclusions

The goal of this research was to apply a mixed method approach to the examination of quality of life to create more focused community and policy discussions and to streamline analysis of the volumes of data that are produced by such an approach. Given the number of community quality of life projects using quantitative and qualitative methods, this case study was a timely research endeavour.

Examining how confirmation and comprehension are operationalized uncovered seven benefits and led to four proposed guidelines for using a mixed method approach in quality of life research, thus achieving two objectives. While using a mixed method approach is not new, articulating how researchers have reconciled confirmation and/or comprehension has been less explicit in the literature. This research addressed that gap by working through one method of operationalizing confirmation and comprehension, which then informed a mixed method approach to quality of life research. It is hoped that this methods-based thesis will stimulate debate and critical reflection on the research methodology used in geography and quality of life projects.

Will this research bring about change for Saskatoon's residents tomorrow, next month, or even next year? The short answer is no. It will, however, potentially influence new methodologies for evaluating quality of life, hopefully leading to more meaningful and relevant policies for community members and policy makers. "Unless the methodology used to develop indicators goes beyond 'arousing a community's conscience'," Cobb and Rixford (1998: 15) state, "it is unlikely ever to lead to reforms."

Statistical relationships and descriptive connections on their own (i.e. quantitative and qualitative methods alone) cannot completely lead to reforms. A mixed method approach to quality of life research requires further investigation.

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