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A New Method to Evaluate Community Based Mediation Programs: Multi-Attribute Cost Utility Analysis

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A New Method to Evaluate Community-Based Mediation Programs:
Multi-Attribute Cost Utility Analysis

A Thesis

Presented to

the Faculty of the Josef Korbel School of International Studies

University of Denver

By

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Abstract

The purpose of this thesis was to develop a new approach to evaluating the cost-effectiveness of community based mediation programs in order to promote a more robust methodology for researching community based mediation in general, and to provide a means for the favorable claims of community based mediation to be accurately validated.

A methodology was created based on multi-attribute cost utility analysis. This analysis involves studying two programs simultaneously: a community based mediation program and a corresponding court adjudication program/institution. These programs are evaluated on three measures of effectiveness or attributes: satisfaction rating, number of successful cases processed, and compliance level. Combined, these attributes constitute the total quality of justice delivered by the program.

Each program is evaluated for cost; specifically, the costs involved in delivering the quality of justice. These costs are broken down into component parts, referred to as ingredients. The sum of all ingredients for each program represents the total cost to deliver the intervention. After the attributes have been evaluated they are converted to a common utility scale and combined into a single measure of utility using the additive multi-attribute utility function. This value is then compared to the cost of the program to create the final cost-utility ratio. This ratio represents the cost required to increase utility by one point for that program. A cost-utility ratio is created for both programs and thus one is able to see at a glance the difference in both effectiveness and cost.

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Chapter 1 Overview of Community Mediation in the United States

Every year the National Association for Community Mediation (NAFCM) releases a report on the state of community based mediation. The introductory paragraph from the most recent report (Corbet and Corbet 2011, 1) defines the field from the standpoint of its advocates; a definition based not on the processes, but rather the many outcomes of the practice:

Community mediation moves us beyond conflict. It reunites families, rebuilds friendships, mends neighborly fences, and generally creates spaces within which those formerly burdened with conflict can discover personal enrichment, renewed connections, understanding, and peace. These mediation programs keep our communities moving forward through emotional, relational, and all manner of seemingly impassable difficulties. They engage with great humility and skill hundreds of thousands of our worst communal and personal moments; finding within, the promise of empowered, enlightened tomorrows. Community mediation takes the worst of where we occasionally sometimes find ourselves and helps us clear a path toward where preference and progress favor.

A pleasant description to be sure, but what does it mean? How is community based mediation able to "move us beyond conflict?" Most importantly, how does the field appear to those from the outside looking in?

To answer that question, advocates of community based mediation have turned to an economic perspective, one that would bridge the gap between the practitioners and the participants; the converts and the skeptics. Community based mediation is *cheaper*.

Specifically, community based mediation is cheaper than traditional court adjudication. Moreover, community based mediation is not only less expensive than court adjudication but it is also more effective. These two independent assertions have led to a general consensus among proponents of the practice that community based mediation programs are, by and large, a cost-effective means of providing dispute resolution.

This view has most popularly been espoused by practitioners who, for the most part, seem to inherently know that their practice is cheaper than alternative forms of dispute resolution and by academics in the field of conflict resolution who often cite vague and incomplete studies. (Shonholtz 1987; McGillis 1997; Hedeem 2004).

Often, community mediation programs will claim that their service is ‘cheaper’ than the traditional adversarial system for both participants and the court systems (Kovach 1997; Mediation Network of North Carolina Annual Report 2011). This usually stems from the belief that because community mediation programs typically utilize volunteers, participants are saving on the cost of a professional mediator. Furthermore, as in the North Carolina Report, programs will cite savings to the court system (and by extension, tax payers) stemming from the reduction in court resources provided by mediation.

By claiming that their service is less costly, community based mediation programs are directly comparing the cost-effectiveness of mediation with that of traditional court adjudication. This is, undoubtedly, a bold claim and there are many ways in which the claim (and the data that may or may not support it) can be interpreted. Thus, the term ‘cost-effectiveness’ as it applies to community based mediation is generally used as a

catchall in the field to describe how community based mediation is 'better' than court adjudication.

The other major claim often used by community mediation programs and proponents is that their service provides distinct advantages or benefits over that of the adversarial system. These benefits can include anything from providing a transformative experience with conflict to simply a better quality agreement. Bush and Folger (2005, 35) note that,

Furthermore, in comparison with... adversarial processes, mediation is characterized by an informality and mutuality that can reduce both the economic and emotional costs of dispute settlement. The use of mediation has thus produced great *private* savings for disputants, in economic and psychic terms. In addition... the mediation field has also saved *public* expense.

Other proponents cite the ability of community mediation to resolve intrinsic social issues and foster civic pride within communities (Shonholtz 2000). Still others believe that community mediation can be used to address any number of problems, such as "...race relations, AIDS, public policy, prison, boycotts, migrant workers, agriculture, clean air/water rights, farm grazing rights, employment, religious disputes, community policing, and business/corporate disputes" (Wilkinson 2001, 57).

While its origins are sometimes debated, it is clear that community based mediation in the U.S. emerged between the late 1960's and mid 1970's as a result of a growing movement towards finding alternatives to the traditional adversarial process (Hedeen 2004). This movement however, quickly diverged into two separate paths; one focusing on complimenting the court system and one maintaining its focus on dispute resolution wholly outside of the courts (Bradley and Smith 2000).

Community Focused Movement

The birth of the community engagement movement can be traced to the urban unrest of the late 1960's and the Civil Rights movement respectively. The idea was that these areas suffered from chronic "social disorder," which leads to interpersonal conflict within the community (Shonholtz 1987). Community based mediation, or community justice as it was known at the time, was developed as a means to combat these conflicts by engaging members of the community in resolving their own disputes. Proponents argued that this was superior to traditional justice institutions because it removed the court system, allowing people to understand each other on a deeper level and strengthening community members' ability for self governance (Shonholtz 1984).

An early example of these community focused programs was the San Francisco Community Board Program, developed by Ray Shonholtz in 1976. These community boards were designed around a model of community engagement, as opposed to government/court involvement. The idea was that independent community groups would "...foster reconciliation rather than punishment through a complimentary and decentralized system of criminal justice" (Merry and Milner 1993, 72). Other early community focused programs include the Boston (Dorchester) Urban Court Program (1975), and the Grass Roots Citizen Dispute Resolution Center (1976).

Court Focused Movement

At the same time that community focused mediation was developing out of the turmoil of the Civil Rights movement, a court-focused approach was forming in response

to the mounting inefficiency of the court system. In 1965, the Presidential Commission on Law Enforcement and the Administration of Justice cited the need for reform, particularly in the area of "...minor criminal cases involving neighbors, relatives, and other acquaintances" (Bradley and Smith 2000, 24). This call for action was later echoed during the National Conference on the Causes of Popular Dissatisfaction with the Administration of Justice, also known as the Pound Conference. The main recommendation of that conference was to establish neighborhood justice centers to "make available a variety of methods of processing disputes, including arbitration, mediation, referral to small claims courts as well as referral to courts of general jurisdiction" (McGillis and Mullen 1977, 29).

From this court reform initiative, community-based mediation programs began developing with the following goals in mind (McGillis 1997; DeJong 1983):

- Reducing court caseloads
- Reducing court costs
- Increasing the efficiency of justice administration
- Improving participant satisfaction
- Improving the quality of justice

These programs differed from those in the community focused movement by focusing on complimenting or assisting the courts in an effort to provide a more efficient justice system. An early example of these court focused community mediation programs were the Neighborhood Justice Centers, conceived by Richard Danzig, which began establishing themselves in cities around the United States in 1973. Many of these programs were federally funded and directly connected to the court system, laying the

foundation for a tradition of court referred (and thus court-dependent) caseloads (Hedeen, 2004).

Characteristics of Modern Community Based Mediation Programs

As of July 2013, there are approximately 400 community-based mediation programs in the U.S. and there is evidence to support the notion that, overall, community based mediation is a growing movement: at the beginning of the last decade in 2001 NAFCM reported 97,500 cases referred annually; ten years later, that number jumped to 400,000. More recently, The 2011 NAFACM report indicates that between 2009-2011 the field experienced a 7% increase in case referrals (Corbett and Corbett 2011). However, the actual number of community based mediation centers appears to have decreased by roughly 10% over the past decade, a statistic attributed to the difficult economic situation of the late 2000's.

Of these programs, it is hard to say what the percentages are for those that are considered community based, and those that are considered justice based. However, the National Association for Community Mediation (NAFCM) reports that 91% of community mediation programs accept referrals from court programs and/or judicial staff (Corbett and Corbett 2011). Furthermore, studies have shown that these court referrals often comprise the majority of a mediation program's caseload, sometimes by as much as 75% (Community Dispute Resolution Program, 2002; Mediation Network of North Carolina, 2000).

These reports indicate that regardless of a mediation program's philosophical approach, the vast majority of community mediation is engaged with the court system.

Because of this, the definition of community mediation today reflects a broad scope that is able to incorporate both perspectives. The National Association for Community Mediation cites nine characteristics that define current community mediation programs (Corbett and Corbett 2011):

1. A private non-profit or public agency or program thereof, with mediators, staff and governing/advisory board representative of the diversity of the community served.
2. The use of trained community volunteers as providers of mediation services; the practice of mediation is open to all persons.
3. Providing direct access to the public through self-referral and striving to reduce barriers to service including physical, linguistic, cultural, programmatic and economic.
4. Providing service to clients regardless of their ability to pay.
5. Providing service and hiring without discrimination on the basis of race, color, religion, gender, age, disabilities, national origin, marital status, personal appearance, gender orientation, family responsibilities, matriculation, political affiliation, source of income.
6. Providing a forum for dispute resolution at the earliest stage of conflict.
7. Providing an alternative to the judicial system at any stage of a conflict.
8. Initiating, facilitating and educating for collaborative community relationships to effect positive systemic change.
9. Engaging in public awareness and educational activities about the values and practices of mediation.

Today, it is hard to differentiate community based mediation programs based on philosophical approach. Because of this, in the past there have been efforts to further classify community based mediation programs based on the services they provide rather than the ends they hope to achieve (Wahrhaftig 1979; McGillis 1986, 1997). Since that

time however, there has been such an extensive merging of community based mediation centers with the court systems they primarily support that such distinctions are largely irrelevant (Hedeen 2004). More and more, community based mediation programs are utilized for the same reasons that courts are: immediate and effective dispute resolution.

Purpose of Thesis

If community based mediation can lay claim to being an approach to dispute resolution that is superior to traditional court adjudication, then that claim must be proven. Moreover, it must do so to such standards as are expected in other fields of scientific research. Testimonials and advocacy are not enough; a universally accepted means of evaluation is required. Therefore, the only acceptable approach to measuring the true cost-effectiveness of any given program is through cost analysis.

The purpose of this thesis, therefore, is to propose a tool for evaluating cost-effectiveness of community-based mediation based on cost analysis. Hopefully, this methodology will provide an insight into the actual pecuniary costs and benefits of using mediation, a feature currently missing from the field. Additionally, this methodology may also help inform public policy decision-making with respect to creating and funding community based mediation programs

Chapter 2

Review of Mediation and Cost Analysis Research

Contrasting the claims of community based mediation with the information studies have been able to provide is paramount to understanding the need for a new research methodology. What has already been proven, how valid are the findings, and what remains to be studied are all questions that must be answered before a new methodology can emerge.

Although this thesis calls for the use of a new methodology for studying the claims of community based mediation, various other studies have already attempted to research the effectiveness of community mediation programs. The following sections will highlight some of these studies in order to provide a clear picture of what is currently known about the field of community based mediation, as well as what is missing. Furthermore, in addition to the review of community based mediation research, this chapter will also provide information on the field of cost-analysis as well as the use of cost-analysis in research on other types of mediation programs.

Mediation Cost Research

Studies on community mediation programs have been both intriguing and at the same time frequently inconsistent. In general, the majority of studies have focused on two

main measures of effectiveness; settlement rate and participant satisfaction (Long 2003; Hedeem 2004). Some studies have also looked at the costs of community based mediation programs and a very few have even looked at both costs and measures of effectiveness concurrently. The following is a summation of what research studies have been able to determine about the practice of community based mediation.

For the most part, studies that have focused on settlement have found the rate to be relatively consistent among community mediation programs; between 70 and 80 percent (Nebraska Office of Dispute Resolution, 2003; Cook, Roehl, and Sheppard, 1980; Mediation Network of North Carolina, 2011). Likewise, statistics on participant satisfaction show relatively favorable results, with many studies reporting high satisfaction rates (Hedeem, 2004). However, each of these studies has often looked at different types of satisfaction within community mediation; such as satisfaction with the process, satisfaction with the mediator, satisfaction with the agreement, etc. This has led some to question the appropriateness of making generalizations from this data (McGillis 1997).

As far as studies done on the actual cost of community mediation programs there have been very few. In his 1985 study of the Durham Dispute Settlement Center, Sheppard determined that the cost per case handled by the Dispute Center was \$72 compared to \$186 if handled by the courts. The New York State Unified Court System's (UCS) 2008-2009 report on the Community Dispute Resolution Centers Program indicated that it cost "\$229 per UCS case screened... and \$433 total UCS cost per case

conciliated, mediated, or arbitrated.” Unfortunately the report did not provide a comparative analysis using adjudication.

Notwithstanding the lack of studies using comparative cost analysis, in general the results show that about half of the time mediation is considered less costly than adjudication (Averril 1994; Hann and Baar 2001; Maiman 1997; Georgia Office of Dispute Resolution 2000; Daniel 2001; Kobbervig 1991; Wissler 2002). Unfortunately, these studies have often used less than reliable methodologies for assessing cost, often relying on opinion regarding the cost-effectiveness of mediation, using methodologies that are no more sophisticated than simply asking participants (and often attorneys) if they felt that mediation had saved them time and/or money.

Other studies have attempted to analyze costs associated with mediation programs by adopting methodologies that present cost estimates of potential savings as opposed to direct comparative analysis. In their study, Anderson and Pi (2004) estimated that the community mediation programs would save \$1.4 million in San Diego, \$395,000 in Los Angeles, and \$9,770 in Sonoma based on averted judges' salaries. The Task Force on Appellate Mediation (2001) estimated a savings of \$6.2 million total for all mediated cases in the sample seize. Other studies have likewise recorded potential savings with community mediation programs (MacFarlane 1995; McAdoo 1997).

Divorce Mediation

By far, the most plentiful quantitative data on the cost effectiveness of mediation falls under the category of court mediation (particularly divorce mediation). In the mid

1980's through mid 1990's several studies were done in an effort to monetize the benefits to disputants who underwent mediation as opposed to normal court litigation.

For the most part, the majority of studies that focused on divorce mediation found that the process was generally cheaper and in some cases exponentially so (Kelly, 1990). Much of this research was conducted by Jessica Pearson (1980, 1983, 1991, 1992) while working in the Denver area throughout 1980's and 1990's. These studies found that mediated divorce cases were generally more efficient than court adjudication in that they were resolved in less time, and at less cost. Mainly, divorce mediation appeared to be less costly due to the amount saved in attorney's fees and transaction costs.

Small Claims Court Mediation

Another area which has seen some study is in small claims court mediation. Wissler (2004) compiled numerous studies on small claims court mediation spanning several years and found that the results of the meta-analysis were more or less inconclusive. For the most part, the studies showed that there was no substantial difference in cost between mediated and unmediated small claims court cases. Some of those studies even sought to capture attorney's views on the cost savings of mediation with the result that only slightly more than half thought mediation reduced litigation costs. One third of the attorneys actually thought mediation increased costs (McGillis, 1997).

Long notes in her study (2004) on small claims court that mediated cases effected higher rates of compliance from the parties than did adjudication. Moreover, parties who used mediation cited different reasons for complying with the agreement than did those

who used adjudication, typically referring to feelings of personal obligation and in some cases efficiency.

Environmental Policy Mediation

Environmental policy has been using mediation only fairly recently and thus the data on this type of mediation is limited; however, the little information that does exist seems to be inconclusive. Sipe and Stiffler (1995) found that almost 95 percent of respondents thought that mediation was efficient in terms of cost while another study by Suskind, (1999) found that half of the participants thought mediation cost more and actually took more time.

In his article, Dukes (2004, 202) notes that concerning the ambiguity of the findings on cost effectiveness of mediation with regards to Environmental Conflict Resolution,

Perhaps the answer will be several answers: cost and time savings vary so widely by the circumstances of each case that comparisons within ECR as a whole are not productive. Clearly, blanket claims that ECR either costs or saves time and money are inappropriate.

Likewise, a recent Canadian study found that environmental mediation was still underused in that country, preventing a full analysis of the costs and benefits of using such programs (Doelle and Sinclair 2010). It seems that more study is needed in this field before claims of efficiency can be made with any certainty.

The Field of Cost Analysis

Cost analysis has long been used as a tool for program evaluation, ranging from healthcare interventions to preschool programs (Boardman et al 2006). Its main use is to compare the costs of a program or intervention with its benefits, usually for the purpose of helping decision makers to decide where best to allocate resources (Nas 1996).

There are two main types of cost analysis: cost-benefit analysis and cost-effectiveness analysis. Cost-benefit analysis (sometimes referred to as "benefit-cost analysis") tasks the evaluator with determining the entirety of cost and benefits of a proposed program or action and then using mathematical formulas to calculate the net present value of said program. The Net Present Value (NPV) is then compared against the NPVs of the competing alternatives, with the highest NPV usually indicating the best choice. Cost-benefit analyses are often used as a type of pre-evaluation where the idea is to capture all of the costs that would result from a particular program/action. These costs typically include more than just accounting costs - such as salaries and materials - looking beyond to what are known as social costs; things like decreased use of public transportation or pollution (Nas 1996). Set against these costs are the benefits of the program or action, such as increased worker productivity or farming output. Generally, if the total monetary sum of the benefits outweighs the sum of the costs, the program or action being evaluated is considered viable. The biggest limitation of cost-benefit analysis is that it can only be used to measure alternative actions where the outcomes can be monetized (Levin 1995). In order to evaluate alternatives where the outcomes cannot be easily monetized cost-effectiveness analysis must be used.

Cost-effectiveness analysis differs from cost-benefit analysis in that it is used to compare alternatives that provide the same type of benefit or outcome, but where that outcome is not easily converted into monetary value. The goal of cost-effectiveness analysis is to determine between multiple alternatives how effective each is at producing a specific outcome compared to how much it costs that particular alternative to do so (Pearce, Atkinson, Mourato 2006). Levin, (1995, 104) defines the purpose of cost-effectiveness analysis as follows:

The purpose of cost-effectiveness analysis in education is to ascertain which program or combination of programs can achieve particular objectives at the lowest cost. The underlying assumption is that different alternatives are associated with different costs and different educational results. By choosing those with the least cost for a given outcome, society can use its resources more effectively. Those resources that are saved through using more cost effective approaches can be devoted to expanding programs or to other important educational and social endeavors.

While Levin's focus is mainly on education interventions, cost-effectiveness analysis can easily be applied to almost any program. The World Health Organization (Tan-Torres Edejer et al 2003, 126) notes that "the growing use of cost-effectiveness analysis (CEA) to evaluate the costs and health effects of specific interventions is dominated by studies of prospective new interventions compared to current practice." These studies indicate then, that cost-effectiveness analysis is most often used to compare a new program or intervention with a current program in order to decide which provides a better outcome for the associated cost.

One of the most comprehensive studies on community mediation programs is a report authored by Dan McGillis (1997) and issued by the Federal Justice Department titled, *Community Mediation Programs: Developments and Challenges*. The report, while

extraordinary in both scope and thoroughness, nevertheless lamented the lack of available research and called for more rigorous studies focused on cost-analysis and program evaluation. What is more, the report is over a decade old, riding on the end of what was the most active period for interest in community mediation, the 1980's through mid-1990's. Since that time, research on community based mediation has waned as funding and interest has declined, leaving the available body of research in not much better shape than it was in 1997 (Wall and Dunne 2012).

Summary

Overall, the research on mediation (of all types) seems to indicate that participants are generally satisfied with the process and the outcome but that settlement rates and costs vary widely. With a degree of certainty the literature does seem to suggest that mediation is cost effective when used for divorce cases, although it has been some time since a study came out on this particular subject. For small claims and other civil court situations the literature is less clear on the cost effectiveness of mediation; there appears to be just as many findings supporting the cost effectiveness of mediation as there are against it. Information on environmental and community based mediation is virtually missing from the literature on conflict resolution and mediation. Certainly, community based mediation is used more than environmental mediation, but that does not explain the absence of information on both. With regards to community mediation, studies show that it likewise follows similar trends.

Looking at the research on community based mediation specifically, it becomes quickly apparent that the majority of studies focus on two things - identifying the costs

associated with mediation and examining the effects of the process. This focus is appropriate; however, the literature shows that the majority of studies have failed to look at *both* the costs and effectiveness of mediation and adjudication programs concurrently (Caffey 2005). This creates an incomplete picture of mediation programs. The most immediate concern, therefore, is the lack of comparative studies that have been done on community mediation and traditional adjudication (Shack, 2007; McGillis, 1997; Hedeem 2010). These comparative studies are vital to research on mediation because of their ability to highlight the effects of mediation programs with respect to an established standard (the court system). Instead, as evidenced in the literature presented above, there is currently not much more than scattered data and anecdotal proof to support the claims of mediation's proponents.

Moreover, even those studies that are comparative fail to provide a comprehensive picture of community based mediation programs. Hedeem (2010, 16) notes, "...studies of community mediation often focus only on one or two measures of effectiveness, assessing these without addressing other dimensions or indicators of effectiveness." What is needed therefore is an approach that is able to take into consideration multiple measures of effectiveness and then compare them with the costs of the program.

Chapter 3

The Method of Multi-Attribute Utility Analysis

Ultimately, the current methodologies used in research studies on the cost-effectiveness of mediation, and specifically community based mediation, fail to present accurate and comprehensive results. Some of the research does not even use quantitative data, only presenting subject's perceptions of cost-effectiveness. A more rigorous, structured approach involving cost-effectiveness analysis needs to be taken in order to provide results that clearly define costs and outcomes (effectiveness) for community based mediation programs compared to the available alternatives.

In McGillis' (1997) report on community based mediation, the author recommends evaluating mediation programs against court case proceedings by measuring the 'quality of justice' provided by each alternative. Based on available research and data, McGillis assesses quality of justice using three criteria: (1) settlement rate, (2) disputant satisfaction with the process and outcomes and perceptions of their fairness, and (3) disputants' compliance with settlements.

Now, while it is possible to perform a cost-effectiveness analysis for each of these attributes, the resulting data would be of limited usefulness because of the failure to provide a coherent picture of the overall effectiveness of each alternative. Furthermore, a cost-effectiveness analysis that attempted to combine all three attributes into a single unit of measure would be limited by the disparity in the data itself – the metrics for settlement

rate are incompatible with the metrics for satisfaction level, for instance. In this case, it is understood that community based mediation actually provides a number of outcomes, not just settlement rate, all of which can be measured. These outcomes, also called attributes, contribute to the overall effectiveness of the program. The solution is to use multi-attribute utility analysis.

Multi-attribute utility analysis (MUA) is a form of decision analysis designed to help reach a solution when there are multiple objectives (Keeney and Raiffa 1976). Essentially, this analysis looks at a particular objective (for instance, buying a car) and then establishes a set of criteria for evaluating the alternatives (different car models available). The evaluation criteria could be such things as gas mileage, safety rating, cargo capacity, etc. These criteria, or attributes, are then measured on their effectiveness for each alternative. Once that has been done, the attributes are then weighted numerically with respect to their importance to the decision maker (for example, the car buyer might be more interested in gas mileage than cargo capacity). The final step is to convert the value of each attribute to a common scale of utility so that they can be added into a single number for each alternative - essentially a comprehensive score based on preference.

Multi-attribute utility analysis can be further modified to include cost elements as well. While cost is sometimes used as an attribute, it can also be used to produce a ratio similar to that of cost-effectiveness analysis (Levin and McEwan 2001). In this case, the ratio is a reflection of the cost of the intervention divided by its total utility.

Looking back at the major goals of community mediation studies - defining costs and effects - the value of using a multi-attribute utility analysis for such research becomes readily apparent. With multi-attribute analysis, both cost and every conceivable measure of effectiveness can be combined into one seamless evaluation. Furthermore, the analysis can be tailored to reflect the preferences of a variety of decision makers, from participants to practitioners and even state or local legislatures (Merkhofer et al 1997).

Applying Multi-attribute Utility Analysis to Community Mediation

As previously mentioned, studies involving community mediation often look at the same few measures of effectiveness: settlement rate, participant satisfaction, and compliance rate. Using multi-attribute utility analysis, these measures of effectiveness can be combined into a single score, set against the cost of the program, to provide a cost-effectiveness ratio that can be compared to another alternative (court adjudication). Thus, multi-attribute utility analysis resolves the major problems plaguing studies on community mediation by providing (1) a comparative study, (2) an established method of cost analysis, and (3) the ability to combine disparate measures of effectiveness into one evaluation.

To date, multi-attribute utility analysis has yet to be applied to studies on community mediation. Methodologically, the analysis is complex and requires both technical knowledge of decision-analysis as well as the chosen alternatives being evaluated (Keeney, 1980). The following section is dedicated to outlining and explaining how to perform a cost utility analysis using the multi-attribute theory as it applies to

mediation and adjudication specifically. In the most general sense, a multi-attribute cost-utility analysis follows these steps:

Step 1: Choosing the alternatives to be evaluated

Step 2: Determining costs for each alternative

Step 3: Determining attributes (outcomes) to be measured

Step 4: Measuring attributes (using appropriate metrics)

Step 5: Converting attribute measurements to a common utility scale

Step 6: Applying weights to each attribute

Step 7: Determining the cost utility analysis ratio by using the multi-attribute utility function.

With the exception of a few differences, the methodology proposed in this thesis for performing a cost utility analysis for the most part follows the steps listed above. The following sections will explain how to perform the cost utility analysis methodology step by step as it applies to community based mediation programs and adjudication (courts).

Choosing the Alternatives for Evaluation

In order to create a useful cost-utility analysis the study must make sure that the alternatives being used are as similar in function as possible (Levin and McEwan, 2001). Note that the designs of the alternative strategies do not matter in order to judge appropriateness (however, they are used to measure effectiveness). The reason why alternatives in a cost-effectiveness analysis must have similar objectives is evident in the definition of the analysis itself; to measure how effectively with respect to cost each

strategy achieves the *same outcome*. In essence, the goal for the evaluator is to avoid measuring apples and oranges.

A common mistake in many studies involving the cost-effectiveness of mediation is the failure to include an alternative process (Shack 2007). Cost effectiveness is a relative term; something can only be cost effective in comparison to something else. Cost analysis, as mentioned before, is a tool that is used to aid in decision making, specifically when making decisions regarding competing choices. Subsequently, cost-utility analysis is based on the evaluation of competing alternatives – alternatives that have the same objective(s).

The multi-attribute utility analysis in this thesis is designed to evaluate two alternatives: community based mediation and traditional adjudication. While technically there is no limit on how many alternatives can be evaluated in a single cost utility analysis, this methodology has been designed for two in order to reduce complication. Subsequently, the actual organization of the alternative does not matter, whether it is a non-profit community based mediation center, a state sponsored program, or a combination of the two – just as long as it contains the characteristics of community based mediation. The same applies to adjudication, although this will probably almost always be some form of civil court.

When comparing alternatives in a cost-effectiveness analysis it is essential to compare strategies that share the same objective; in this case, dispute resolution. This section will discuss the meaning of dispute resolution as it applies to cases handled by community based mediation and the traditional justice system as well as the specific goals of each strategy. Ultimately, this section will prove how community based

mediation and traditional adjudication are appropriately comparable alternatives for use in a cost-effectiveness analysis.

At first it would seem that asking whether community based mediation and adjudication have the same goal of dispute resolution is a perfunctory question since they are themselves both, in fact, forms of dispute resolution. However, it is necessary to ask this question because, as the literature and stated mission of each strategy suggests, the definition of what constitutes dispute resolution may not be the same for each alternative. Those who are involved with mediation often contest that its main virtue is that it does not only seek to resolve a dispute but to transform the participants understanding of conflict (Bush and Folger 2004). To take this debate a bit further, some practitioners believe that reaching a settlement for the sake of settlement is in itself not a desirable goal. This, they maintain, is the key difference between mediation and the judicial system, which seeks only to rectify the dispute with respect to the law (Fuller and Winston, 1978). Regardless, this study assumes that community based mediation and court adjudication essentially seek the same outcome – resolution of conflict.

Determining Costs

As mentioned earlier, a cost-utility analysis is comprised of two parts; the cost of the intervention and the effectiveness of the intervention. In this case, the goal is to capture those costs which are associated with the intervention being evaluated; this includes the costs required to deliver the intervention and associated program costs. In many ways, defining the costs of a particular intervention can be more difficult than measuring its effectiveness. This is due largely in part to the fact that deciding which

costs to include or exclude is left entirely up to the evaluator, a complicated process at best. Furthermore, there is no set methodology for defining costs since it changes depending on the intervention being evaluated.

The methodology in this thesis will provide recommendations for which costs should be included in a cost-utility analysis involving mediation and court adjudication programs.

Ingredients Based Approach

Because mediation and court adjudication programs vary wildly from each other and among themselves in both organization and scope, the methodology in this thesis supports using an ingredients based approach to analyzing costs. As Levin (1995, 108) notes,

The costs of an intervention are defined as the value of the resources that are given up by society to effect the intervention. These are referred to as the ingredients of the intervention, and it is the social value of those ingredients that constitute its overall cost.

The benefit of using the ingredients based approach is that it is easily adaptable from one program to another and it clearly defines the costs in such a way that makes it easier for the evaluator to decide what to include. Furthermore, this approach also gives decision makers a clear picture of how the costs were determined and to what extent a programs total costs are apportioned (Tan-Torres et. al. 2003).

According to Levin (1995), the ingredients approach to cost estimation entails three distinct phases:

- (a) Identification of the ingredients
- (b) Determination of the costs of the ingredients

(c) Analysis of the ingredient costs in an appropriate decision framework

Identifying Ingredients

The ingredients that need to be identified for this cost-utility analysis are those resources that are required for mediation and adjudication interventions. Essentially, this amounts to defining what each program needs in order to produce the intervention. While every program is different, the categorization of the ingredients themselves should remain the same from program to program - this is what makes the ingredients based approach so adaptable.

When identifying ingredients, it is important to remember that only those costs that are required for the program to deliver the intervention should be considered. This means that indirect costs, such as court/participant fees, attorney's fees, cost in time to participants, participant transportation costs, etc. should **not** be included, since these costs are not required by the program to affect the intervention. Furthermore, only those costs which are associated with the actual case resolution activity should be considered. Some mediation programs also provide conflict resolution training, facilitation, and other services in addition to mediation; including costs associated with these functions would distort the true cost of the intervention itself. This is why it is important to use the ingredients based approach, rather than a typical accounting based approach, since an accounting based approach does not separate out the costs of specific activities of a program (if it has more than one). For most programs the ingredients required fall under three broad categories: personnel, facilities, and materials.

Mediation Programs

Personnel. All mediation programs will require labor in order to provide the intervention. The number and division of that labor may change depending on the program itself but in general there are two main ingredients; mediators and administrative personnel.

While every mediation program will obviously have mediators, the makeup of administration staff will likely vary widely from program to program. In this case, the adaptable nature of the ingredients based approach greatly enhances the ability of the evaluator to determine which personnel costs to include, even when those costs would otherwise be hidden or uncounted. For example, some mediation programs work closely with a local courthouse and rely on referrals from the courts for mediation cases. The court personnel responsible for processing these referrals and distributing them to the mediation program should therefore be included in the costs of the mediation program, even though they work for the courts.

When determining costs for personnel ingredients, the best approach is to determine how much it would cost to hire a person for a particular position using market value. This includes costs associated with total compensation - fringe benefits, salary, any required training and so forth. This information can generally be obtained through staff interviews and in some cases accounting data. The only exception to this general rule is when shared costs need to be taken into consideration. An example of a shared personnel cost would be when, using the previous example, court personnel also serve a function in

the mediation intervention. In this case, it is likely that the court personnel would perform functions other than referring cases to mediation and so it is necessary to isolate the percentage of the cost that is required to fulfill the mediation intervention.

Another way to look at it is to consider the cost to replace the person(s) who handles the mediation referrals if they were only required to perform that function and nothing else. The idea is to include only what is necessary to the delivery of the intervention; simply capturing the cost of the court personnel's total salary and benefits would overstate the cost of that particular ingredient.

While determining cost of administrative personnel is fairly straightforward - the market value often being represented by their total compensation - determining the costs of mediator personnel will often require additional investigation. The reason for this, as mentioned earlier, is that a central tenet of community-based mediation is that the mediators who provide their services for these programs do so *pro-bono*. Mediators are usually volunteers. One survey (McKinney, Kimsey, Fuller, 1996) which received responses from 146 different mediation centers across the country found that half of them offered mediation services for free. This means that while sometimes community-based mediation programs will charge disputants a fee for using their services the actual mediators still do not get paid a wage. This fact has prompted many to surmise that because mediators in these programs work for free, unlike attorneys and judges, then community-based mediation is less costly (McGillis 1997).

For purposes of a cost analysis, however, this belief is inappropriate due to the economic definition of cost – that cost represents lost opportunity. To put it another way, the cost of an intervention (program) represents the value of the resources used had they

been assigned to their most valuable alternative (Levin and McEwan 2001). For the purposes of costing, this value can be determined in two ways. The first is by determining the replacement cost of the volunteer mediator. This equates to the cost of hiring someone to replace the volunteer mediator, taking into consideration that they would need to possess the same skills as the volunteer to perform the mediation. Essentially, this is the same as looking at the market value of professional mediation services. The second way to determine the cost value of a volunteer mediator is to assess the opportunity cost that the person incurs by volunteering. In this case, the value would be derived from the person's professional income - the amount of money forgone by volunteering instead of working.

This thesis recommends using the replacement cost to determine the value for volunteer labor. As the UN Handbook on Non-Profit Institutions in the System of National Accounts (2003, 70) notes,

Although theoretically desirable for some purposes, the opportunity cost approach is not often used. It makes considerable statistical demands, and it also has the unfortunate property that the value of a given activity—an hour of housecleaning, for example—is dependent on the earning potential of the one performing it—i.e., the cleaning performed by an investment banker is more valuable than that performed by a file clerk.

Clearly, for community-based mediation programs, the majority of which are comprised of volunteer mediators from a broad spectrum of professional backgrounds (McKinney, Kimsey, Fuller, 1996) the opportunity cost approach would be inappropriate. Using the replacement cost approach ensures a more accurate representation of the cost incurred by the actual program to effect the intervention, which is the primary goal of the cost-utility analysis.

In almost all cases, this methodology recommends including the market value cost of volunteer mediators. However, there is one condition where an evaluator might not want to use the cost of volunteers. A cost-effectiveness analysis of a community-based HIV outreach program (Kahn, Kegeles, et al. 2001) discussed the advisability of not including the cost of volunteers in their analysis based on the nature of the volunteer work being used in that program. Their reasoning was that because ultimately the goal of the program was to engage young, gay men to volunteer in their own community in order to increase HIV awareness and safe-sex practices, the volunteers were actually beneficiaries of the program. Similarly, there are claims that the goal of community-based mediation is to use volunteers from within their own community to act as mediators – the point being that mediation, as a means of promoting peace, is more effective when done by those from the community in which they serve (Sachs 2000). The end result is that community-based mediation programs benefit their volunteers by giving them the tools and ability to foster peace in their own lives, both from directly learning conflict resolution skills and by diffusing that knowledge to their neighbors.

Unfortunately, the limited number of studies that have looked at the demographics of mediators in community-based programs tend to find that the volunteer mediators in most community-based mediation programs do not reflect the target population (Hairston, 2008; Folger, Della Noce, and Antes, 2001; Hedeem and Coy 2003). It therefore is unlikely that an evaluator will need to deviate from the methodology proscribed in this thesis.

Facilities. While personnel ingredients may vary widely from one program to another, ingredients related to use of facilities most likely will not. The reason, of course,

being that all mediation programs need space to perform their mediations. Furthermore, space is also required for administrative functions, such as offices for staff, storage for case files, training rooms for mediators, etc.

Once all of the ingredients connected to the space required to deliver the intervention have been identified, the next step is to determine their costs. Again, this thesis recommends using the market value to determine the cost of most ingredients. This is especially applicable to these types of ingredients because it is relatively easy to find the market value for facilities, utilities, maintenance, etc. In many cases, this can be done by looking at the accounting information for a particular program; however, it is not advisable to rely solely on this data since it can often omit costs that would otherwise be present from an economic standpoint. The evaluator should be prepared to research the current market value for costing ingredients when necessary.

Materials. Like space requirements, it can safely be surmised that all mediation programs require certain materials to perform their functions. Ingredients related to materials will include such things as office supplies, hardware (e.g. computers, furniture), and any materials that participants need to furnish themselves.

Again, when determining the cost for ingredients related to materials, it is best to use the market value for those items. As with the other categories, it is likely that some of this information will be readily available in program accounting data.

Adjudication Programs

As far as identifying and capturing costs for adjudication the process is much the same as for mediation with the exception that it will, for the most part, be more laborious.

The difficulty in capturing costs from an adjudication program is that the costs are typically embedded within the associated court system as a whole. Unlike community based mediation, which handles only specific types of cases, adjudication is part of a system that handles a wide range of cases. As such, court systems do not set aside a portion of their budget only for those cases that are also appropriate for mediation – everything is covered under one total operating budget.

The challenge for the evaluator is to separate the costs that are only associated with cases that would be appropriate for both mediation and adjudication. The easiest way to do this is by either using an experimental design involving random assignment or by following the case matching approach, both of which are explained in greater detail in the following section on measuring effectiveness. Using either of the two methods, the evaluator can then apply the ingredients based approach to the selected cases. Since the ingredients approach is a "bottom-up" method this will allow the evaluator to determine the total cost of the intervention by identifying what is needed at the case level and working "up" through the associated costs - facilities, personnel, materials, etc. - just like with mediation interventions. The main difference is going to be that the majority of the costs involved with adjudication interventions are going to be shared costs.

Associated and Non-Programmatic Costs

Proponents of mediation often include non-monetary costs associated with traditional adjudication when comparing the costs and benefits of mediation versus the adversarial system. This thesis intentionally omits those costs for two reasons. The first reason is due to methodology. Unlike a cost-benefit analysis, a cost utility analysis does

not seek to capture all possible costs and benefits of a program. Instead, cost utility analysis uses a much narrower scope, looking only at a few measures of effectiveness for a specific outcome; for that reason, the only costs that need to be captured are those associated with the actual ability of the program effect the intervention. The second reason is data legitimacy. Often, the logic behind claims that mediation avoids some costs (in this case specifically non-monetary costs like emotional trauma) is based on the assumption that by using adjudication (or any adversarial process) a person will *automatically* incur those costs (Susskind, Bush and Folger 1999). However, to date there is not enough evidence to support the assumption that adjudication causes these costs. In reality, the costs that mediation proponents describe (the increased stress, emotional damage, etc.) are actually costs associated with the conflict itself.

It should be noted that there is a field of research dedicated to monetizing the cost of conflict, typically at the macro level but there are some studies that attempt to calculate the cost to a person who is in conflict (see Hess 2003). This research, while valuable in its own right, does not have any bearing on the type of cost-analysis discussed in this thesis. Some studies have used the costs associated with conflict to illustrate the beneficial peace-keeping effects of mediation and other conflict resolution techniques – by fostering peace those costs are avoided (Saunders 1999). However, the focus of this methodology is not to define the cost of conflict, but to define the cost of the interventions that are being evaluated.

Determining Attributes to be Measured

Quality of Justice. As mentioned earlier the virtues of mediation have been extolled by many; from practitioner to participant and so on, but the challenge for the field has been to isolate those possible outcomes for careful, empirical analysis. For the most part, the difficulty lies in attempting to quantify outcomes that are inherently qualitative; for instance, increasing awareness in the community about conflict resolution is a nice ideal but highly impractical to measure (Mayer 2004). Moreover, and especially in this context, it is necessary to measure the outcomes of mediation with respect to the alternatives. In this case the comparable outcome is still dispute settlement and so any additional outcomes to include in an analysis should still relate to that goal in some way.

Again, while the potential outcomes of community based mediation programs are manifold, for the purposes of determining actual effectiveness with regards to dispute resolution any analysis must be selective in its consideration of outcomes. In the 1997 report on community based mediation, McGillis recommends evaluating mediation programs against court case proceedings by measuring the ‘quality of justice’ provided by each alternative. Based on available research and data, McGillis assesses quality of justice using three components: “settlement rate, disputant satisfaction with the process and outcomes and perceptions of their fairness, and disputants’ compliance with settlements.” In a more recent study, Wissler (2002) evaluated civil court connected mediation programs on: 1.) the quality of the procedures, 2) the quality of the outcomes, and 3) the efficiency of the procedures. In many ways, Wissler’s categories are simply a re-ordering of McGillis’ quality of justice criteria with one exception; the inclusion of

mediator evaluation (evaluating the actual ability of the mediator during the mediation process).

This thesis has purposefully excluded using any evaluations that can only be applied to the mediation process (and this is a key difference between previous studies and cost-analysis) because they cannot also be applied to court adjudication. Both alternatives in a cost-utility analysis must be evaluated by the same measures of effectiveness; thus, considerations of mediator style, impartiality, respectful treatment, etc. cannot be used in this type of cost-utility analysis. Of course, a CUA that involved two different *mediation* alternatives could, and probably should, include such attributes.

Therefore, for the purposes of performing a multi-attribute cost-utility analysis, this thesis calls for the adoption of McGillis' quality of justice to be used as measures of effectiveness. Other than their use as a reflection of the quality of justice of a program, settlement rate, compliance rate, and satisfaction level are three of the most commonly studied measurements in community based mediation research (see Hedeem, 2010; Caffey 2005, McGillis 1997). As such, the methods for evaluating these attributes are already familiar to many in the field of community based mediation, which should help when performing a cost-utility analysis.

The other reason this thesis recommends using quality of justice attributes is simply because there hasn't been any kind of prior discussion or study of what should be considered as measures of effectiveness for a mediation program when performing a cost-utility analysis. Typically, a cost-utility analysis relies on the decision maker to provide the evaluation criteria, which makes sense considering the CUA is done primarily for the benefit of the decision maker. In such cases, the decision maker selects those attributes

that are the most important to him, thus the CUA presents the most relevant information. It is certainly feasible that different community based mediation programs have different ideas about what should be evaluated in a cost-utility analysis, and ultimately it would be difficult to hold one set of criteria above another. This thesis, as mentioned before, is trying to present cost-analysis in a way that is more akin to experimental design, with the ultimate goal of having this cost-analysis repeated by many mediation programs. Thus, the benefit of having one set of evaluation criteria becomes readily apparent for the purpose of creating eventual meta-analyses.

Note that this thesis encourages discussion on what exactly the best measurements of effectiveness for community based mediation programs should be. Input from mediators, academics, court systems, and participants should all be included to provide the most vibrant discussion possible, but particular attention should be paid to those who actually use community based mediation services. Practitioners and academics may have ideas about what they believe to be the most important attributes of community based mediation, but in reality those who chose to use mediation do so for their own reasons (Genn 2010).

Although unnecessary for assessing program costs, the use of an experimental design for evaluating the measures of effectiveness is highly encouraged. Shack (2007 p.4) notes,

The most reliable and generalizable results will be derived from a comparison of cases randomly assigned to mediation or to traditional litigation (or some other comparison group). Random assignment reduces the probability of external factors influencing the outcomes, and is the most valid method for measuring differences between the comparison groups. This method is thus always the most desirable. However, it is very difficult to use random assignment in the court setting, so it is rarely done.

Unfortunately, Shack is correct in her assessment of the difficulty in undertaking a random assignment within the courts; the time required to prepare and process a specific group for evaluation would likely lead to issues of due process - something the courts are keen to avoid. However, performing a comparative study with random assignment is not unprecedented (see Anderson and Pi, 2004; Clarke, Ellen, McCormick, 1995; Fix and Harter, 1992; Kakalik et al, 1996) and every effort should be made to measure the quality of justice using the random assignment method first.

Nonetheless, realizing the difficulty in using random assignment and in an effort to make this analysis as accessible as possible, this thesis assumes that the evaluator will not have the ability to use random assignment. The following methodologies for measuring the effectiveness of mediation and adjudication interventions have been designed to provide data analysis that is as accurate as possible in lieu of using random assignment. Unless otherwise specified, this is done by using a case "matching" method, whereby the evaluator looks at the characteristics of a case that will/has gone through adjudication and matches it to a mediated case with the same characteristics.

Ultimately, there is always going to be some degree of uncertainty with regard to the reliability and validity of the gathered data in any analysis. For this type of analysis in particular, there are going to be necessary changes between evaluations based on their particular circumstances. Adhering to fundamental statistical principles and experimental design as much as possible will help to ensure that the usefulness of the analysis remains strong.

Settlement. The ability to reach settlements is probably the most obvious choice for a measure of the quality of justice because it indicates the effectiveness of mediation and adjudication programs are at resolving disputes. This is the essential function of both interventions and serves as the basis for assessment in this methodology. The other two measures of effectiveness, satisfaction rating and compliance rate, can only exist within the presence of a settlement.

Of course, there is some debate about how important reaching a settlement actually is in mediation, with one side maintaining that settlement is the ultimate goal while the other side purports that the process is more important than the outcome. Moreover, there is much room for interpretation as far as the scope of an agreement or settlement; a mediated agreement might provide for an immensely comprehensive resolution or aim for a much smaller goal. In any case, most proponents of mediation see it as a better alternative to court adjudication because the settlements that do come out of it are superior to handed-down judgments; the idea being that people who resolve their own issues are more likely to be satisfied with the outcome (Nicolau 1995).

Arguments aside, settlement rate is still important to assessing the effectiveness of a community based mediation program. Regardless of how “good” a settlement is, if the mediation program only resolves a handful of its cases chances are as a whole the program is not very efficient in achieving its goals. In any event, the other two measures of effectiveness in this methodology provide for evaluating the inherent quality of the settlement itself anyway. However, using settlement rate as a measure of effectiveness still has its own disadvantages; the biggest, lack of access, is discussed in detail in the following section.

A continuing concern in the field of community based mediation is the relatively small caseload experienced by many mediation programs. In his study of North Carolina mediation programs, Clarke (1992) notes that the referral rate for eligible cases for some programs was as low as 22.8 percent; Wissler (2002) also noted that only a small percentage of filed cases were referred to mediation. With respect to cost analysis (based on court caseload reduction), McGillis (1997, 62) states,

A central difficulty in estimating the impact, if any, of dispute mediation centers on court caseloads is the problem of determining what proportion of dispute resolution program cases would have proceeded into the courts and how far they would have gone in the process. It is very difficult to determine the amount of court attention that mediation cases would receive without the use of an experimental research design.

While studies have shown that there is a range of reported caseloads across mediation programs (McKinney, Kimsey, Fuller, 1996) there is still substantial evidence indicating that mediation programs are underused as compared to court adjudication. The three following points are often cited as the main reasons for this phenomenon:

- 1.) Voluntary Nature – Community based mediation is by definition a voluntary process. This essentially means that even if a case is appropriate for mediation there is no mechanism in place to ensure that it gets there. A judge may or may not assign a case to mediation and parties may or may not want to use it (see Genn, 2010). Furthermore, even if a case does go to mediation the parties are under no obligation to reach a settlement using that process.

- 2.) Inertia – in order to show substantial changes in court expenditures mediation programs would need to take over a large percentage of those cases which are

currently handled by adjudication. In order to avoid diseconomies of scale, the court budget would need to be scaled back proportionally to the decreased caseload. Undoubtedly, "...inertia in the system would also mitigate against any rapid reductions in court system costs in response to reduced court caseloads" (McGillis 1997, 56).

- 3.) Awareness – Mediation is not always an option; but even when it is people might not take advantage of it because they are not aware that it exists. Almost everyone is familiar with the court system; however, a much lower percentage of the population is familiar with mediation in general (Hicks, Rosenthal, and Standish, 1991). The situation is further exacerbated by the fact that those in a position to refer cases to mediation may fail to do so.

Because mediation programs often suffer from a lack of use, this makes it difficult to compare their actual effectiveness with other programs; in this case adjudication. Simply using the rate of settlement to determine effectiveness can be misleading, especially in instances where the actual number of cases is vastly different between the two alternatives. Clearly, a mediation program that resolves ninety out of a hundred cases is overall less effective than a court adjudication system that resolves eight hundred out of a thousand, even though the mediation program technically has a higher success rate.

Under ideal circumstances, an experimental design would be used to randomly assign an equal population to both alternatives for the course of the study - this would help to ensure that the success rate is accurate with respect to the magnitude of the program. However, as already mentioned, it is unlikely that a cost-utility analysis using

an experimental design will prove to be a practical consideration. For that reason, the methodology in this thesis recommends looking at the total number of settled cases, rather than the settlement rate alone. However, in order to do that, the analysis must first account for the problem of underuse.

Adjusting for Underuse due to Lack of Access

Since looking only at settlement (or success) rate does not fully capture the effectiveness of mediation programs, it is therefore necessary to first account for the discrepancy in caseload between the two alternatives. The reason this has to be done is due to the fact that court adjudication is, in most instances, the default form of resolution for conflict. This means that in order to compare another alternative to adjudication it is necessary to measure them both within the same degree of magnitude.

Now, in order to ensure an equal magnitude without the benefit of an experimental design it becomes necessary to make a few assumptions. While it is true most cost-analyses theorists recommend avoiding unnecessary assumptions as much as possible (Levin, 2001) it is accepted that there are times when this is unavoidable (Tan-Torres, et al. 2003). In this instance, it is necessary to determine the number of cases a mediation program would receive in a given year given the assumption that underuse is not a factor limiting caseload.

Now, the actual amount of cases any given mediation program could handle in a year is, of course, dependent upon the size and scope of that particular program and available caseload in general (all the cases that could possibly be mediated in a particular jurisdiction). Ultimately, the idea is that most (if not all) mediation programs can operate

at a much higher capacity even with their current available resources. Generally speaking, in order for a program to increase output, associated costs must also increase – usually in the form of hiring more staff, expanding facilities, etc. Community based mediation programs however, due to their typically low caseloads, can take on more cases immediately without having to increase costs (Sheppard, 1985). Of course, this might not always be true and a mediation program could already be operating at maximum capacity, in which event adjusting for underuse would be unnecessary.

However, if it is determined that a mediation program does suffer from underuse, which according to the research is likely, it will be necessary to account for the discrepancy by determining the maximum potential caseload of the program. To that end, this study has developed a formula that attempts to come as closely as possible to determining the potential number of successfully mediated cases under the assumption that it is operating at its maximum capacity:

$$E = \left(\frac{P_h}{C_h} \right) \times n_c \times s$$

Where E = Effectiveness (number of cases resolved in a year)

P_h = Potential workable hours in a year

C_h = Time in hours to process 1 case

n_c = Average number of cases that can be solved simultaneously

s = Success Rate

The first step is to determine how much potential time there is for a given mediation program to conduct mediations and process cases. For mediation programs, finding this number can be difficult since not all programs have on-call mediators

available for a set number of hours. Often, programs instead rely on assigning cases to mediators as they arrive. If a mediation program has its own unique work schedule based on available resources then that should be used; otherwise, this formula assumes that most mediation programs operate on a standard work week - meaning that the mediation program has enough personnel available to work a standard work week. Work hours in a year are either standardized at 2080 hours in a year based on a 40 hour workweek with 52 weeks in a year, or slightly lower to account for federal holidays and sick leave. With the exception noted above for unique work schedules, this methodology calls for using 2080 hours in a year.

Once the potential work hours in a year is established, the next step is to determine how many cases can be resolved in that amount of time for any given program. In order to do this it is necessary to determine the average time it takes to process a case for a particular program. The most straightforward way to accomplish this is by looking at the recorded time (in hours) for each mediated case over the course of a year - this includes both cases that reached a settlement and those that did not - and any administrative hours required in connection with each case.

It is important to note that only time spent actively invested in a case should be tracked. Although in reality a case often takes a long time to complete a large percentage of this time is empty, meaning that the case exists but it is not being actively processed. Courts in particular often schedule dates months in advance, during which time the case exists in the system but is not being processed directly by the court. The reason why this time should not be included is because it will artificially inflate the time required to process as case, which in turn hampers the ability to measure the effectiveness of each

alternative with respect to settlement rate. Once that has been done, the final step is to average the case processing times.

At this point, the potential work hours in a year can be divided by the average time (in hours) to complete one case, providing the number of cases a specific mediation program can process in one year. However, this number is inaccurate because it automatically assumes that a mediation program can only process one case at a time. In order to remove this assumption, it is necessary to multiply the value $\left(\frac{P_h}{C_h}\right)$ by the number of cases that can be processed simultaneously by a specific program.

Determining how many cases can be processed simultaneously is entirely dependent on the resources available to the particular mediation program. For each program there is a finite amount of physical space available for conducting mediations and a limited number of available mediators, as well as other program specific resource requirements. The only way to ascertain how many cases can be mediated at the same time is to assess a program's resources and compare them to its requirements for processing a single case. Ultimately, the idea is that most (if not all) mediation programs can operate at a much higher capacity even with their current available resources. Generally speaking, in order for a program to increase output, associated costs must also increase – usually in the form of hiring more staff, expanding facilities, etc. Community based mediation programs however, due to their typically low caseloads, can often take on more cases immediately without having to increase costs (Sheppard 1985). Of course, this might not always be the case and a mediation program could already be

Now that the total number of potential cases that a program could process in a year has been established the final step is to determine the number of those cases that

would reach a successful settlement - otherwise the formula assumes that every program would reach a settlement with 100% of their cases. To remove this assumption, it is only necessary to multiply the potential caseload by the success rate of the mediation program. This is done much like finding the average time required to process a case: record the number of settlements over a given year divided by the total number of cases processed (actually processed, not potential cases).

Multiplying the potential number of cases by the success rate will provide the potential number of successful cases - the measure of effectiveness that will be compared against that of adjudication. In lieu of an experimental design, this number is intended to reflect as closely as possible the true effectiveness of a mediation program to resolve disputes. Essentially, this formula uses three criteria to determine the effectiveness of settling disputes: the current level of resources available to the program, the success rate of the program, and how quickly the program can resolve cases.

Measuring Settlement in Court Adjudication

When assessing a court adjudication program it is not necessary to use this formula since adjudication does not suffer from lack of underuse. Moreover, it is unlikely that a court adjudication program would suffer from a success rate of much less than 100%, since typically in all cases of adjudication there is a clear settlement or decision unless the case itself is dropped. However, it would be incorrect to simply look at how many cases a court program processed in a year - doing so would inflate the actual number of cases being compared to the mediation program. Instead, court cases must be assessed by type to determine their suitability for both programs. As mentioned before,

the best way to do this is to match adjudicated cases to mediated cases based on their shared characteristics (Shack 2007). Because of the variety of cases and differences in assignment based on the court system being evaluated, the evaluator will need to determine which cases should be matched based on their own criteria or with the help of an expert consultant. This thesis cannot account for all the variations in case characteristics and so no attempt to do so is incorporated into the methodology.

Satisfaction. The second attribute in the CUA analysis is satisfaction level as characterized by the quality of justice criterion mentioned previously. In terms of importance, satisfaction with the outcome of a case is probably the most important factor in determining the utility of mediation and adjudication alternatives. Certainly, satisfaction as a metric for evaluating mediation programs is an immensely popular choice in studies of community based mediation (Hedeen 2004; McGillis 1997; Shack 2007); most likely because there aren't many alternative metrics available, but also because it highlights one of the main goals of mediation: providing a *better* settlement than court adjudication.

Objectively, it is difficult to measure the inherent effectiveness of a mediated settlement versus that of an adjudicated settlement because the courts have a guide and standard, the law, while mediation does not. This is to say that court adjudication is only required to satisfy the law (or at the least settle the case with respect to the law) and so litigant perceptions of fairness and satisfaction are not considered relevant to the effectiveness of the case.

Mediation on the other hand, does not follow the same guidelines - there is no predetermined standard to measure the effectiveness of the settlement against. Because of this, the majority of mediation programs and practitioners have resorted to gauging participant satisfaction with mediated cases as an indicator of the effectiveness of the settlement. Satisfaction works as a measurement because it represents the quality of the settlement with regards to the perceptions of the participants, the only group that matters in mediation. If the participants are satisfied with their settlement, then it's an effective settlement.

Furthermore, while there are other emotional rating scales, such as happiness or relief, satisfaction, in as much as it can be so, represents a more objective analysis of the outcome of a dispute. For instance, a party could feel relief resulting from the outcome of a settlement simply because the dispute is over. Likewise, a party could feel happiness because they perceived themselves to have won the case regardless of the actual effects of the settlement; in either case, the participant is not being asked to evaluate the alternative on the merits of its quality alone. By asking the parties to rate their level of satisfaction with the process, settlement/agreement, and outcome they are actually being encouraged to examine their satisfaction with the alternative as a whole.

Considering that numerous studies have looked at satisfaction in so many different ways (see Conomy and Flagg 2000; Wissler 2002; Shack 2010) it is necessary for cost-utility analysis to choose only those that are most relevant. This study calls for measuring participants' satisfaction in three ways: satisfaction with the process as a whole, satisfaction with the specifics/fairness of the settlement (if there was one) and satisfaction with the general outcome of the case. Primarily, the justification for using

these three measures of satisfaction is that they are non-limiting in that they can be applied to both mediation and adjudication. There may be other categories of satisfaction that could be included in a cost utility analysis but they still have to meet the inclusion criteria. This study believes that the three measurements of satisfaction mentioned sufficiently define satisfaction as a measure of effectiveness.

Fortunately, measuring satisfaction is generally a simple thing to do. In this case, the methodology does not significantly differ from the approached taken by most studies. Each participant is given a survey to complete immediately after the end of either their mediation or court adjudication (see Satisfaction Survey in the Appendix). These surveys should be given to the participants for each set of matched mediated and adjudicated cases for the given duration of the study. Otherwise, the surveys should be given to the participants in the randomly assigned groups if applicable.

There is no difference in methodology for measuring satisfaction between the two interventions and the method of distribution does not need to follow a particular rule - mail-in vs. in-person, for example - as long as there is a statistically significant sample size, Shack (2007) recommends a minimum response rate of 45% for mail-in surveys.

Once the data has been collected, all three satisfaction ratings need to be added together for each participant and averaged (this can be done simultaneously, i.e. all participants scores can be added together and then averaged) to give the total net average satisfaction per case. Once all participants have done the survey for a given program, those results can likewise be totaled and averaged to give the average satisfaction for the entire program.

The advantage of using a net satisfaction rating is that it acknowledges the ability for mediation to create a win/win scenario for parties by allowing for a positive satisfaction rating from all participants. A net satisfaction rating therefore reflects the effectiveness of a settlement as a whole rather than dividing the outcome into separate units for the perceived winner and loser for each dispute. Likewise, a net satisfaction rating also has the capacity to reflect the possibility of a lose/lose outcome wherein each party was dissatisfied.

Ultimately, since the evaluation is attempting to compare the mediation process with that of adjudication in an effort to determine which is more effective it would be inappropriate to look beyond the immediate results of each strategy. Hence, this study does not take into account whether participants are still satisfied with the outcome of their case at any point after the initial settlement is reached. While it could be argued that knowing this information would aid in determining the effectiveness of both strategies there are difficulties that make such a study impractical. First, it would be incredibly hard to determine the satisfaction level after the mediation since most mediation programs and courts do not keep the necessary data. Secondly, it is unlikely that a person would later change their level of satisfaction with a settlement unless the settlement itself has changed. If a settlement did change it would not necessarily be due to the mediation process or adjudication since enforcement of a settlement is not the responsibility of either strategy.

Compliance. The final attribute in this utility-analysis is compliance rate. Compliance is simply determined by whether the parties have followed the terms of their

settlement (in the event that one was reached) within the appropriate timeframe. As a measure of effectiveness, compliance rate indicates the ability of the intervention to create durable settlements - settlements that truly end the conflict.

Historically, data on compliance rate among mediation of all types has been limited, mainly due to a lack of studies but also because of the ambiguity of their findings (McGillis 1997). The difficulty with measuring compliance is the length of time required to do so; the other two attributes, satisfaction and settlement rate, can be determined relatively quickly – usually immediately after the case has been heard in court or after the mediation. Compliance rates can only be determined sometime after the initial hearing (for both mediation and adjudication) since most settlements require some amount of time in order to take effect.

The methodology in this study requires total compliance rate data for each party in a settlement; have all parties complied with all terms. While some studies have looked also at partial compliance, cases where only a percentage of the parties have complied with the terms or where not all of the terms have been met, this analysis takes the position that anything less than total compliance is a failure. The strictness of this compliance metric is necessary because the analysis seeks to measure the effectiveness of the entire intervention; it would be impractical to divide the compliance attribute further into percentages of compliance.

Collecting Data on Compliance Rates

For the purposes of a utility-analysis obtaining this data could be very difficult; however, as a defining attribute for quality of justice, this data is absolutely necessary. The ways in which the evaluator will be able to determine compliance will be determined by a number of factors, namely; the reporting policies of the intervention, the nature of the settlement, and the ability to contact parties after the case has been settled.

The reporting policies of court adjudication and mediation programs will play the biggest role in determining how compliance data can be collected. Many courts require that some form of reporting is done to ensure that the settlement of the case is enacted by the appropriate date; such as in small claims court if a party is required to furnish a payment. This data can easily be collected from the court program being evaluated and provides the evaluator with a clear and unquestionable determination of compliance for a case.

Mediation programs, on the other hand, differ widely in their reporting of compliance. Sometimes, depending on the case, parties will be required to submit their mediated agreement to the referring court or judge, who then may or may not require the parties to report their compliance at a specified date. Other mediation programs, however, require no reporting of compliance and effectively close a case after a settlement has been reached regardless of whether the parties actually comply with the terms of the agreement. Those mediation programs that work in tandem with a respective court program typically provide better reporting of settlement and compliance among their cases.

Owing to the lack of consistency regarding the reporting of compliance by the programs themselves, it may sometimes be necessary for the evaluator to determine compliance rate individually. This can only be done by asking the parties directly if they have complied with the terms of their settlement. To that end, this methodology has developed an example compliance questionnaire that can be given to participants (see appendix A1). The appropriate time to ask parties if they have complied with the terms of their settlement will depend on the nature of the settlement itself; some settlements will have timeframes built into them while other settlements may not require any future participant action at all. See the appendix for further reference on measuring compliance.

Converting Attribute Measurement to a Common Utility Scale

Once the three attributes have been measured for each alternative the next step is to convert those values to a common utility scale. This step is necessary because of the variance in metrics used for each of the three attributes. A single value cannot be obtained from combining three different units of measurement; the number of settled cases, the rate of compliance, and the level of satisfaction among participants. Therefore it is necessary to convert the different units of measurement into one common unit of measurement, in this case, utility.

As mentioned earlier, utility is simply a reflection of the level of satisfaction a person receives from a given value of a specific criterion. This is to say, essentially, that for every value of a given measurement there is a corresponding value of utility. For instance, an average satisfaction rating of 90 for a mediation program could equate to a

utility value of 85. Once utility has been determined for each attribute then those values can be combined into a single figure using the multi-attribute additive utility function.

There are several different available methods for converting values to a common utility scale, ranging in complexity and practicality. The most rigorous methods typically involve the use of “decision gambles,” which essentially utilize risk attitudes to determine utility (see Keeney and Raiffa 1993). This method basically presents a person with differing scenarios and asks at what point that person would be indifferent to a choice between a certain option and a probabilistic option based on the highest and lowest values of utility (arbitrarily determined by the evaluator). Whatever that point is determines the utility value for that single attribute of one alternative.

While there are many arguments for using the standard gamble approach there are also significant arguments against it. This thesis does not recommend using the standard gamble approach for two main reasons:

1. **Practicality.** Performing even one standard gamble takes a significant amount of time (see Hatush and Skitmore 1998 for an example of a standard gamble process). This methodology calls for determining utility values for hundreds of cases. Considering the time it will take to determine just the unconverted values for each attribute, using this approach would make for an almost interminably long study.
2. **Accuracy.** Usually, multi-attribute utility analyses involve more than just two alternatives for consideration. The more alternatives there are in an analysis, the greater the need to determine utility for middle values with accuracy as the

differences can become very small. Standard gambles are good at determining utility of middle values because they ask the subject to make a decision based on the highest value and the lowest value. The methodology in this thesis, however, is designed around only 2 alternatives, meaning that there are really only three values - lowest value (which is the null), the middle value, and the highest value. With only one middle value, just the difference in utility between the middle and the highest is necessary to determine.

Instead of using gambles this thesis advocates the proportional scoring approach; the main advantages of this approach are straightforwardness and ease of use. The basic principle of proportional scoring is that as the value of an attribute increases, so does utility. The actual formula to determine utility using this approach is:

$$U(x) = \frac{x - a_l}{a_h - a_l} * 100$$

Where:

U(x) = the utility of the given attribute (of the given alternative)

X = the given attribute score (of the given alternative)

a_l = the lowest attribute score

a_h = the highest attribute score

As Levin and McEwan (2008, 103) note, “proportional scoring is simply a linear rescaling of each attribute to a common utility scale.” Essentially, the proportional scoring technique gauges stakeholder preference without actually soliciting input directly from stakeholders.

While simple to apply, some distrust this approach due to the fact that there is no actual elicitation from stakeholders with regards to preference; the method just assumes that value and utility increase proportionally. The fact is, the methodology proposed in this thesis only analyzes two alternatives and, much like using standard gambles, determining utility with proportional scoring is also based on arbitrarily setting the highest and lowest scores for a given attribute at the highest and lowest value of utility. As one can see, with only two alternatives for each attribute the actual utility value matters very little; a stakeholder will always prefer the higher scoring alternative to the lower.

However, there is a problem with simply assigning each alternative with either a 1 or a 0 for the respective attribute since that distinction does not allow for any kind of gradation. Perhaps alternative A has more utility for attribute 1 than alternative B does, but it could be by only a very small margin. In a cost-analysis, that small margin could make a huge difference in determining cost-effectiveness.

The solution is to add a third alternative, a null option, which essentially equates to a person doing nothing – the option costs nothing and has no outcome. In effect, the null option simply serves as a placeholder for the lowest scoring alternative, which in turn allows one of the other two alternatives to fill the role of a middle value. In this way, the proportional scoring method can be used to determine the magnitude of the difference in utility between the two “real” alternatives.

Now, the way that this methodology is structured means that the null alternative will always score as having the lowest utility (0) for every attribute, leaving mediation or adjudication to score as the alternative having either the highest or middle value.

Essentially, this results in having to use the proportional scoring method on only one alternative for each attribute:

$$U(\text{middle}) = \frac{\text{middlevalue} - 0}{\text{highest} - 0} * 100$$

Ultimately, there will be three utility values for each attribute: 0, 100, and a middle value somewhere between 0-100. The proportional scoring technique simply assumes that utility increases as the value of an attribute increases. For the purposes of this methodology, the proportional scoring method is more than adequate. The strength of more complex methods is in their ability to determine utility among multiple middle values; this methodology is only for looking at two alternatives (and the null option) so there will ever only be one middle value for each attribute. This being the case, it is enough to know that a person will have less utility for the middle value than they will for the highest value and more than the lowest (zero) utility. The proportional scoring function works such that for middle values approaching the highest value the difference in utility becomes negligible; thus, a middle satisfaction rating of 90 has almost as much utility as a satisfaction rating of 100 – to a stakeholder there is not much difference in preference between total satisfaction and almost total satisfaction.

Applying Weights to each Attribute

Once utility has been determined for each attribute the next step is to weight each value with respect to stakeholder importance. Weighting is simply a measure that ensures certain attributes reflect their appropriate magnitude on the total value of utility for a given alternative. Essentially, this means that the final total value of utility is not the sum of 100% of the value for each attribute; or, to put it another way, weighting is the process

whereby the total value is assigned a percentage of the value of each attribute. The mathematical function is:

$$A_i = \sum_{j=1}^n w_j a_{ij}$$

Where:

A_i = Weighted Sum of Total Utility of Alternative i

w_j =Relative weight of the importance of criterion

a_{ij} = a_{ij} is the utility value of alternative A_i when it is evaluated in terms of criterion

The idea behind applying weights to utility values in a multi-attribute utility function is to allow for different levels of stakeholder determined importance. The process of converting attribute values into utility provides a numerical reflection of stakeholder preference for a given value; the process of weighting provides a reflection of stakeholder preference for a given attribute. In essence, this means that stakeholders prioritize the attributes of a given alternative; for instance, one group of stakeholders might decide that settlement rate is far more important than the level of satisfaction. That being the case, after weighting, the final value will comprise a higher percentage of the utility value for settlement rate than for satisfaction.

Much like determining utility, there are several different approaches for determining the appropriate weight to attach to each attribute. This thesis recommends using the direct method as outlined in Levin and McEwan (2004). The direct method calls for asking stakeholders to determine the appropriate weights by allocating points

across the attributes. The methodology in this thesis includes a survey to be given to the subjects/stakeholders – the survey asks the subject to allocate 100 points across the three quality of justice attributes, giving the most points to the attribute they find the most important and the least number of points to the least important.

Once the subject has allocated the 100 points among the three attributes, those approximations are then each divided by 100 in order to obtain the three importance weights, which total 1. The final step is to multiply the utility value of each attribute by its respective importance weight.

Determining the Cost Utility Ratio

Once utility is determined and weighted for each attribute the final step is to compile the data and perform the cost-utility ratio. This methodology uses the additive multi-attribute utility function in order to combine the utility data from each attribute to make a total measurement of utility for each attribute. This function is expressed as:

$$U(x_1, \dots, x_{n1}) = \sum_{i=1}^m w_i U_i(x_i)$$

$$= w_1 U_1(x_1) + w_2 U_2(x_2) + w_3 U_3(x_3)$$

Where

U_x is the overall utility value of alternative x

W_i is the weight of the i^{th} criterion

X_i is the i^{th} alternative

M is the total number of alternatives

This single value represents the sum of the utility of all the attributes that comprise both alternatives, which is also an indirect reflection of the total effectiveness of each alternative. The advantage of using one value to represent each alternative is the ease with which those values can be compared; at a glance, anyone can see how much utility one alternative has with respect to another.

Now, the intent of this methodology is to provide a means by which cost-effectiveness can be determined for community based mediation programs. In order to do so, the final step in the methodology requires that the single utility value for each alternative be compared with its associated cost. This is essentially the same function as the cost-effectiveness analysis already discussed, the only difference being that instead of a ratio involving a single measure of effectiveness this ratio involves multiple measurements of utility enclosed in a single value. Thus, the cost-utility analysis ratio:

$$CU = \frac{C}{U}$$

is a representation of the cost to raise utility by 1 point for each alternative; whereas before the cost-effectiveness ratio represented the cost to raise the effectiveness of a single measure by 1 point.

Now, as stated earlier with respect to cost-effectiveness analysis ratios, the only time a cost-utility ratio is useful is when either one alternative is both more expensive and more effective than the other or when it is both less expensive and less effective. If the analysis shows that this is the case, then the cost-utility ratio will allow the analyst to determine which alternative is most cost-effective/cost-utility-effective by selecting the ratio with the lowest value; i.e. \$25 compared to \$50 (per each point of utility).

Summary

At this point it is prudent to discuss the use for which multi-attribute utility analysis is being used in this methodology and the design for which it is traditionally used. This methodology has attempted to take existing methods used in both cost analysis and decision analysis and apply those methods here in order to determine actual cost-effectiveness of community based mediation programs. In so doing, this methodology omits the overt goal of decision analysis, which is to provide information in such a way that a decision can be made by a decision maker. At first it may seem that this distinction is trivial since this methodology is in fact, attempting “to reach a decision” with regards to cost-effectiveness; however, the interpretation of the data in this case is left to the analyst, rather than a traditional decision maker. The difference is that an analyst will decide that an alternative is cost-effective based solely on a cost-utility/cost-effectiveness ratio: an alternative with a ratio of \$25.00 is more cost-effective than an alternative with a ratio of \$25.01 since it is technically less expensive.

A decision maker (often a stakeholder in the decision or otherwise representing stakeholders) will, on the other hand, typically decide on which alternative is more cost-effective within a set of additional parameters not included in the analysis. These additional parameters help the decision maker to interpret the data presented in the analysis based on his specific circumstances. For instance, a decision maker could be presented with two alternatives that have quotients of 25 and 26 respectively. The data show that alternative A is the most cost-effective at \$25; however, the ratio of alternative A is $150/6$, while the ratio of alternative B is $52/2$. This tells us that while A is

mathematically more cost-effective than B, B is in reality far less expensive than A and almost just as effective. Subsequently, a decision maker might be working under strict budgetary guidelines and as such any alternative that falls outside of the budget limitations is disqualified from consideration by default, thus alternative A could be eliminated even though it is truly more cost-effective (see Levin and McEwan 2001).

Another example might be that a decision maker is presented with two alternatives that only marginally differ from each other in both cost and effectiveness, such that the decision maker decides a switch from one alternative to another is not worth the effort such a change would entail.

Ultimately, this methodology can be used for decision analysis; indeed, the only additional step required is for a decision to be made and an alternative implemented. However, this thesis has sought only to develop a methodology that can categorically define cost-effectiveness of community based mediation programs (and incidentally of adjudication programs as well). The outcome is that this methodology will produce results that are mathematically and statistically accurate based on selected data only.

Finally, a sensitivity analysis/confidence analysis should be done to validate the results of the Cost-Utility Analysis. Completing a sensitivity analysis in this case is vitally important due to the nature of the mathematical models involved in performing a multi-attribute utility analysis. Essentially, a sensitivity analysis measures the change in output of a mathematical model based on the variance caused by uncertainty of the input factors. In other words, a sensitivity analysis purposefully changes the parameters in a model to illustrate the effects of those changes; i.e. changing the utility values in a given multi-attribute utility function.

The basic idea behind including a sensitivity analysis in a methodology is that with any mathematical model there is going to be the risk of some uncertainty. This uncertainty can come from many sources, some as simple as data error, while others can be less easily understood; such as unforeseeable stochastic events. In any case, this uncertainty determines the level of confidence that a model has with respect to producing an output (in this case, the cost-utility ratio). Moreover, in the case of the multi-attribute utility function, even with a high level of confidence, a slight change in what would appear to be a nominally important weight could have a profound effect on the final output. This occurrence represents the notion of criticality – that a criterion with a small weight can actually have a greater effect on the final outcome than a criterion with a much larger weight. Natural intuition would typically find this situation to be the reverse, so conducting these sensitivity analyses can often yield surprising and vital results.

For the purposes of this thesis, it is unnecessary to go into the technical details of how to conduct a sensitivity analysis. First, the methodology of a sensitivity analysis is incredibly technical; involving high-powered computer processing for most methods, so describing such a process would take this thesis far beyond its intended scope. Second, this thesis makes no recommendations regarding which method to use for a sensitivity analysis, therefore it is unnecessary to delve any further in how to perform any specific one. This thesis does not, however, advise omitting the sensitivity analysis entirely; performing a sensitivity analysis, while complex, still adds tremendous validity and robustness to the study.

The execution of a multi-attribute cost-utility analysis is neither simple nor inexpensive. Compared to some other cost-analyses this approach is incredibly resource

intensive, requiring a significant amount of time and labor to perform. Moreover, the cost-utility analysis methodology presented in this thesis is further modified from the generalized format so that it can be used specifically for community based and court adjudication programs. As a result, it is unlikely that anyone other than an expert in cost-analysis with significant experience with mediation programs would be able to successfully complete this type of cost-utility analysis.

Consequently, the methodology in this thesis should only be executed in full and with the strictest attention to making sure that each step is correct and complete before beginning the next; otherwise, the entire purpose of creating a superior research framework is void. It is precisely this methodology's complexity and rigorousness that separates it from all other prior attempts at applying cost-analysis to community based mediation programs.

Lastly, as discussed in chapter two, one of the biggest challenges to any cost-analysis of community based mediation programs is the lack of credible data. Quantitative data is essential to performing an analysis that is both accurate and robust enough to stand up to intense scrutiny. Wherever possible, this thesis has attempted to provide guidance as to how an evaluator should go about collecting data to ensure that it meets the standards this methodology requires. Chapter four will illustrate how this data is to be used during the execution of a multi-attribute cost-utility analysis.

Chapter 4

An Illustration of Cost Utility Analysis with Hypothetical Data

This section is intended to provide an illustration of the types of data and results one should expect when performing a cost utility analysis using the methodology above. The purpose of this hypothetical case is to illustrate the methodology proposed in this thesis; how the data should be arrayed and how to manipulate it properly to get the resulting cost-utility ratio.

Due to limitations in available data, the case study in this section is entirely hypothetical. The results, therefore, are not indicative of a valid cost utility analysis and should not be treated as fact. An actual cost utility analysis using the methodology proposed in this thesis would rely entirely on data gathered by an evaluator and as such require significant time and resources to complete. Nevertheless, every effort has been taken in this illustration to use data that is at least feasible, if not representative, of actual data one might encounter. The intent of using realistic data as an example is simply to further highlight the differences in quality between cost-analysis and prior methods.

The hypothetical analysis focuses on a community based mediation program and the corresponding county seat (adjudication). The example assumes that a random

assignment was used to gather participant data over the course of a year and that all cost data was likewise gathered over the course of a year. Each step in the methodology outlined in chapter 3 will be demonstrated:

1. Determine Costs
2. Evaluate Measures of Effectiveness (Attributes)
 - a. Success Rate
 - b. Satisfaction
 - c. Compliance
3. Convert to a common Utility Scale
4. Weight Utility Measures
5. CUA Ratio
6. Sensitivity Analysis (omitted)

As mentioned earlier, all cost-utility analyses will of necessity be tailored to the individual circumstances surrounding their respective study - hence the flexibility of using the ingredients based approach for determining costs. The following example details the ingredients that were identified for the mediation program's intervention. Note that the cost in U.S. dollars reflects the market value of the ingredients at the time of the study (2011).

Determining Costs

The following table (Table 1) represents the ingredients used in the hypothetical cost analysis. For convenience, the ingredients have been categorized by type; for example, rent and utilities are listed under the Facilities category. These ingredients represent the choices of the evaluator, which in this case follow the recommendations of the methodology as outlined above. Again, the goal is to capture only those costs that

apply to the execution of the given intervention. These ingredients, therefore, are an exhaustive list of all costs that are required to perform the function of the program/alternative.

Table 1

Cost Ingredients for Community Mediation Program, Fiscal Year 2011

Operating Costs for 2011

| Item | Cost in U.S. Dollars |
|---|-----------------------------|
| Facilities | |
| Rent | 12,362.00 |
| Utilities | 2,960.00 |
| Maintenance | 400.00 |
| Sub Total | 15,722.00 |
| Operating Materials and Supplies | |
| General | 500.00 |
| Training Materials | 300.00 |
| Misc. | 50.00 |
| Sub Total | 850.00 |
| Personnel | |
| Salaries & Benefits | 80,000.00 |
| Sub Total | 80,000.00 |
| Grant Total | \$97,422.00 |

Once the ingredients have been determined, the next step is to apply value. Each ingredient has been assigned a cost value in U.S. dollars based on market value. As mentioned before, using market value as a means of costing is generally advantageous since it requires less time to determine and easily applicable to most ingredients. In this case, the relevant market price was determined for each ingredient respective to the previous year, 2012.

The next table (Table 2) illustrates costs for the adjudication alternative that is being used in this hypothetical case. The local court (adjudication) will have its own corresponding intervention ingredients with the only difference being that the majority (if not all) of the costs will be joint costs and so will have to be proportionally allocated as mentioned previously. For the purposes of this example, the costs have already been allocated to reflect only those costs that are incurred by the cases that are applicable to mediation. In reality, this would be a lengthy process; however, as a distinguishing feature of this methodology, it is an essential component of what makes this a superior cost-analysis tool.

Table 2

Cost Ingredients for Adjudication Program, Fiscal Year 2011

Operating Costs for 2011

| Item | Cost in U.S. Dollars |
|---|-----------------------------|
| Facilities | |
| Rent | 10,000.00 |
| Utilities | 1,500.00 |
| Maintenance | 300.00 |
| Sub Total | 11,800.00 |
| Operating Materials and Supplies | |
| General | 300.00 |
| Training Materials | 0.00 |
| Misc. | 100.00 |
| Sub Total | 400.00 |
| Personnel | |
| Salaries & Benefits | 125,000.00 |
| Sub Total | 125,000.00 |
| Grant Total | 137,200.00 |

Evaluating Measures of Effectiveness

The next step is to evaluate the measures of effectiveness for each program. The methodology in this thesis recommends using an experimental design that incorporates random assignment when evaluating the attributes of each alternative in order to provide the most robust data possible. However, this hypothetical analysis decided to forgo the use of an experimental design in order to illustrate the additional steps required in such a case, a scenario likely to be encountered in reality.

As per the methodology, this hypothetical analysis used quality of justice as the metric for effectiveness. The following sections illustrate each component attribute (settlement rate, satisfaction, and compliance.

Settlement Rate

Against the recommendations of the methodology, the hypothetical case did not incorporate random assignment in an experimental design. Thus, in order to determine the settlement rate for the mediation program, it was necessary to adjust for underuse. The hypothetical analysis utilized the formula detailed in the above methodology in order to correctly adjust the data. In this way, the final cost-utility ratio was not skewed due to differences in scale between the two alternatives.

The first step was to gather data on the average required time to complete a case for each alternative. This data was obtained by tracking the actual time spent in mediation or in front of a judge per case for both alternatives. Administrative time was also tracked for each case; again, this is actual time that someone actively worked on the case, not the entire time a case existed. The following table (Table 3) illustrates a selected

sample of the time tracked per each case for the mediation program in the hypothetical cost analysis.

Table 3

Case Time in Hours

| Case Number | Mediation Time/Room Time | Administrative Time |
|--------------------|---------------------------------|----------------------------|
| 06-0124 | 1.20 | 1.00 |
| 08-0126 | 1.10 | 0.10 |
| 08-0127 | 1.30 | 0.10 |
| 08-0128 | 2.00 | 0.10 |
| 08-0129 | 4.00 | 1.00 |
| <u>08-0130</u> | <u>4.00</u> | <u>0.10</u> |
| <u>Avg Time</u> | <u>2.08</u> | <u>.47</u> |
| Total Time | | 2.55 |

The next step is to determine the average number of cases that can be processed simultaneously. As mentioned before, determining this number will require a significant amount of research and investigation but it will primarily be based on the available resources of the alternative being evaluated. The following table (table 4) illustrates the average number of cases that can be processed simultaneously based on available resources for the hypothetical mediation program:

Table 4

Number of Cases that can be Processed Simultaneously by Mediation Program

| Mediation Program | # of Rooms | # of Mediators | Avg # of Mediators available | # of Mediators required | # of Simultaneous mediations |
|--------------------------|-------------------|-----------------------|-------------------------------------|--------------------------------|-------------------------------------|
| Center 1 | 4 | 80 | 10 | 2 | 4 |
| Center 2 | 2 | 25 | 4 | 1 | 2 |
| Center 3 | 10 | 250 | 40 | 2 | 10 |
| Center 4 | 7 | 50 | 8 | 2 | 4 |
| Center 5 | 3 | 13 | 2 | 1 | 2 |

The last variable in the formula is success rate. Determining success rate is typically a straightforward process that can be done fairly simply even without the benefit of an experimental design. In this hypothetical example, each case that was previously tracked for process time was also tracked for successful resolution. The following table reflects the selected data.

Table 5

Success Rate of Mediation Program

| Mediation Program | Intake Referral | Mediated Cases | Mediation Sessions | Mediations Resolved | Success Rate |
|--------------------------|------------------------|-----------------------|---------------------------|----------------------------|---------------------|
| Center 1 | 565 | 553 | 586 | 511 | 92% |
| Center 2 | 340 | 300 | 322 | 260 | 87% |
| Center 3 | 763 | 712 | 739 | 699 | 98% |
| Center 4 | 135 | 112 | 132 | 95 | 85% |
| Center 5 | 1260 | 1197 | 1354 | 1113 | 93% |

Now that all the variables are accounted for, the final step is to insert them into the formula to get the adjusted number of successful cases resolved in a year for the mediation program. Using the data from the hypothetical analysis:

$$E = \left(\frac{P_h}{C_h}\right) \times n_c \times s$$

Where E = Effectiveness (number of cases resolved in a year)

$$P_h = 2080$$

$$C_h = 2.55$$

$$n_c = 3$$

$$s = .92$$

And the selected date from figures 2.1, 2.2, and 2.3; it's determined that the number of resolved cases in a year is:

$$E = \left(\frac{2080}{2.55}\right) \times 4 \times .92$$

$E = 3001$ potential cases resolved in a year (out of a total of 3262 potential cases).

It is important here to note the contrast between the potential cases resolved in a year from the actual cases resolved in the same year. Based on the selected data above, the difference in resolved cases is quite large; 511 actual mediations resolved as opposed to 3001 potential cases resolved. Such a significant difference is why it is crucial to adjust for underuse in mediation programs in the absence of an experimental design; otherwise, the data will be skewed due to differences in scale between the two alternatives.

As for the court adjudication program, it was unnecessary to adjust for lack of underuse as explained in the methodology. Instead, the evaluator determined which cases were appropriate (using the case matching approach) and then recorded the settlement rate of those cases. Table 6 indicates the data that was used for the court adjudication program.

Table 6

Data on Court Case Processing for Adjudication

| Adjudication Program | # of Intake Cases | # of Cases Dropped | # of Cases Heard in Court | # of Settled Cases |
|-----------------------------|--------------------------|---------------------------|----------------------------------|---------------------------|
| Month 1 | 3568 | 993 | 2575 | 2570 |
| Month 2 | 4226 | 1101 | 3125 | 2951 |
| Month 3 | 4323 | 874 | 3499 | 3312 |
| Month 4 | 3103 | 653 | 2450 | 2390 |
| Month 5 | 2639 | 712 | 1927 | 1915 |

Level of Satisfaction

Now that number of resolved cases has been determined, the next step is to capture the level of participant satisfaction. Again, as with the number of cases resolved in a year, if using an experimental design this process will be much easier since the evaluator need only give the participant survey (appendix A) to both the mediated and adjudicated cases. However, if it is not possible to use an experimental design, then the methodology will be slightly different.

As already noted, many mediation programs already track their own levels of participant satisfaction and this data (once verified for accuracy and compatibility with the analysis) can easily be incorporated into the study. If there is inadequate data, the evaluator can gather the data from a statistically significant sample population using the suggested survey.

The collection of participant satisfaction data from adjudicated cases will likely prove to be more difficult if not using an experimental design and in most cases will need to rely on the best judgment of the evaluator to be successful. The most important thing to keep

in mind is that the data being gathered must come from participants whose cases are similar - that is to say, cases that are appropriate for mediation. The best way to ensure this will depend on the particular court that is being evaluated and the expertise of the evaluator. In this hypothetical case, the evaluator and courthouse decided beforehand on which cases would be appropriate for the survey based on case type and judge and evaluator preference. The following tables reflect the participant data collected from those surveys.

Table 7

Participant Satisfaction - Mediation Program (abbreviated)

| | Party 1 | Party 2 | Party 1 | Party 2 | Party 1 | Party 2 | |
|-------------|----------------|----------------|-------------------|-------------------|----------------|----------------|------------------|
| Case | Process | Process | Settlement | Settlement | Outcome | Outcome | Total Avg |
| 1 | 80 | 50 | 90 | 50 | 85 | 50 | |
| 2 | 75 | 99 | 85 | 78 | 80 | 88.5 | |
| 3 | 60 | 85 | 74 | 80 | 67 | 82.5 | |
| 4 | 90 | 87 | 50 | 65 | 70 | 76 | |
| 5 | 95 | 79 | 99 | 90 | 97 | 84.5 | |
| 6 | 82 | 70 | 98 | 100 | 90 | 85 | |
| Avg | 80.3 | 78.3 | 82.7 | 77.2 | 81.5 | 77.5 | 79.6 |

Table 8

Participant Satisfaction - Adjudication (abbreviated)

| | Party 1 | Party 2 | Party 1 | Party 2 | Party 1 | Party 2 | |
|-------------|----------------|----------------|-------------------|-------------------|----------------|----------------|------------------|
| Case | Process | Process | Settlement | Settlement | Outcome | Outcome | Total Avg |
| 1 | 60 | 30 | 90 | 10 | 85 | 50 | |
| 2 | 55 | 70 | 85 | 20 | 20 | 88.5 | |
| 3 | 40 | 80 | 50 | 50 | 67 | 90 | |
| 4 | 90 | 40 | 0 | 80 | 70 | 76 | |
| 5 | 65 | 75 | 99 | 0 | 97 | 70 | |
| 6 | 75 | 45 | 0 | 100 | 90 | 80 | |
| Avg | 64.2 | 56.7 | 54.0 | 77.2 | 71.2 | 70.75 | 66.7 |

Compliance Rate

The final attribute is compliance rate. As mentioned earlier, compliance rate will likely be the most difficult attribute to measure due to a number of factors that are not easily surmountable even when using an experimental design. In this hypothetical case, a combination of participant surveys and court records was used to determine compliance rates for both alternatives. The time when compliance was checked was determined by the guidelines set forth in each settlement. For those cases that had no required timeline, compliance was checked one month from the date of the settlement (if one was reached).

Table 9

Compliance Rate – Mediation

| Case | Compliance | Survey Party 1 | | Survey Party 2 | | Total |
|------|------------|----------------|---------|----------------|---------|----------------|
| | | Party1 | Party 2 | Party 2 | Party 1 | |
| 1 | | Yes | Yes | Yes | Yes | 100% |
| 2 | | Yes | Yes | Yes | Yes | 100% |
| 3 | | No | Yes | Yes | Yes | 0% |
| 4 | | Yes | No | Yes | Yes | 0% |
| 5 | | Yes | Yes | Yes | Yes | 100% |
| 6 | | Yes | Yes | Yes | Yes | 100% |
| 7 | | Yes | Yes | Yes | Yes | 100% |
| 8 | | Yes | Yes | Yes | No | 0% |
| 9 | | Yes | Yes | Yes | Yes | 100% |
| 10 | | Yes | Yes | No | Yes | <u>0%</u> |
| | | | | | | 60% Avg |

Table 10

Compliance Rate - Adjudication

| Case | Compliance | Survey Party 1 | | Survey Party 2 | | Total |
|------|------------|----------------|---------|----------------|---------|----------------|
| | | Party1 | Party 2 | Party 2 | Party 1 | |
| 1 | | Yes | Yes | Yes | Yes | 100% |
| 2 | | Yes | Yes | Yes | Yes | 100% |
| 3 | | Yes | Yes | Yes | Yes | 100% |
| 4 | | Yes | Yes | Yes | Yes | 100% |
| 5 | | Yes | Yes | Yes | Yes | 100% |
| 6 | | Yes | Yes | Yes | Yes | 100% |
| 7 | | Yes | Yes | Yes | Yes | 100% |
| 8 | | Yes | Yes | Yes | No | 0% |
| 9 | | Yes | Yes | Yes | Yes | 100% |
| 10 | | Yes | Yes | Yes | Yes | <u>100%</u> |
| | | | | | | 90% avg |

Conversion to a Common Utility Scale

Once all of the attributes have been measured, the next step is to convert each to a common utility scale. To do this, this methodology calls for using the following formula:

$$U(x) = \frac{x - a_l}{a_h - a_l} * 100$$

Where:

U(x) = the utility of the given attribute (of the given alternative)

X = the given attribute score (of the given alternative)

a_l = the lowest attribute score

a_h = the highest attribute score

Using the selected data from above, the formula was applied to each attribute for each program to get the correct utility value. First the raw data gathered for each attribute:

Table 11

Effectiveness Measures

| Attribute | Community Based Mediation | Court Adjudication | Null Value |
|------------------|----------------------------------|---------------------------|-------------------|
| Settled Cases | 3001 | 2570 | 0 |
| Satisfaction | 79.6% | 65.7% | 0% |
| Compliance | 60% | 90% | 0% |

Next, all of the attributes have been converted into their unweighted utility values via the above formula:

Table 12

Utility Conversion

| Attribute | Community Based Mediation | Court Adjudication | Null Value |
|--------------------|----------------------------------|---------------------------|-------------------|
| Case Settlement | 85 | 100 | 0 |
| Satisfaction level | 100 | 81 | 0 |
| Compliance Rate | 67 | 100 | 0 |

Essentially, this data shows the comparison in utility between each alternative, such that a person would have more utility for a settlement reached by way of court adjudication than by a mediation program, for example. However, since people might value one attribute more than another, it is necessary to apply weights to each utility measurement so that utility (personal preference) is accurately presented.

Applying Weights to the Utility Scores

Since it is unlikely that all attributes are equally useful to a person it is necessary to weight the utility values. This methodology uses the direct method outline by Levin and Levine (2004), which asks participants to allocate 100 points across all attributes in order of importance.

In this hypothetical analysis, participants from selected cases were asked to complete the survey; however, depending on the specific analysis being conducted it might be necessary to ask different groups for input. For example, if this analysis was being done on behalf of decision makers, their preferences might be required instead of actual participants. Furthermore, this can be a lengthy process so it may be beneficial to perform this part a head of time. Figure 13 indicates the averages of the assigned weights

based on the participant surveys (the weights are each divided by 100 so that the total of all weights equals 1).

Table 13

Utility Weights

| Attribute | Assigned Weight |
|--------------------|------------------------|
| Case Settlement | .25 |
| Satisfaction level | .45 |
| Compliance Rate | .30 |

The next step is to apply these weights to the utility values for each attribute by multiplying them together as seen in figure 14.

Table 14

Applying Weights to Attributes

Alternative A: Community Based Mediation

| Attribute | Utility | Weight | Weighted Utility |
|--------------------|----------------|---------------|-------------------------|
| Case Settlement | 100 | .25 | 21.25 |
| Satisfaction Level | 100 | .45 | 45 |
| Compliance Rate | 67 | .30 | 20.1 |

Alternative B: Court Adjudication

| Attribute | Utility | Weight | Weighted Utility |
|--------------------|----------------|---------------|-------------------------|
| Case Settlement | 86 | .25 | 25 |
| Satisfaction Level | 81 | .45 | 36.45 |
| Compliance Rate | 100 | .30 | 30 |

Multi-attribute Cost-Utility Ratio

The last step is to divide the cost of each alternative by its respective total utility value (done by adding all of the weighted attribute utility values for each alternative).

The final ratio, cost divided by utility, shows the cost per point of utility gained as seen in figure 6.

Table 15

Cost-Utility Ratio

| Alternative | Cost | Total Weighted Utility | CU Ratio |
|--------------------|-------------|-------------------------------|-----------------|
| CBM | 97,422.00 | 86.35 | 1128.00 |
| Courts | 137,200.00 | 91.45 | 1500.00 |
| Difference | | | 372.00 |

In this hypothetical case the cost-utility ratio shows that Alternative B, court adjudication, is more cost-effective than Alternative A, the community based mediation program, by a margin of \$409.00 per unit of utility gained. While the mediation program had overall higher utility than adjudication, the difference in utility was not enough to outweigh the cost of the mediation program compared to cost of the cost of court adjudication.

Summary

The above hypothetical case is meant to illustrate the ways in which data must be gathered and analyzed to provide an accurate and useful cost-utility analysis. The ideal multi-attribute cost-utility analysis will incorporate experimental design, utilizing random

assignment and a sensitivity analysis to ensure that the findings are accurate. However, as mentioned previously in the section on methodology, not every analysis will be the same; available resources, logistics, and levels of cooperation will undoubtedly vary between programs. This means that in those cases where experimental design is not possible every step must be taken to ensure that the data is as robust as possible.

As for the data itself, its uses are manifold. The multi-attribute cost-analysis approach not only provides a final ratio and a definitive value on effectiveness, but also information on a variety of subjects of interest to the field of community based mediation. Mediation programs will undoubtedly benefit from analyzing their own practices through such analyses by seeing just how effective their interventions are at resolving conflict. Moreover, those programs can then make informed decisions on what areas need improvement relative to the cost and resources available.

Ultimately, once enough cost-utility analyses are done, trends will begin to emerge that may have gone unnoticed before; for instance, maybe community based mediation has a high rate of success but a low rate of compliance. As far as costs are concerned, studies could finally look at the amount of resources mediation programs have in comparison to the effectiveness of their results, potentially giving community based mediation programs critical support for funding.

As stated earlier in this thesis, cost-analysis is a tool for decision making; it is designed to provide a policy maker with quantitative data that can be directly compared and evaluated based on numerical advantage. The purpose of this thesis, however, is not to suggest simply another field to which cost-analysis could be applied for the purpose of decision making. The cost-utility ratio by itself provides very little practical data for the

purposes of research; it is simply a number attached to an alternative, but the data behind that number would be invaluable to the field of community based mediation research. At a glance, one can easily see why a certain mediation program presented a specific cost-utility ratio; perhaps costs were extraordinarily high, or the compliance rate was too low. With that information, mediation programs could actively work on the areas needed to make them cost-effective if they are not, or even more cost-effective if they are.

Chapter 5

Summary and Conclusion

The field of conflict resolution faces the challenge of providing research that addresses the economic impact of its various programs. One area in the field, community based mediation, is the focus of this thesis. It was chosen for two reasons: 1.) of the many subfields of conflict resolution, community based mediation has the smallest amount of available research on the subject and 2.) at the same time, it could potentially have one of the largest economic impacts. Certainly, as the literature has shown, there is a push to provide concrete evidence of the effectiveness of community based mediation programs, especially with regards to traditional court adjudication.

However, the literature has also shown that the few studies to-date on the cost-effectiveness of community-based mediation programs are lacking in both scope and accuracy; producing results that fail to provide a comprehensive look at the true effectiveness of these programs in providing quality of justice for their participants.

The solution, as presented in this thesis, is to utilize traditional methods of cost-analysis, specifically multi-attribute utility analysis, in a novel approach to compare the effectiveness of community based mediation programs. Unlike many of the

methodologies that have been used before, this approach provides a comparison between community based mediation and court adjudication by measuring both alternatives on their effectiveness to provide quality of justice. The programs' ability to provide quality of justice is further defined by the three attributes which comprise the total outcome for each alternative: settlement, compliance, and satisfaction. Through the use of multi-attribute utility theory, the methodology in this thesis is able to combine those disparate measures of effectiveness and combine them into one comprehensive measure of utility, effectively providing a single look at the total cost-effectiveness of each program

Further Considerations

Does every cost utility application to community mediation require comparisons to traditional adjudication? What if it is impossible to get that data or if there is neither time nor resources to carry it out? Part of the reason why a methodology involving cost-utility analysis was used in this thesis is because it requires a comparison for the program being measured. Comparison studies are vital to researching cost-effectiveness for conflict resolution programs because without the comparison it is impossible to accurately judge the effectiveness of the program. How can one decide if a program is effective without a base to measure from?

Moreover, this methodology was developed in response to claims that community based mediation is more cost-effective than traditional court adjudication. There is absolutely no way that a claim of that type can be validated without performing a comparison study of the two programs; the reason being that cost-effectiveness does not matter if there is not an alternative available. If there is no other option to achieve the

same result, then cost-effectiveness only exists inasmuch as an artificial measurement is created, which is, of course, useless for research. This is why non-comparison studies that have attempted to look at the cost-effectiveness of community based mediation programs are pointless – simply knowing the cost per case for a program or the average satisfaction rating does not provide any insight as to whether those values are good or bad.

Now, in situations where it is impossible or impractical to do a comparison of community based mediation and court adjudication (or any other alternative program) the answer is simple; do not attempt to perform a multi-attribute cost utility analysis. There are other cost-analyses that can be performed, cost-benefit analysis in particular, but it is meaningless to attempt a multi-attribute utility analysis without at least two alternatives; it is specifically designed to be performed that way.

Of course, it is possible to apply the same cost-analysis principles to a study of a community based mediation program and then attempt to compare those results with other studies that have been done on court adjudication – meta-analysis always has value; however, it is not advised to attempt to perform an actual cost-utility analysis in this way. Only when it is impossible to use experimental design should an analyst then attempt to match case data from a court adjudication program. While performing a multi-attribute cost-utility analysis in this way is acceptable, the results are less reliable.

What is the most important step in applying the multi attribute cost utility approach, or the most important ingredient? Salaried employees cost more money than volunteers, but they may be more effective than volunteers -- how is this accounted for? There are two main sources of data that go into performing a multi-attribute cost utility analysis; measures of effectiveness and cost ingredients. The most important step in the

entire methodology is to determine what measures of effectiveness and cost ingredients to include in the analysis.

The approach in this thesis advocates using measures of effectiveness based on the quality of justice metric; namely satisfaction rating, successful case resolution, and compliance. While other attributes can be substituted or added to the three presented in this thesis, it is essential to make sure that those same attributes are applied to the alternative as well.

Unfortunately, determining costs when applying the cost-utility approach is not as simple as determining the attributes. The main difficulty is separating the actual costs to deliver the intervention from budgetary/accounting costs. An example of this would be assuming that a program's annual budget constitutes the total cost of the intervention. If this were the case, then one would not include the cost of volunteer mediators for a community based program. However, this line of thinking is incorrect for a number of reasons.

Firstly, even though volunteers are not salaried, there is still a cost involved in using them. This is actually represented in what is called the opportunity cost, whereby the volunteer forgoes the next best alternative that they could pursue while mediating. Essentially, this means that it actually costs the volunteer the money they could have made had they provided the service elsewhere. So, while it may seem on the surface that because community based programs use volunteers, they must by necessity cost less than court adjudication, this is not true. If there were no volunteers, for instance, it would be necessary to pay someone to perform the mediation.

Secondly, lawyers are not comparable with mediators. This is important because often attorneys are compared to volunteer mediators in terms of cost. However, it is not always necessary to have a lawyer in order to resolve a dispute using court adjudication; therefore, attorney's fees should not automatically be included in the cost of administering the intervention. Only when it is necessary to the resolution of the dispute should attorney's fees be included. Otherwise, mediators are closer to judges or court administrative staff than they are to attorneys since those are the positions that are required to deliver the intervention.

What is new about this approach? Is it an old idea that is to be newly applied to mediation? Or, is it a new idea to be applied to mediation effectiveness? The methodology presented in this thesis is in itself not a new approach to cost analysis; however, multi-attribute cost utility analysis has never been applied to the evaluation of community based mediation programs before. Subsequently, this approach differs in several important ways.

First, this methodology requires the use experimental design, which is missing from almost all cost analysis research on community based mediation. The vast majority of studies that have looked at cost-effectiveness have used retroactive data or data collected in a generalized form over a period of time. Very few, if any, studies looking at cost-effectiveness have used a controlled experimental design where the cases were pre-selected for comparison with another group. Ultimately, studies using a non-experimental design approach end up with results that are highly variable, difficult to replicate, and subject to a high degree of uncertainty. The approach in this thesis avoids those issues by

using experimental design and incorporating a sensitivity-analysis as an added precaution.

The second difference with this methodology is that not only does it look at the effectiveness of community based mediation programs, but it does so with respect for the utility of those measurements. This means that instead of just presenting data on a measurement like satisfaction rating, the analysis is also illustrating the amount of utility a person has for that particular measurement of effectiveness. This is what allows a multi-attribute cost-utility analysis to simultaneously analyze multiple and incompatible measures of effectiveness.

In the end, it is the ability to combine separate measures of effectiveness into one cohesive result that really separates this methodology from those previous. The cost-utility ratio is a representation of the effectiveness of an *entire* program taking into account all of the measures of effectiveness as they relate to the program as a whole. This means that the results of the analysis are more accurately described as the effectiveness of the program based on the utility derived from each attribute, based on the initial measurement of each attribute.

Why isn't a real analysis included--why just a hypothetical case? Does that demonstrate its difficulty in application? Performing an actual multi-attribute cost utility analysis was initially considered for this thesis; however, it quickly became apparent that simply developing the methodology was challenging enough. It would have been a massive undertaking to develop the methodology and then attempt to set up a comparison study with a community based mediation program and corresponding court adjudication program. As noted in the thesis, the actual analysis can take upwards of a year to

complete and is not intended to be performed by a single person (although it is certainly possible to do so).

Nonetheless, the actual multi-attribute cost utility analysis is not inherently difficult to perform; it just requires ample time and rigorous data collection. Perhaps the most challenging part is setting up the comparison study groups with the mediation and adjudication programs; but again, this is entirely dependent on the specific circumstances of the particular study. Ultimately, it is the very fact that the multi-attribute cost utility analysis requires so much data to complete that highlights its value. This one analysis can provide a wealth of information and research on one of the most sorely lacking areas of the entire field of mediation.

Social Need for Cost Utility Analysis

With so many community based mediation centers relying on outside funding from donors, grants, and government agencies it is imperative that these programs provide concrete evidence of their effectiveness. In an economic climate that is increasingly forcing organizations to limit their spending, community based mediation programs need to make the case that they are worth the cost; advocacy is no longer enough. Multi-attribute utility analysis is the tool that will allow those on the outside to look in and see the promise of community based mediation.

The appeal is simple; at a glance stakeholders and decision makers can compare community based mediation programs with a current intervention (most likely court adjudication) and make an informed decision as to which would better meet their goals. If community based mediation is a superior form of dispute resolution, then multi-attribute

utility analysis is the only way to prove it. No other methodology can simultaneously compare separate measures of effectiveness along with the cost of the program to present such clear and comprehensive results.

Furthermore, multi-attribute utility cost analysis is the only approach to meet the requirements of academics in the field themselves; providing a comparative, experimentally designed methodology that addresses all of the shortcomings of the studies that have preceded it, going all the way back to McGillis' (1997, 58) assessment that "Additional rigorous studies comparing community mediation programs with court case processing are needed to further understand the comparative effectiveness in addressing disputant needs and resolving conflict." Multi-attribute utility analysis is therefore a tool valuable not only to those on the outside looking in, but to those already in the field of community mediation as well.

Limitations of the Approach

Although the methodology presented in this thesis attempts to ensure the highest degree of accuracy possible there still some limitations with this approach. Part of the issue stems from the nature of cost-analysis itself, while the actual field of mediation presents its own challenges to research efforts. Undoubtedly, this methodology calls for a cost-utility analysis that will be both time-consuming and difficult to perform. As already noted, random assignment studies are notoriously difficult to undertake when the courts are involved and evaluating compliance rates takes a minimum of three to six months to complete. Furthermore, community based mediation centers and programs, while getting better about recording data and keeping records, often do not have on hand all of the

information necessary to complete a cost-analysis. This means that the majority of the burden will fall on the evaluator to not only analyze the data, but gather it as well.

Because of this, it is not hard to imagine that few community based mediation centers, with their limited budgets and staff, would undertake it upon themselves to perform a cost-analysis. Instead, the courts and the local governments that they support should endeavor to apply cost utility analyses to their own mediation programs. Courts have much to gain by discovering the true cost-effectiveness of their programs, not the least of which being the potential to save significant costs.

Cost analysis, although a valuable economic tool, is largely based on evaluator perspective. This means that the final result of a cost analysis, in large part, reflects the assumptions of the analyst as well as the actual data. These assumptions are made during multiple stages of the analysis, ranging from what cost ingredients to include to the approach used to determine utility scores. Thus, using the same data, two different analysts could produce two different results.

Although every care has been taken in this methodology to reduce the number of assumptions made some are, unfortunately, inevitable. This means that any multi-attribute cost-utility analysis will have some degree of uncertainty and produce results that are never 100% accurate. Regrettably, there is no way to completely eliminate the uncertainty in cost-analysis; the best that can be done is to minimize the uncertainty as much as possible and verify that it is within acceptable limits via sensitivity analysis.

First and foremost a mediation program is difficult to evaluate because in some cases the final outcome of an intervention may produce results that are difficult to quantify. For example, mediators will often claim that simply because mediation did not

result in an agreement between the parties it doesn't mean that the mediation failed (Gibson 1999). In some approaches, particularly in transformative mediation, the outcome is barely relevant in comparison with what the parties are able to take from the process itself (Bush and Folger 2004). Such intangible benefits include an increased awareness and understanding of conflict in general or fostering compassion and empathy within a community (Mayer 2004).

These goals, while just as worthy of consideration as any others, nonetheless make empirical analysis uncommonly difficult due to the high level of subjectivity involved in evaluating them. While ample qualitative data can be obtained from such methods as participant surveys and focus groups these data have limited use in evaluating the overall effectiveness of conflict resolution programs. Moreover, it is difficult to understand exactly what kind of effect something like "increased awareness and understanding of conflict" has in reality. Does it mean that there are fewer incidences of violence in a community? Or that diplomatic options will be chosen more frequently over armed conflict? Furthermore, there is evidence that these benefits of mediation often touted by proponents rarely factor in to participants' decision to try it anyway (Genn 2010). This leaves any evaluation attempt in doubt as to what should actually be evaluated; the process or the outcome.

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Appendix

The following surveys are to be administered by as indicated per their individual instructions. In most cases, this means providing the survey either immediately after the end of the last mediated session or immediately before unless otherwise noted. These surveys are to be given out only to the groups as selected by the experimental design.

Compliance Survey

This survey is to be given out to the participants of each case selected in the analysis at a period of three months and then again at six months. If the analysis is looking at data collected over the period of a year, then increase the time to six months and twelve months respectively.

Interim Compliance

- 1.) Up to this point, have you complied fully with all terms of the settlement?
 - a. Yes
 - b. No
- 2.) Up to this point, has the other party complied fully with all the terms of the settlement?
 - a. Yes
 - b. No
- 3.) Up to this point, have you complied only partially with any/all terms of the settlement?
 - a. Yes
 - b. No
- 4.) Up to this point, has the other party complied only partially with any/all terms of the settlement?
 - a. Yes
 - b. No
- 5.) Up to this point, have you never complied with all terms of the settlement?

- a. Yes b. No

6.) Up to this point, has the other party never complied with all terms of the settlement?

*Note that the cost-utility analysis in this methodology is looking only at full compliance rate as an attribute/measure of effectiveness. As such, only the first question in each survey is truly necessary for fulfilling the requirement of effectiveness data. However, other studies may want to provide for this information.

Satisfaction Survey

This survey is to be given out directly after the resolution of a case. If the case is not resolved, or there is no formal resolution, then the survey is to be given out immediately following the last mediated or adjudicated session or as close to that time as possible.

Participant Satisfaction Survey

1. Are you a plaintiff ____ or a defendant ____?
2. Did you reach a settlement in your dispute
 - a. Yes b. No

For the following questions please indicate your agreement with the statement by circling the corresponding point on the line: a value of 1 equals complete disagreement, 5 equals neither agreeing nor disagreeing, and 10 equals complete agreement.

For statement 4, indicate on the line only if you actually reached a settlement of your dispute.

3. I was satisfied with the mediation process as a whole

4. I was satisfied with the settlement reached in this dispute (if applicable)

5. I was satisfied with the outcome of this mediation

Weights Survey

Importance Weights Survey

This survey is to be administered to participants before their case is adjudicated or mediated. The survey should not be overly explained as to avoid influencing the participants' selection based on what might be perceived as the program's view of the "correct" choice.

Please indicate importance by allocating points for each category out of a total pool of 100 points. The sum of the points for all three categories should be equal to 100. The category of greatest importance to you should have the highest number of points, the least

important the lowest number of points. If all three categories are of equal importance to you please allocate 33 points for each.

Please read through all three categories first before allocating points.

1. Satisfaction with the outcome of the case

Description: How important is it to you that you are completely satisfied with the outcome of your dispute? In other words, how important is it to you that the outcome reached as a result of mediation/adjudication satisfies your requirements for a successful resolution?

Score ____

2. Settlement Rate

Description: How important is it to you that you reach a settlement as a result from mediation/adjudication? Note that this does not include the comprehensiveness of the settlement or your satisfaction with it, only that one is reached.

Score ____

3. Compliance Rate

Description: How important is it to you that both sides of the dispute comply with the terms of a settlement if one is reached? Compliance, in this sense, refers to each side of the dispute honoring the decision/agreement completely and for as long as is required.

Score ____