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Examining mixing methods in an evaluation of a smoking cessation program

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ABSTRACT

Three different methods were used in an evaluation of a smoking cessation study: surveys, focus groups, and phenomenological interviews. The results of each method were analyzed separately and then combined using both a pragmatic and dialectic stance to examine the effects of different approaches to mixing methods. Results show that the further apart the methods are philosophically, the more diverse the findings. Comparisons of decision maker opinions and costs of the different methods are provided along with recommendations for evaluators' uses of different methods.

1. Introduction

Mixed method research and evaluation is a tool commonly used by researchers and evaluators to investigate program or policy merit and worth (Creswell, Trout, & Barbuto, 2002; Teddlie & Tashakkori, 2003). The intentional use of mixed methods and research on mixing methods as a methodology has coalesced into a field of study in its own right. Use of mixed methods has been most prominent in applied fields such as evaluation (Greene & Caracelli, 1997; Greene, 2007), health sciences (O'Cathain, 2009), and education (Day, Sammons, & Gu, 2008).

Evaluators are attracted to mixed methods research for many reasons. In many situations, mixed methods are used to meet the needs of multiple stakeholders (Benkofske, 1996; Chelimsky, 2007; Patton, 1997; Smith, 1997). Evaluators also turn to mixed method methodology to address the practical challenges and resultant uncertainty of using any single method (Datta, 1997; O'Cathain, Murphy, & Nicholl, 2007), because both post-positivist and interpretive methods of gathering information have limitations. Furthermore, using a mixed methods approach with different types of qualitative and quantitative data helps to provide a more complete understanding of evaluation questions and problems than solely using a qualitative or quantitative approach (Creswell, 2014). Mixed methods can also be a tool to increase the credibility of evidence in an era of evidence-based practice (Green, 2013; Hesse-Biber, 2013).

Greene (2007) described that mixed method studies may be generative, as paradox and contradiction are engaged and "fresh insights, new perspectives, and original understandings" (p. 103) emerge. Other mixed method authors share this belief in the promise of mixed methods. For example, Teddlie and Tashakkori (2003) used the term *gestalt* to indicate how inferences from mixed methods may be greater than the single method components. Barbour (1999) described mixed methods as a whole greater than the sum of its parts. Creswell (2014) maintains that researchers and evaluators are able to draw upon the strengths of both qualitative and quantitative methods in mixed methods research to gain more insight and understanding as different types of data provide different types of information.

Greene and Caracelli (1997) provided the first comprehensive theory of mixed methods in evaluation via their dialectic approach. Recently there has been more work on the dialetic approach (Creswell et al., 2002; Greene & Hall, 2010; Tashakkori & Teddlie, 2010). There has also been emphasis on a pragmatic approach as well (Johnson & Onwuegbuzie, 2004; Morgan, 2007; Tashakkori & Teddlie, 2010). Datta (1997) and Maxcy (2003) articulated a pragmatic stance to mixing methods that has its roots in the philosophic writings of John Dewey and William James (among

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others), but is different. Pragmatism in the Deweyism sense is seen not as a philosophical approach, but rather a "set of philosophical tools" (p. 97) for researchers and evaluators to address problems (Biesta, 2010). Whereas other researchers view pragmatism as a philosophical approach to choose what works best for their given research or evaluation (Creswell, 2014; Greene & Hall, 2010; Johnson & Onwuegbuzie, 2004; Morgan, 2007; Rescher, 2001). Despite the different views on pragmatism, it appears to be the dominant stance employed by mixed method researchers (Creswell, 2014; Greene & Hall, 2010; Tashakkori & Teddlie, 2010). Riggin (1997) found a pragmatic stance to be almost exclusively employed when she reviewed all examples of mixed method evaluations presented in a volume of *New Directions in Evaluation* dedicated to the subject. More recently, Johnson and Onwuegbuzie (2004) suggested that "the time has come" for mixed method research, and that investigators do whatever is practical.

The purpose of this study is to present the results of a comprehensive evaluation of a smoking cessation study that used three distinct evaluation methods and provide a comparison of these methods. The study probes the idea that mixing methods yields findings over and above those found using single methods, that divergence of methods is a critical factor, that mixed method studies can better meet the demands of multiple stakeholders, and that mixed method studies are more expensive.

2. Background

Two stances to mixing methods in an evaluation are pragmatic and dialectic. Pragmatism is a uniquely American philosophical tradition, most fully developed by Charles Sanders Pierce (see Peirce, 1992, 1998), William James (see James, 1975), and John Dewey (see Dewey, 1998a, 1998b). In their scholarship, pragmatism is primarily concerned with meaning or epistemology as measured by its consequences. Modern pragmatist Rescher (2001) described that in pragmatism, what works in practice becomes the standard for the truth of assertions, the rightness of actions and value of appraisals. Creswell (2014) describes pragmatism as a stance that is not committed to any set of philosophical ideas, but allows evaluators to choose the methods that best meet the needs and purpose of their evaluation. Greene and Hall (2010) see pragmatism as providing "actionable knowledge" and "practical solutions" (pp. 138) to addressing problems within research and evaluation, with the rationale being that multiple perspectives are useful for inquiry.

Johnson, Onwuegbuzie, and Turner (2007) support the adoption of a pragmatic approach in mixed methods research. Johnson and Onwuegbuzie (2004) outline 22 characteristics of pragmatism and view pragmatism as a way to connect conflicting paradigms allowing researchers and evaluators a middle ground to consider what methods and philosophies are useful for their work. While proponents of pragmatism, they do acknowledge some weaknesses, such as pragmatism promoting small incremental changes rather than larger societal changes and potential difficulty in dealing with "useful but non-true" or "non-useful but true" beliefs and propositions (Johnson & Onwuegbuzie, 2004, p. 19).

Morgan (2007) is also a proponent of the pragmatic stance proposing a mixed methods pragmatic approach to social science research methodology as an alternative to a solely qualitative or quantitative approach. In doing so, his framework offers processes that balance the dichotomies present in the qualitative versus quantitative debate. First in terms of connecting theory with data, Morgan (2007) proposes an *abductive* reasoning that goes back and forth between the induction reasoning in the qualitative approach and the deduction reasoning in the quantitative approach. This process maximizes the strengths of qualitative and quantitative methods by allowing results of one approach to inform the other. Secondly, Morgan (2007) proposes an *intersubjectivitiy* dimension focusing on communication and shared meaning to describe the relationship between the researcher and the research process as opposed to the relationship being subjective in the qualitative approach and objective in the quantitative approach. He argues that researchers and evaluators need to have a mutual understanding with both their audience and colleagues. Lastly, Morgan (2007) proposes the idea of *transferability* in making inferences, which supersedes the dichotomy of context and generalizability in the qualitative and quantitative approaches respectively. The transferability dimension is borrowed from Lincoln and Guba (1985) (as cited in Morgan, 2007) and refers to whether knowledge gained from researcher and evaluation can be transferable in other contexts and settings.

Dialectic is a term derived from Greek meaning to converse or discuss. Hegel provides a comprehensive treatment of the dialectic where it is concerned with contradictions (Singer, 2001). A position is challenged by an argument and the two points are united by a third that transcends and subsumes both. This transformation is termed in *The Science of Logic* and is translated as "sublation" or "overcoming." This transcendent concept then becomes subject to challenge, until the final transformation is perfected (Singer, 2001). This approach allows for considering conflicting findings side by side and creating a synthesis that encompasses but transcends them – seeking to generate new truths that transcend the old. Hegel's approach also allows methods to be combined in a spiraling manner. The spiraling is manifest because the synthesis created could itself turn into a thesis, which may then be challenged by another antithesis, until the final synthesis is perfected. This may be especially important in mixed methods because as new syntheses are generated, they may conflict with one another and require resolution. The generative and spiraling nature of Hegel's dialectic makes it a suitable for mixed method evaluations.

More recently, Greene and Hall (2010) are advocates of the dialectic stance. They state, "A dialectic stance actively welcomes more than one paradigmatic tradition and mental model, along with more than one methodology, into the same inquiry space and engages them in respectful dialog with the other throughout the inquiry (pp. 124)." In a dialectical stance, multiple perspectives are valuable. The aim is not so much to seek convergence in mixing methods, but rather to juxtapose differences in order to gain greater insight and understanding. Thus, the rationale for taking a dialectic stance is recognizing multiple philosophical perspectives and engaging with differences in those perspectives to lead to greater understanding of a problem or issue (Greene & Hall, 2010).

When mixing methods, it is important to assess the methodological quality of the integration of methods, as well as the inferences made. Heyvaert, Hannes, Maes, and Onghena (2013) argue that the methodological quality of mixed methods research need to be assessed for three key reasons: (1) the analysis of mixed methods informs readers about ways in which qualitative and quantitative data converges or diverges, (2) the qualitative and quantitative approaches cannot be assessed independently when one informs the other, and (3) the quality of the mixing methods matter when qualitative and quantitative methods come together to create a bigger understanding of overarching research questions. In their study, they reviewed 13 unique critical appraisal frameworks published between 2004 and 2009 and found 13 categories of criteria for evaluating the quality of mixed methods studies. Of the 13 categories of criteria, two were specific to assessing the quality of mixing methods where 9 of 13 frameworks included criteria for assessing the mixing and integration of mixed methods and 4 of 13 frameworks included criteria for including a rationale for mixing methods.