



0149-7189(95)00005-4

THE USE OF CONCEPT MAPPING FOR ASSESSING FIDELITY OF MODEL TRANSFER:

An Example From Psychiatric Rehabilitation

DAVID L. SHERN

New York State Office of Mental Health

WILLIAM M. K. TROCHIM

Cornell University

CHRISTINA A. LACOMB

New York State Office of Mental Health

ABSTRACT

Assessing the fidelity with which program models are transferred from program designers to program staff is essential for testing and disseminating program theory. Technologies for assessing fidelity are not well developed. Concept mapping techniques may be used to identify the key conceptual domains that define a program and the structural relationships among these domains. In this paper, concept mapping is used to assess the fidelity of an experimental program model for persons who are street dwelling and psychiatrically disabled. The program was developed from a well understood psychiatric rehabilitation model designed at Boston University (BU). Data from program and BU staff were used to construct concept maps that portrayed the program as conceptualized by BU and by program staff. Quantitative and descriptive analyses of the maps indicated good fidelity of model transfer but also highlighted important local adaptations of the program.

MODEL IMPLEMENTATION AND CONCEPT MAPPING

Program theory and implementation analysis are now widely regarded as key elements of high quality evalua-

tion research (Chen & Rossi, 1983; Bickman, 1990). Although both are important for understanding what actually happened in a specific program and the relationship of the program as implemented to the theory that underlies it, many investigators continue to neglect these

We would like to acknowledge the contributions of our colleagues on the homelessness demonstration research including William Anthony, Sam Tsemberis, Anne Lovell, Jim Winarski, Mikal Cohen, and Linda Richmond. Also, the help of staff at both the Choices program and BU Center for Psychiatric Rehabilitation was instrumental in completing the mapping exercises. Editorial assistance was provided by Betty Pease and Leslie Long.

This research was supported by Grants from the National Institute of Mental Health and from the Center for Mental Health Services (R18MH48215 to David Shern and R01MH46712 to William Trochim).

Requests for reprints should be sent to David L. Shern, Bureau of Evaluation and Services Research, New York State Office of Mental Health, 44 Holland Avenue, Albany, NY 12229.

crucial dimensions (Brekke, 1988; Moncher & Prinz, 1991). In part, this neglect may relate to the lack of generally available approaches for measuring program implementation or relating a particular implementation to the theory from which it was derived. Mowbray and Herman (1991), for example, describe the general lack of program philosophy or implementation measures at the program rather than individual level. Trochim, Cook, and Setze (1992) note that the complex nature of most program interventions and the lack of appropriate multivariate measurement and descriptive tools that are responsive to this complexity further frustrate attempts to understand programs in context. The lack of program specification introduces serious problems in interpreting the findings from evaluative and demonstration research and in disseminating the technology developed from these research endeavors.

As we have argued elsewhere, we think that the techniques of concept mapping may hold particular promise for addressing many of these issues (Trochim, Cook, & Setze, 1992; Chen, 1990). Concept mapping has been extensively described elsewhere (Trochim, 1989a, 1989b, 1989c). Briefly, it involves a series of techniques that are designed to facilitate the identification of key elements in a program and portray their relationship to one another using a three-dimensional projection of the concepts onto a map. It begins with a structured, group brainstorming session in which brief statements or phrases are generated in response to a focus statement. In terms of the application we are discussing here, the statement might ask respondents to describe components or elements of a program. After generation of the items, participants sort them into groups based on similarity, name each item group and rate each item's importance to the program. The sorts are used to generate an item similarity matrix that is subjected to multidimensional scaling (MDS) analysis. The resulting two-dimensional solution is used to construct a point map reflecting the distance between each of the items. These point maps are subsequently subjected to a cluster analysis in order to assist in interpretation of the map by identifying and naming groups of similar items. This interpretive exercise is also completed in a group setting. Finally, the mean importance rating of each cluster is graphically displayed as the third dimension in the map.

In terms of explicating program theories and understanding the implementation of a program, therefore, concept mapping provides a structured analytic process for program developers, regulators, staff or clients to identify the key aspects of a program and graphically portray the relationships among these elements. While it does not explicate the causal relationships or logical ordering of these program elements (except in as much as they are all related to the desired outcomes of a program), it greatly facilitates the discussion of causation by

explicitly portraying the central ideas in the program and their similarity to one another. As such, concept mapping may be quite useful in generating hypotheses about the complex interrelationships of program elements in producing desired program outcomes. These hypotheses could be tested through the development of responsive program information systems.

In those instances where a well developed program philosophy or model exists, concept mapping may be useful in assessing the fidelity of model transfer to a specific program. Fidelity is important both for understanding the construct and external validity of a program and thereby the implications of program outcomes for the viability of the theory. (Palumbo & Olivero, 1989). Similarly, documenting local adaptations of a general program theory helps us to appreciate the importance of local context for service delivery and thereby the boundaries of a particular theoretical approach (Mowbray & Herman, 1991; Palumbo & Olivero, 1989).

In this paper we will demonstrate the use of concept mapping in a program that was derived from a well developed program philosophy. Like Conrad and Miller (1987) we use program philosophy to connote a "... system of theories and values that defines and guides the structure, population, process, and outcomes of the program" (p. 22). In this instance, the psychiatric rehabilitation program philosophy developed by William Anthony and his colleagues (Anthony, Cohen, & Farkas, 1990) was used to develop an experimental program for street dwelling individuals with psychiatric disabilities. The program is being evaluated using a clinical trial methodology with longitudinal follow-up. Concept maps were constructed by Anthony and his colleagues at Boston University (BU) and by the staff of the experimental program that we call Choices. Additionally, the BU staff sorted the items that were generated by the Choices staff to allow direct comparisons of the maps produced by two separate ratings of the same item set. Comparison of these maps will be used to assess the fidelity of the program intervention and to explore local adaptations of the program philosophy.

THE CONTEXT OF THE PROGRAM

The experimental program to be discussed here is one of six research demonstrations funded in 1990 by the National Institute of Mental Health as part of the Stuart B. McKinney homelessness program. Each of the programs uses a clinical trial methodology to assess the impacts of differing strategies for combining supportive services and housing on residential stability, clinical status, and quality of life for homeless individuals with mental illness. Our project specifically focuses on that component of the population who are predominantly street dwelling, who have