

CONCEPT MAPPING IN SOCIAL RESEARCH

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CONCEPTS

Social scientists conduct research on two distinct but interrelated levels: conceptual-theoretical and observational-empirical. More precisely, social researches involve a constant interplay of two process: theory construction and theory testing. For example, it is a fact that in the last 100 years social mobility has increased. This fact is not merely based on random observation, but is an empirically verified statement about phenomena. This involves both a scientific observation and a predetermined conceptual-theoretical framework by which the observation is guided. In this article, the conceptual theoretical level of social research has been explained with the help of the basic elements such as concept and concept mapping.

Dey (1993: 275) defines the term concept as "a general idea which stands for a class of objects." Concepts are "umbrella" terms. For example, the concept of class refers both to the classification of people according to income or employment, and to judgements that we might make about other (or of course ourselves). Examples of concepts include truth, beauty, evil, time, hunger, love, destiny, ethnicity, gender, class and space. In quantitative research it is very important to define the meanings of key concepts in advance in order to measure them systematically. This requires being clear about the indicators that we are going to use that will stand in for the concept. For example, if our research is concerned with poverty we might define poverty in terms of income or benefit groups, housing size and so forth. For some qualitative researchers, generating conceptual categories at the analysis stage will be much more common, because such researchers are interested in the perceptions of their respondents. This does not, however, mean that if we are planning to conduct qualitative research we need not be given any initial thought to define concepts. We still need to be explicit and aware of how we are defining concepts in the research questions that we formulate, and in the observation and interviews we conduct. The way we define concepts will shape the data we collect (Blaxter et al., 2002: 38).

To understand and communicate information about objects and events, there must be a common ground to work on. Concepts serve this purpose. A concept is a generally accepted collection of meanings or characteristics associated with certain events, objects, conditions, situations, and behaviors (Goode & Hatt, 1952: 41; Kumar, 1999; Das, 2000: 31). Concepts are mental images of perceptions, and therefore, their meanings vary markedly from individual to individual. Classifying and categorizing objects or events that have common characteristics beyond any single observation create concepts. When you think of a spreadsheets or a warranty card, what comes to mind is not a single instance but collected memories of all spreadsheets and warranty cards to a set of specific and definable characteristics (Cooper & Schindler, 2003: 41; Ghosh, 1999: 121; Kumar, 1999: 48; Young, 2000).

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We use concepts all the time in everyday life. They are the abstract terms we employ to explain or make sense of our experience. Take a term such as *happiness*. We learn at a relatively early age that happiness means the state of being happy. We also learn to use this term in evaluating experiences and phenomena, which we perceive as making us happy (or unhappy). Thus, the term *happiness* represents a concept, or abstract idea, which we apply to particular situation (Baker, 1999: 102).

We abstract such meanings from reality and use words as labels to designate them. For example, we see a man passing and identify that he is running, walking, skipping, crawling, or hopping. All these movements represent concepts. We also have abstracted certain visual elements by which we identify that the moving object is an adult male rather than an adult female or a truck or a horse. Every day, we use large numbers of concepts in our thinking, conversing, and other activities. A concept expresses an abstraction formed by generalization from particulars. "Weight" is a concept: it expresses numerous observations of things that are more or less "heavy" or "light." "Mass," "energy," and "force" are concepts used by physical scientists (Kerlinger, 2000: 28).

SOURCES OF CONCEPTS

Concepts that are in frequent and general use have been developed over time through share usage. We have acquired them through personal experience. If we lived in another society, we would hold many of the same concepts (though in a different language). Some concepts, however, are unique to a particular culture and are not readily translated into another language.

Ordinary concepts make up the bulk of communication even in research, but we often run into difficulty trying to deal with an uncommon concept or a newly advanced idea. One way to handle this problem is to borrow from other languages (for example, *gestalt*) or to borrow from other fields (for example from art, impressionism). The concept of gravitation is borrowed from physics and used in marketing in an attempt to explain why people shop where they do. The concept of distance is used in attitude measurement to describe degree of variability between the attitudes of two or more persons. Threshold is used effectively to describe a concept in perception studies; velocity is a term borrowed by the economist from the physicist (Pokharel, 2005: 20).

Borrowing is not always practical, so we sometimes need to adopt new meanings for words (make a word cover a different concept) or develop new labels (words) for concepts. The recent broadening of the meaning of model is an example of the first instance; the developments of concepts such as sibling and status-stress are examples of the second. When we adopt new meanings or develop new labels, we begin to develop a specialized jargon or terminology. Researchers in medicine, the physical sciences, and related fields frequently use terms that are unintelligible to outsiders. Jargon no doubt contributes to efficiency of communication among specialists, but it excludes everyone else.

TYPES OF CONCEPTS

Concepts may be classified into concrete concepts and abstract concepts.

Concrete Concepts symbolize material objects, what can be seen, touched and felt, e.g., book, table, and building. Concepts and facts are not

exactly the same. The concept symbolizes the empirical relationships and phenomena, which are stated by facts. Fact is thus, logical construct of concepts. In other words, concepts are basic to scientific method as well as the foundation of all human communication and thought. For example, water, mass, physical scientists use weight and density. There are many similar terms such as tree, temple, chalk, and so on for which we can point out numerous objects and measure their dimensions.

Abstract Concepts refer to properties or characteristics of objects, e.g., weigh, height, attitude, intelligence, and leadership. Concepts are abstract or general ideas, which are important to how we think about particular subjects or issues (Blaxter et al. 2002: 205). They are constructs, i.e., they represent inference deduced from observable events. They symbolize inference at a higher level of abstraction from concrete events and their meaning cannot be easily conveyed pointing to specific objects, individuals or events (Selltiz et al., 1976: Krishnaswami & Ranganathanm, 2005: 92). Concepts are abstractions and represent only certain aspects of reality (Martin, 2004: 24; Young, 2000).

PROBLEMS IN CONCEPT USE

The use of concepts presents difficulties that are accentuated in a research setting. First, people differ in the meanings they include under any particular table. This problem is so great in normal human communication that we often see cases where people use the same language but do not understand each other. We might all agree to the meaning of such concepts as dog, table, electric light, money, employee, and wife. We may encounter more difficulties, when we communicate concepts such as household, retail transaction, dwelling unit, regular user, debit, and wash sale. Still more challenging are concepts that are familiar but not well understood, such as leadership, motivation, personality, social class, and fiscal policy. For example, personality has been defined in the research literature in more than 400 ways (Hoover, 1991: 21). Although this may seem extreme, writers are not able to express the complexity of the determinants of personality and its attributes (e.g., authoritarianism, risk taking, locus of control, achievement orientation and dogmatism) in a fashion that produces agreement (Saunders et al., 2003). The concepts described represent progressive levels of abstraction-that is, the degree to which the concept does or does not have objective referents. Table is an objective concept in that we can point to tables and we can conjure up in our mind images of tables. An abstraction like personality is much more difficult to visualize. Such abstract concepts are often called constructs.

CONCEPT MAPPING

Social scientists have developed a number of methods and processes that might help us formulate a research method. Professor William M. K. Trochim of Cornell University of America has developed a method in research, called *concept mapping*, which is especially useful for research problem formulation and illustration and there are advantages of applying social-science methods to conceptualize research problem.

Concept mapping is general method that can be used to help any individual or group to describe ideas about some topic in a pictorial form. Several methods currently go by names such as concept mapping, mental mapping, or

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concept webbing. All of them are similar in that they result in a picture of someone's ideas; but the kind of concept mapping Professor Trochim describes is different in a number of important ways. First, it is primarily a group process and it's especially well suited for situations where teams or groups of researchers have to work together. The other methods work primarily with individuals. Second, it uses a structured facilitated approach. Specific steps are followed by a trained facilitator, who is helping a group articulate its ideas and understand them more clearly. Third, the core of concept mapping consists of several state-of-the-art multivariate statistical methods that analyze the input from all of the individuals and yield an aggregate group product. Finally, the method requires the use of specialized computer program that can handle the data from this type of process and accomplish the correct analysis and mapping procedures (Trochim, 2004: 27-28).

Although concept mapping is a general method, it is particularly useful for helping social researchers and research teams develop and detail ideas for research. It is especially valuable when researchers want to involve relevant stakeholder groups in the act of creating the research projects. Although concept mapping is used for many purposes-strategic planning, product development, market analysis, decision making, measurement development-he concentrates here on its potential for helping researchers formulate their projects.

So what is concept mapping? Essentially, concept mapping is a structured process, focused on a topic of construct of interest, involving input from one or more participants, that produces an interpretable pictorial view (concept map) of their ideas and concepts and how these are interrelated. Concept mapping helps people to think more effectively as group without losing their individuality. It helps groups capture complex ideas without trivializing them or losing detail.

A concept mapping process involves six steps that can take place in a single day or can be spread out over weeks or months depending on the situation. The process can be accomplished with everyone sitting around a table in the same room or with the participants distributed across the world using the Internet. The steps are as follows:

PREPARATION

Step one accomplishes three things. The facilitator of the mapping process works with the initiator(s) (those who requested the process initially) to identify who the participants will be. A mapping process can have hundreds or even thousands of stakeholders participating, although there is usually a relatively small group of between 10 and 29 stakeholders involved. Second, the initiated words with the stakeholder help develop the focus for the projects. For instance, the group might decide to focus on defining a program or treatment, or it might choose to map all of the expected outcomes. Finally, the group decides on an appropriate schedule for the mapping.

GENERATION

The stakeholders develop a large set of statements that address the focus. For instance, they might generate statements describing all of the specific activities that will constitute a specific social program, or generate statements describing specific outcomes that could result from participating in a program. A variety of methods can be used to accomplish this including traditional brainstorming, brain-writing, nominal group techniques, focus groups, qualitative text analysis, and so on. The group can generate up

to 200 statements in a concept-mapping project. This is a software limitation, in most situations, around 100 statements in the practical limit, in terms of the number of statements they can reasonably handle.

STRUCTURING

The participants do two things during structuring. First, each participant sorts the statement into piles of similar statements. They often do this by sorting a deck of cards that has one statement on each card; but they can also do this directly on a computer by dragging the statements into piles that they create. They can have as few or as many piles as they want. Each participant names each pile with a short descriptive label. Then each participant rates each of the statements on some scale. Usually the statements are rated on a 1 -to -5 scale for their relative importance, where a 1 means the statements is relatively unimportant compared to all the rest; a 3 means that it is moderately important, and a 5 means that is extremely important.

REPRESENTATION

At this point the analysis is done; this is the process of rating the input and representing it in map form. Two major statistical analyses are used. The first: multidimensional scaling-takes the sort data across all participants and develops the basic map where each statement is a point on the map and statements were piled together by more people are closer to each other on the map. The second analysis: cluster analysis-takes the output of the multidimensional scaling (the point map) and partitions the map into groups of statements or ideas, into clusters. If the statements describe program activities, the clusters show how to group them into logical groups of activities. If the statements are specific outcomes, the clusters might be viewed as outcome constructs or concepts.

INTERPRETATION

The facilitator works with the stakeholder group to help develop its own labels and interpretation for the various maps. This will be particularly important for more technical projects, but should always be considered for research projects of any kind. Graphics, particularly flow diagrams showing how different elements of a project are related to one another, can be easy to read and understand. Ensure that if graphics are used, there is a clear description provided in the text (Gray, 2004: 56).

UTILIZATION

The stakeholders use the maps to help address the original focus. On the program side, stakeholders use the maps as visual framework for operating the program; on the outcome side, the maps can be used as the basis for developing measures and displaying results.

CONCLUSION

The concept mapping process, described here, is structured to conceptualizing. However, the researchers who do not follow a structured approach are likely to be using similar steps informally, for instance, all brainstorming steps as described previously. They may not actually brainstorm and write their ideas down, in fact they probably do something like that but informally. After they have generated their ideas, they structure or organize them in some way. For each step in the formalized way, under concept mapping process we can probably think of analogous ways that researchers accomplish the

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same task, even if they do not follow such formal approach. More formalized methods like concept mapping most certainly have benefits over the typical informal approach. For instance, with concept mapping there is an objective record of what was done in each step. Researchers can be both more public and more accountable. A structured process also opens up new possibilities. With concept mapping, it is possible to imagine more effective multiple researcher conceptualization and involvement of other stakeholder groups such as program developers, founders, and clients.

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