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EVERYDAY KNOWLEDGE REPRESENTATION IN CONCEPT MAPS: A METHODOLOGICAL APPROACH BASED ON THE THEORY OF SOCIAL REPRESENTATION

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Abstract: This paper documents the method and procedures employed by the authors to analyze and interpret concept maps containing representations of people′s everyday knowledge about "water" and the "benefits of drinking water". Using a social representation theory approach, the researchers applied concept maps as analytical tools to interpret data from a previous study focused on documenting low-income adults′ everyday knowledge about "water" and the benefits of "drinking water". Procedures for data collection involved (1) selecting a group of 49 low-income adults in México, (2) classifying the participants either as "adults with high levels of water-intake" or "adults with low levels of water-intake", and (3) conducting eight focus groups to document their views on "water" and "the benefits of drinking water (4 focus groups of adults with low levels of water-intake and 4 focus groups of adults with high levels of water-intake)". The concept maps that were produced by each focus group were constructed and interpreted from a social representation perspective. The method of comparison between concept maps made it possible to generalize the main statements and representations expressed by the participants; these statements are presented in a general concept map, which represents the social group theory of water. Furthermore, this paper points out the value of the concept map as an analytical tool and as a way of presenting results. Finally there is a discussion about the particularities of mapping out focus groups and the logic of the propositional structure of these concept maps.
Keyword: qualitative research, data analysis, methodology, focus groups, concept mapping

1   Introduction

The concept map (CM) is an analytical strategy for the development of relationships and categories. The technique and its formal elements of design are based on Novak (Novak & Cañas, 2006b). The use of the CM as a methodological tool is varied, it has been used for the collection and interpretation of qualitative data, in the presentation of results (Aguilar Tamayo & Montero Hernández, 2010a; Chrobak, Sobrino, & Ponzoni, 2008; Daley, 2004), in knowledge representation (Novak & Cañas, 2006b), in the analysis of cognitive tasks (Crandall, Kein, & Hoffman, 2006), in evaluation and decision making processes that involve different theories and approaches (Moon, Hoffman, Novak, & Cañas, 2011) (Kinchin, 2008; Kozminsky, Nathat, Kozminsky, & Gurion, 2008; Muradás López & Zabalza, 2006), and as a complement to cognitive theory (Ausubel, 2002). The most direct precedent of CM as an analytical method and strategy is the study about the representation of cognitive structures and concept learning (Aguilar Tamayo, 2006; Novak & Cañas, 2006a). The diversity of CM theories has generated practices that influence the adjustment of its technique. In the more general sense, it is a semiotic tool to support representational processes in the same way that other systems of representation are integrated into the cultural resources of societies and communities (Aguilar Tamayo, 2012).

2   Social representation theory and everyday knowledge

The theory of social representations is an approach to understand the knowledge that a social group possesses about a topic or problematic and the functions that such knowledge have in orienting their practices, activities and decisions in everyday life. An approach to social representations is the study of everyday knowledge, understood as the set of conceptual tools, knowledge and practices that allow individuals to make decisions in their everyday life (Flick, 1998).

Everyday knowledge and the communication and social interaction practices make up an important part of the beliefs that adults hold regarding water and its ingestion, and although the sources of everyday knowledge (social representations) are based on scientific knowledge, the appropriation of the concepts, theories and methods are reinterpreted in a process called *anchoring*, whose function is to assimilate or accommodate new concepts and ideas into preexisting knowledge and practices, so that they can be objectified later on in objects, words or images, establishing this way a concrete relationship, tied to the sensible experience, common to everyday life, and not abstract, which is a characteristic of the scientific concept (Moscovici, 1961/2008, 1998).

3   Description of the method of analysis through concept maps

In this paper it will be discussed the method of CM construction as part of a process of qualitative analysis. The maps are used as comparison and integration strategies to represent the generalizations emerging from the analyzed data. The method and the procedure in the construction of propositions, originates in the analysis of focus groups under the approach of social representations (Moscovici, 1961/2008, 1998), therefore the analysis method seeks to build and represent the *everyday knowledge* that is shared by focus groups participants. Figure 1 shows a concept map describing inclusion criteria for participants and focus group selection criteria. The findings of the research project have already been published in a specialized article about health and food practices (Espinosa-Montero, Aguilar-Tamayo, Monterrubio-Flores, & Barquera-Cervera, 2013).

Figure 1: Description of the participants in the study, PBHN: Adults with low levels of water-intake, male, regular weight. PBHSO: Adults with low levels of water-intake, male, obese or overweight males. PBMN: Adults with low levels of water-intake, female, regular weight. PBMSO: Adults with low levels of water-intake, female, overweight and obesity. GBHN: Adults with high levels of water-intake, male, regular weight. GBHSO: Adults with high levels of water-intake, male, obese or overweight. GBMN: Adults with high levels of water-intake, female, regular weight. GBMSO: Adults with high levels of water-intake, female, overweight and obesity.

Data analysis started with transcription of the eight focus groups. Complementary information was gathered: weight, size and an instrument to estimate daily liquid intake (see figure 1). Coding was supported by the use of qualitative data analysis software Atlas Ti. Most of the codes were constructed according to the theory and literature that was reviewed on the subject of hydration and its factors, and the ingestion of liquids in Mexico.

The function of concept mapping in the process of analysis and interpretation of data can be synthesized the following way: a) the representation of the main assertions and/or relations held by the individuals regarding objects or phenomena, b) exploring the conceptual relations for the construction of categories and c) producing an explanatory synthesis which articulates the variety of concepts and categories identified during the analysis of the discourse of the group under study (Aguilar Tamayo & Montero Hernández, 2010b; Montero & Aguilar Tamayo, 2009) see figure 3.
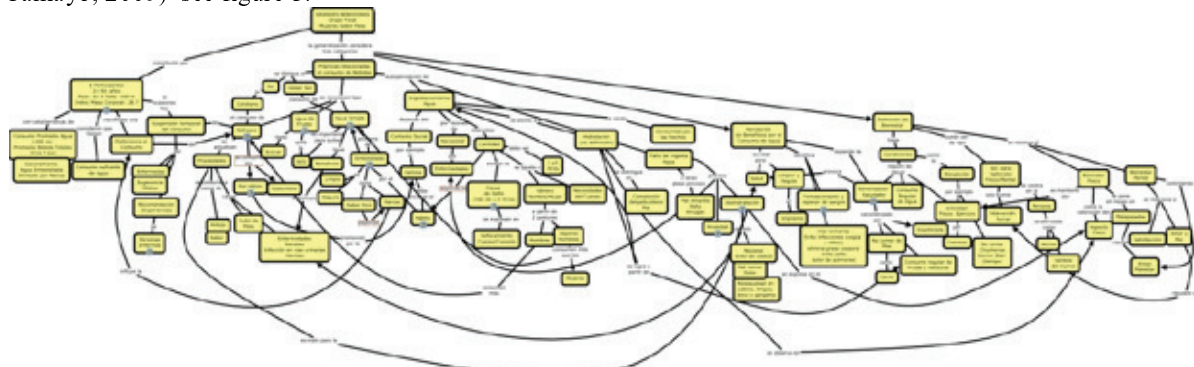
Figure 2: Example of the concept maps structure. Eight concept maps were made, one for each focus group. These maps allowed the thorough comparison of participant's expressions.

3.1 Concept mapping procedure

A concept map was made for each focus group, this process included each of the identified statements. Triangulation strategies were developed comparing the most relevant relations that articulate the visions of the participants. Triangulation and verification was achieved through the specific search for concurrent data related logically or contextually in the coding done in Atlas Ti. The eight concept maps were built with a structure similar to what is shown in figure 2. Specific concepts derived from the review of literature were taken including *water intake*, *definition of wellbeing*, *benefits of water intake*, *hydration and source of the water that is consumed*, these concepts located in the second hierarchical level, give a similar structure to concept maps.

Figure 3. Integrated concept map: Theory of water and, heavy and light water drinkers´ everyday knowledge

3.2 Everyday knowledge about benefits of water intake and its representation in a concept map

In the case of everyday knowledge representation, the propositions may appear to be in conflict and logical contradiction without them being revealed to the group of subjects, or to the individual himself in the communicative interaction, not only because of the way reasoning is guided by personal and sensation experience, the cultural context and collective consensus, but also because they are embedded in other practices not visible to people themselves (Moscovici, 1998).

The concept maps representing each focus group (illustrated in figure 2) and the integrated concept map (figure 3) are interpretations made by the researchers and show academic concepts and conceptual disciplinary and scientific hierarchies to analyze, organize and show a finding.

The theory of water that is made explicit in the statements of the focus groups and represented in the concept maps integrates various sources of information: everyday knowledge, the scientific discourse (linked to formal education and to the clinical experience derived from the treatment of health problems) and advertising. The theory of social representations allows us to recognize and understand that the concepts used by the subjects reproduce, partially, some scientific definitions.

4 Conclusions

The metaphor of the *theory of water* and its representation through a concept map has provided with a method for comparison and analysis integration. The concept map, as a product of this analysis (figure 3) also works as a synthesis of the research finding. The process of propositional construction and the articulation of these propositions can be compared to the construction process of categories and networks used widely in qualitative methods, however, the concept mapping allows more flexibility and is used in the propositional expression by using the natural language for relations.

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