

USING CONCEPT MAPS IN COLLEGE LEVEL PSYCHOLOGY AND SOCIAL WORK CLASSES

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Abstract. Concept maps were used in two different psychology courses taught at different levels. In one class, concept maps were used as advance organizers for lectures, and the learners constructed and modified some group maps for short text sections, as well as a midterm map. In the second class, students constructed concept maps of each text chapter as part of their course assignments. Concept maps were also used by a Social Work professor as a basis for class discussion.

1 Introduction

This paper reports on the use of concept mapping in college level psychology and social work classes. Concept maps were used to varying degrees in two different psychology classes, “Cognitive Psychology” and “Culture and Psychology”. Cognitive Psychology is taken primarily by freshman and sophomores, although it can be taken by students further along in their academic careers. Culture and Psychology is taken primarily by juniors and seniors, and also fills a General Studies requirement. Concept maps were also used by an instructor in social work in a class on family violence.

Concept mapping has been used in educational settings for many purposes. When students construct concept maps, it often has the underlying purpose of assessment (Kinchin & Hay, 2000), and is meant as a way of moving students toward meaningful learning (Novak, 1998; Pearsall, Skipper, & Mintzes, 1997). When instructors utilize concept maps, they may serve additional roles in course or curriculum development (Clark & James, 2004; Edmondson, 1993; McDaniel, Roth & Millar, 2005), or may serve as advance organizers for sections or units of study (Willerman & Mac Harg, 1991).

Initial construction of concept maps is often best when accompanied by training or instruction in map construction. This training may occur in a formal or informal format. Ideally students should receive frequent feedback during the map construction process. Computer software can simplify this process, but has limited applicability if students prefer paper-and-pencil concept maps. In addition students may also benefit from constructing maps in groups (Roth & Roychoudhury, 1993). Providing expert skeleton maps to scaffold student construction of maps is also beneficial (Novak and Cañas, 2004).

Concept map use in the three classes varied, from primary use as advance organizer with minimal group concept map construction (Cognitive Psychology), to fairly extensive map construction (Culture and Psychology), to use as lecture guide with later applications (Social Work). Student response was most positive when maps were later utilized in a future assignment, or had applicability in other problem solving scenarios.

2 Concept Map Construction in Psychology and Social Work Courses

2.1 Student Map Construction in Psychology Courses

Concept maps were used in a sophomore level cognitive psychology class, and in a senior level culture and psychology class. The instructor used concept maps in different ways in the classes. In the cognitive psychology class, concept maps were used as advance organizers for lectures, with occasional opportunities for students to actively create their own concept maps in small groups during class. In the culture and psychology class, students were asked to construct concept maps for each chapter they read in their textbook (Shireav and Levy, 2004).

In the cognitive psychology class, concept maps were primarily used as advance organizer for class discussion. Many of the initial course topics could be presented with a single concept map per chapter, providing a convenient way for students to review major concepts and research areas. They also participated in several in-class mapping sessions. There was no official concept map training, but students had previously received the instructor’s maps for

other chapters, and received several handouts including information on map construction, and examples of good and bad maps (based on Kinchin & Hays, 2000). In one in-class session small groups of students were assigned portions of the text to map. In the following class session, they were given computer-generated versions of the concept maps with instructor comments, and asked to revise one of the initial maps (not the one they had initially generated). An example of one of the concept maps used on the second day is in Figure 1. In Figure 1, instructor comments about missing map sections and concepts are in bold. This map represents a section of a chapter, and is of relatively high quality when compared to other student maps. Some student maps were very sparse, and included only two or three concepts with little evidence of hierarchy or meaningful connections. Students in this class also created a joint concept map of material covered through the midterm (approximately the first half of the book) as an in-class activity. This joint concept map was created on a dry-erase board, and was saved via digital photography and had-written copies of the concept map. Students enjoyed the experience of making corrections to the larger concept map. They often pulled out the concept maps given to them as lecture guides to use as a way to identify the most important ideas and concepts.

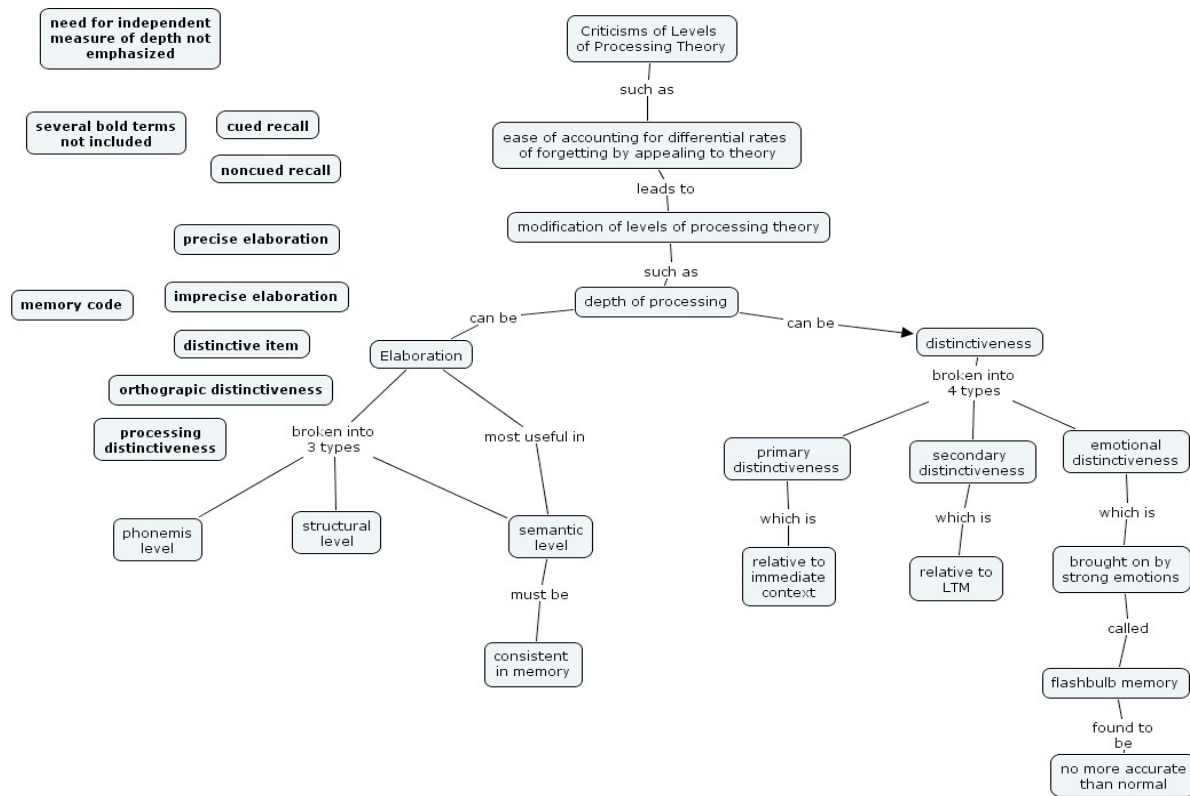


Figure 1. Example of concept map with instructor comments used on second day of class mapping (instructor comments in bold).

In the culture and psychology class, students were required to extend the major concepts and theories covered in a general psychology class to a multicultural domain. Concept maps served as a way for students to think explicitly about these connections. Students were asked to construct concept maps for each of their textbook chapters. Students were given initial training in concept maps, consisting of several handouts on map construction, and examples of good and bad maps (based on Kinchin & Hays, 2000). They were shown sample concept maps of the instructor for the initial chapter. After the initial concept maps were turned in, there was an in-class discussion of general ways to improve maps. Students were not required to use software for map construction and most students turned in paper copies of the maps. However, six students successfully downloaded the CmapTools software, and emailed their maps to the instructor. These students were primarily the students who were taking the class at a remote site. Feedback for maps was minimal, and typically included general information about the desirability of hierarchical structure and use of linking terms, as well as distinguishing between concept maps and other types of mapping systems. Faculty maps for some individual chapters (typically more complex chapters) were shared via a

classroom projector, or through an online course management system. In cases where faculty maps were shared, student maps were often very similar, and were evaluated in terms of what was added or changed from the faculty maps.

2.2 Use of Concept Maps in Social Work Class

Concept maps were also used by a professor in Social Work. This individual was interesting in concept mapping and mind mapping, and had used versions of mind maps (Buzan & Buzan, 1996) as aids in communicating with clients. She was interested in the concept mapping software for use in exploring her ideas and concepts, and for communicating complex interactions among ideas to students. Although her initial maps were more like mind maps in their initial conceptualization, they showed an integrated understanding of complex areas.

Several concept maps were developed for use in the social work class. They included concept maps on pedophilia, problem solving and intervention in social work, political parties and their belief structures, family violence statistics, and reasons for family violence. The instructor used concept maps to present complex models and theories. Although the instructor's initial approach to concept mapping was free-form, she began to see the value of linking terms as her maps progressed. In addition, her maps also showed strong hierarchal relationships, though this was not always evident from her initial free-form maps. In fact, when subjected to the autofomat tools, all maps were primarily hierarchical in nature, and showed complex interrelationships among topics. In some cases the instructor deliberately used a non-linear format with classes to demonstrate that typically information from clients will not always appear in a linear hierarchical fashion, and there is a need to be able to make multiple connections to come up with solutions. Figure 2 shows an unedited concept map about the problem solving/intervention process in social work. This map was one of the instructor's later maps. It contains a great deal of hierarchical structure and is relatively consistent in use of linking terms. Students filled out this map as part of a lecture. In a later class, they were asked to use this map to apply to cases in social work.

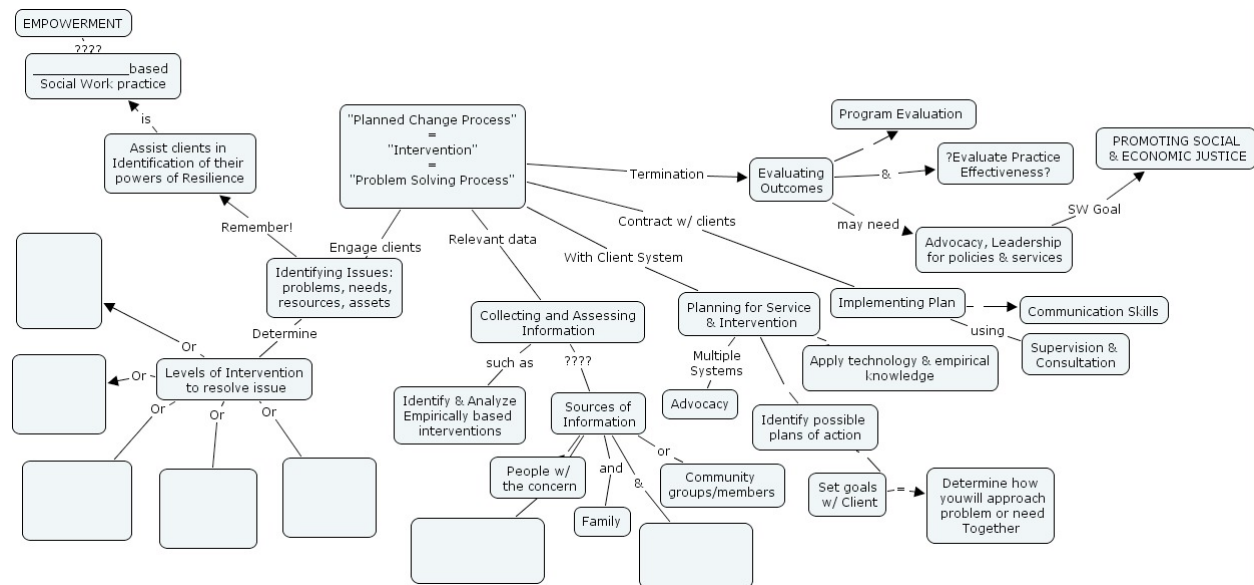


Figure 2. Map of Social Work "Problem Solving Process with areas are left blank for student work.

2.3 Student Response to Concept Maps

There was no formal measurement of student response to concept maps. Student response was mixed with regard to student concept map construction. Students were initially apprehensive about creating concept maps, and expressed a desire to construct outlines as an alternative. Students tended to benefit most when they actively constructed maps, or were asked to actively think about maps and apply them to new situations. Group concept

mapping sessions in class, though time-consuming were especially beneficial in increasing student interest and relatively quick feedback from the instructor and other students. In the social work class, one of the concept maps was used as a framework to in case analysis. Other concept maps were used to explore topics and theories which were puzzling or problematic to students, such as an understanding of political systems, or understanding theories and causes for societal issues such as pedophilia and family violence. Student motivation to engage in discussing and developing these maps may have been higher than in maps which discussed basic theories and research.

3 Summary

This project reports on the use of concept maps in three undergraduate classes in psychology and social work. Use of concept maps ranged from student construction of concept maps, to student group construction of concept maps, to faculty use of concept maps as an advance organizer for lectures, as an assessment, and as a guide for more applied assignments. Students engaged more meaningfully with maps which engaged them in problems and topics they could more easily relate to real life and applications. In addition, constructing maps that were later edited and evaluated, or used as the basis of new concept maps, was beneficial. This suggests that instead of asking students to create weekly concept maps on individual chapters, students could be asked to begin constructing an overall map of the domain, with weekly updates. Chapter or topic maps could be addressed more efficiently through student modification and extension of expert skeleton maps, as suggested by Novak and Cañas (2004).

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