

## **Integration and Assessment of Concept Mapping as a Tool to Synthesize Concepts in a Pharmacy Communication Skills Course**

### **Abstract**

**Objective:** To assess students' perceptions of their understanding of content associated with communication skills (PHA 320) with and without exposure to concept mapping, and to evaluate the ability of each student to describe such connections in detail.

**Methods:** In the first year of the project, students will be given a pre- and post-course assessment of their understanding of the connection between communication skills concepts using a Likert scale. Likewise, the students will write a narrative description of their understanding of how the topics discussed during the course are interrelated. This process will be repeated the second year with the addition of concept mapping as a tool to facilitate a deeper understanding of the material.

**Results:** A quantitative analysis of the changes in the Likert scale responses, and a qualitative analysis of the contents of the written narratives from the first and second years will be completed.

**Implications:** The project will determine the utility of concept mapping as a tool to facilitate more meaningful learning of communication skills for pharmacy students.

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## **Statement of Purpose**

Concept maps are basically visual or graphical tools that help the user organize their knowledge and make connections between and among concepts.<sup>1</sup> These tools have been used in multiple areas in higher education, primarily in the hard sciences. However, they have also proven useful in helping students learn abstract and conceptual topics, particularly in the social sciences.<sup>2</sup> Pharmacy students learning how to communicate with patients, caregivers and colleagues must engage with multiple aspects of care that encompass social, psychological and behavioral facets of communication. Concepts within these areas are abstract in nature, and can be difficult to conceptualize as an integrated set of skills. Some of the ideas introduced to students can be difficult to understand, and as such the students use rote memorization to pass exams, but do not ultimately have a grasp on the concepts allowing them successfully apply the knowledge.

Within the realm of pharmacy education, concept mapping has been used to teach communication skills. However, the evaluative process for this endeavor centered around student feedback about the process.<sup>3</sup> We would like to explore whether there is a notable difference between students exposed to concept maps and those who were not exposed to this tool. In order to determine if concept mapping is indeed a useful tool for helping pharmacy students integrate their knowledge to afford a deeper understanding of ideas associated with communication skills, the comparison must be made.

## **Project Design and Timeline**

All students in their first year of the pharmacy program (both campus and distance students) are required to take Communication Skills (PHA 320). Students in the first year of the project will not be introduced to concept mapping. They will be asked to provide answers to questions about their understanding of connections between concepts, both at the beginning of the course and after all lecture material has been presented, and they will be asked to write a narrative about their understanding of the concepts introduced in the course and their relationship to each other. Students in the second year will also complete the questions and the narrative. However, they will also be provided with education about concept mapping, instruction on how to utilize the concept mapping tool (the IHMC Cmap Tool is a free computer program available through Creighton University), and will be given examples and time to practice. Students will be divided into groups for the semester, and each group will be responsible for developing their concept map as the lectures are given. At the end of the two-year project, the questions and narratives from students in each year will be compared to determine if an increase in understanding was apparent for those students who utilized concept mapping during the learning process.

Spring and Summer, 2011:

- Develop Likert scale questions for student self-assessment
- Obtain instructional resources and engage in training of faculty
- Begin development of training tools for students to be utilized in the second year of the project

August, 2011-December, 2011:

- Year one data collection

August, 2012-December, 2012:

- Year two data collection

### **Expected Products (Outcomes)**

We anticipate that the introduction of concept mapping in the second year of the project will allow students to develop a greater understanding of communication skills and related concepts, and that this will be apparent in the written narrative.

The School of Pharmacy has a set of pre-defined Educational Outcomes for Graduates, the assessment of which determines the success of the program in so far as it pertains to the development of a competent pharmacist. This project is consistent with those outcomes in that it facilitates the application of critical thinking skills (critical thinking being one of the defined outcomes). Additionally, as communication mastery is also a stand-alone outcome, the utilization of a tool that fosters success in this area is consistent with the goals of the program.

### **Budget**

Scholarly Resources	\$500
(Books and other materials for investigator training)	

No additional monies are anticipated to be needed for sustainability of the concept mapping piece of the course should it prove to be successful.

### **References**

1. Novak JD, Cañas AJ. The theory underlying concept maps and how to construct and use them. Technical Report IHMC CmapTools 2006-01 Rev 01-2008, Florida Institute for Human and Machine Cognition, 2008. (To view: <http://cmap.ihmc.us/Publications/ResearchPapers/TheoryUnderlyingConceptMaps.pdf>)
2. Trepagnier B. Mapping sociological concepts. Teach Sociol. 2002;30:108-19.
3. Hill, LH. Concept mapping in a pharmacy communications course to encourage meaningful student learning. Am J Pharm Educ. 2004;68(5):Article 109. (To view: <http://www.ajpe.org/view.asp?art=aj6805109&pdf=yes>)