

Concept Mapping and Multiple Intelligence



Rhoda Murray PhD, FNP-C

Milena P. Staykova EdD, APRN, FNP-BC

Christine Huson, MSN , RN



JEFFERSON COLLEGE
of HEALTH SCIENCES

An Affiliate of

CARILIONCLINIC



Objectives



Upon completion of this presentation, the learners will:

- Compare traditional to a concept mapping priority of care assignment and student's learning preferences based on the Gardner's multiple intelligence theory.
- Discuss concept mapping as a tool to engage students in active learning.
- Network with colleagues from an academic institution.

Overview

- Students differ in preferences for learning (Conti, 2008; Lance, n.d.).
- Concept maps are effective learning tools for educators in creating assignments to engage the modern generations (Harrison, & Gibbons, 2013; West et al., 2000).
- Concept mappings appeals to multiple intellects by personalizing academic content that best suits learning needs (Kostovich, Poradzisz, & Wood, 2007; Taylor & Wros, 2007).
- Through concept mapping, metacognition is stimulated and nursing students use prior knowledge, link facts and concepts, structure new learning and develop critical thinking (Harrison, & Gibbons, 2013; Latif, Mohamed, Dahlan, & Mat Nor, 2016).
- Problem-Based Learning has used concept mapping to evaluated the integration of knowledge and measure cognitive domains (Hung, & Lin, 2015; West et al., 2000).





Purpose

The purpose of this study was to identify clinical assignments that will meet the learning preferences of multiple intellects as identified by Garner's Multiple Intelligence theory.

Research Question

In undergraduate nursing students taking senior clinical course, which assignment will meet the learning preferences of multiple intellects as identified by Garner's Multiple Intelligence theory?

Definition of Concept Mapping

“As useful pedagogic tools for both teachers and learners, concept maps take meaningful knowledge of a particular subject and present it in a schematic format” (Harrison, & Gibbons, 2013, 395).

Based on the Ausubel’s theory of meaningful learning from 1968 and the work of Novak and Gowin in 1984.



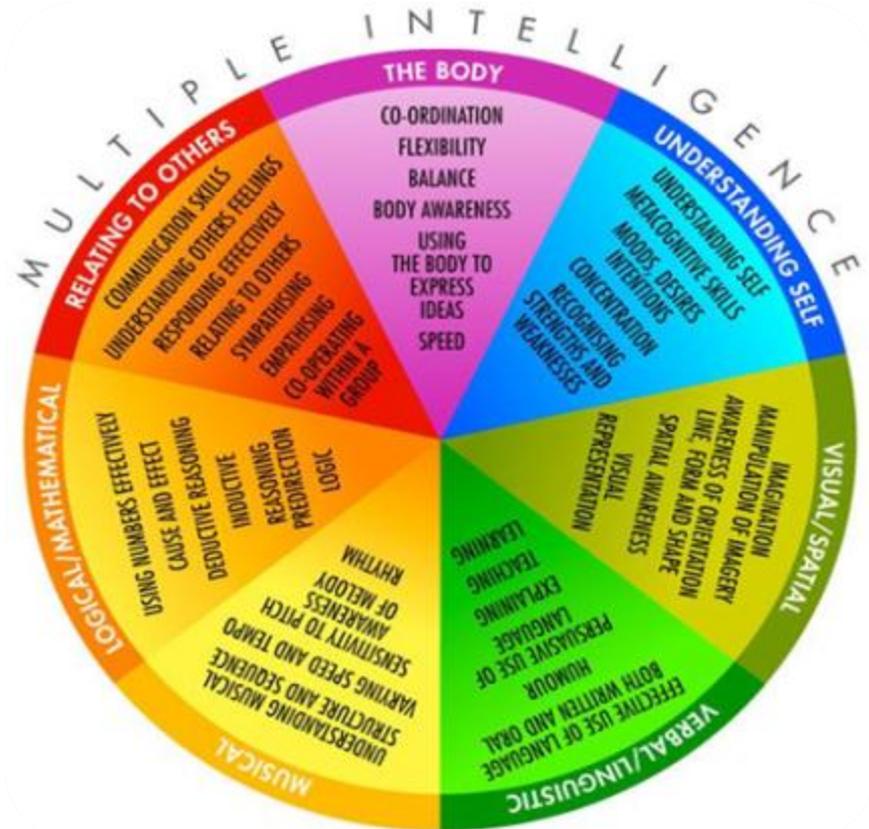
Method

Sample: undergraduate nursing students (n=28) from a private health sciences college who were enrolled in a senior clinical course.

A survey based on Gardner's multiple intelligence theory and questions addressing concept map and written assignment effectiveness using a 6-point scale with cognitive skills and a 4-point attitudinal scale.

IRB approved study

Waiver of informed consent was requested



Data Collection Tool

Concept Mapping Assignment vs. Traditional Assignment based on Multiple Intelligence Learning Preferences (CMATAMILP)		
Gardner identified seven intelligences (Lance, n. d.). Please select the statement that best describes our learning preferences.		
1. Visual-Spatial - I think in terms of physical space, as do architects and sailors. I am very aware of environments. I like to draw, do jigsaw puzzles, read maps, day dream. I like graphics, charts, photographs, drawings, 3-D modeling, video, videoconferencing, television, multimedia, texts with pictures/charts/graphs.		
2. Bodily-kinesthetic - I use the body effectively, like a dancer or a surgeon. I have a keen sense of body awareness. They like movement, making things, touching, and communicating through body language. I like to work with equipment and real objects.		
3. Musical - I show sensitivity to rhythm and sound. I love music, but I am also sensitive to sounds in their environments. I may study better with music in the background. I like multimedia.		
4. Interpersonal - I understand, interacting with others. I learn through interaction and I love group activities, discussions, and dialog. I have many friends, empathy for others, street smarts. I like telephone, audio conferencing, time and attention from the instructor, video conferencing, writing, computer conferencing, E-mail.		
5. Intrapersonal - I understand of my own interests, goals. I tend to shy away from others. I have wisdom, intuition and motivation, as well as a strong will, confidence and opinions. I like independent study and introspection. I like books, creative materials, diaries, privacy and time.		
6. Linguistic - I use words effectively. I have highly developed auditory skills and often think in words. I like reading, playing word games, making up poetry or stories, computers, games, multimedia, books, tape recorders, and lectures.		
7. Logical-Mathematical - I use reasoning, calculating. I think conceptually, abstractly and I am able to see and explore patterns and relationships. I like to experiment, solve puzzles, and ask cosmic questions, logic games, and investigations mysteries. I need to learn and form concepts before I can deal with details.		
Please answer the following set of questions as they relate to concept mapping priority interventions of care and traditional priority interventions of care.		
1. Creating a concept map with priority interventions helped me to:	1. Understand the priority interventions in depth (Comprehension). 2. Think about the priority interventions from different angles and to rationalize and link different concepts (Critical Thinking). 3. Organize my thoughts (Organization). 4. Improve my patient's outcomes (Application). 5. It was not relevant. 6. Did not help at all.	
2. Developing priority interventions with rationale in a written format helped me to:	1. Understand the priority interventions in depth (Comprehension). 2. Think about the priority interventions from different angles and to rationalize and link different concepts (Critical Thinking). 3. Organize my thoughts (Organization). 4. Improve my patient's outcomes (Application). 5. It was not relevant. 6. Did not help at all.	
3. Creating a concept map in assignment 2 was more effective learning strategy than writing down the priority interventions with rationales in assignment 1.	4. Strongly Agree 3. Agree 2. Somewhat agree 1. Disagree	
4. Writing down the priority interventions with rationales in assignment 1 was more effective learning strategy than creating a concept map in assignment 2.	4. Strongly Agree 3. Agree 2. Somewhat agree 1. Disagree	

Traditional Assignment

PATIENT:

PRIORITY INTERVENTIONS:

Priority Patient #1

Age _____ Sex _____

Primary Dx.

Rationale for priority ranking #1:

Priority Intervention #1

Rationale:

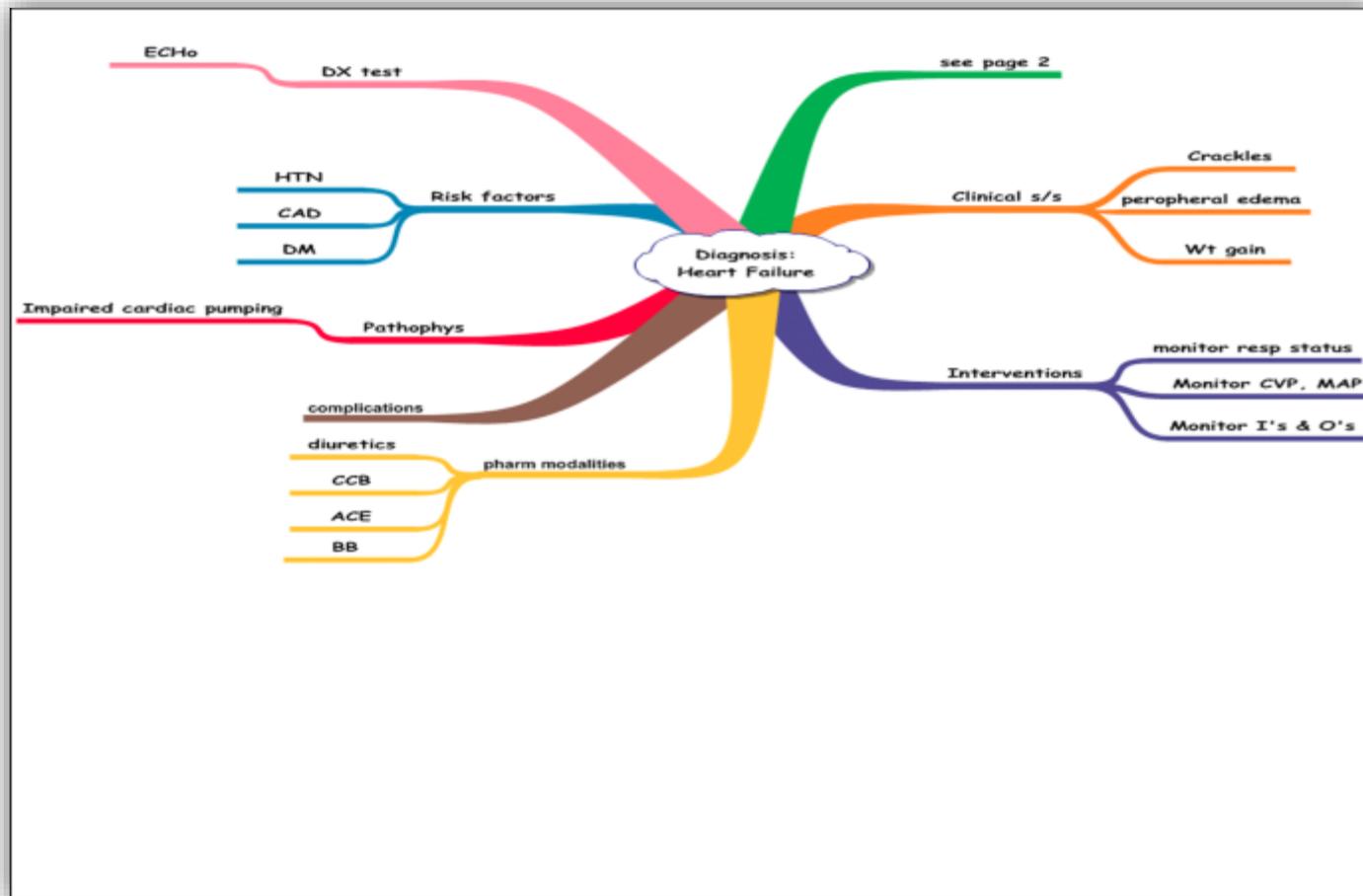
Priority Intervention #2

Rationale:

Priority Intervention #3

Rationale:

Concept Mapping Assignment



Results

Table 1.

Comparison of concept mapping and written assignment to multiple intelligences

Multiple Intelligences (n=29)	Concept Mapping	Written Assignment
Visual (n=7)	43% Organization	43% Critical Thinking
Bodily Kinesthetic (n=4)	75% Critical Thinking	75% Critical Thinking
3 Musical (n=3)	66% Organization	100% Organization
4 Interpersonal (n=5)	80% Organization	80% Organization
5 Intrapersonal (n=2)	50% Organization	50% Organization
6 Linguistic (n=4)	100% Organization	50% Organization
7 Logical (n=4)	25% Critical Thinking	25% Critical Thinking

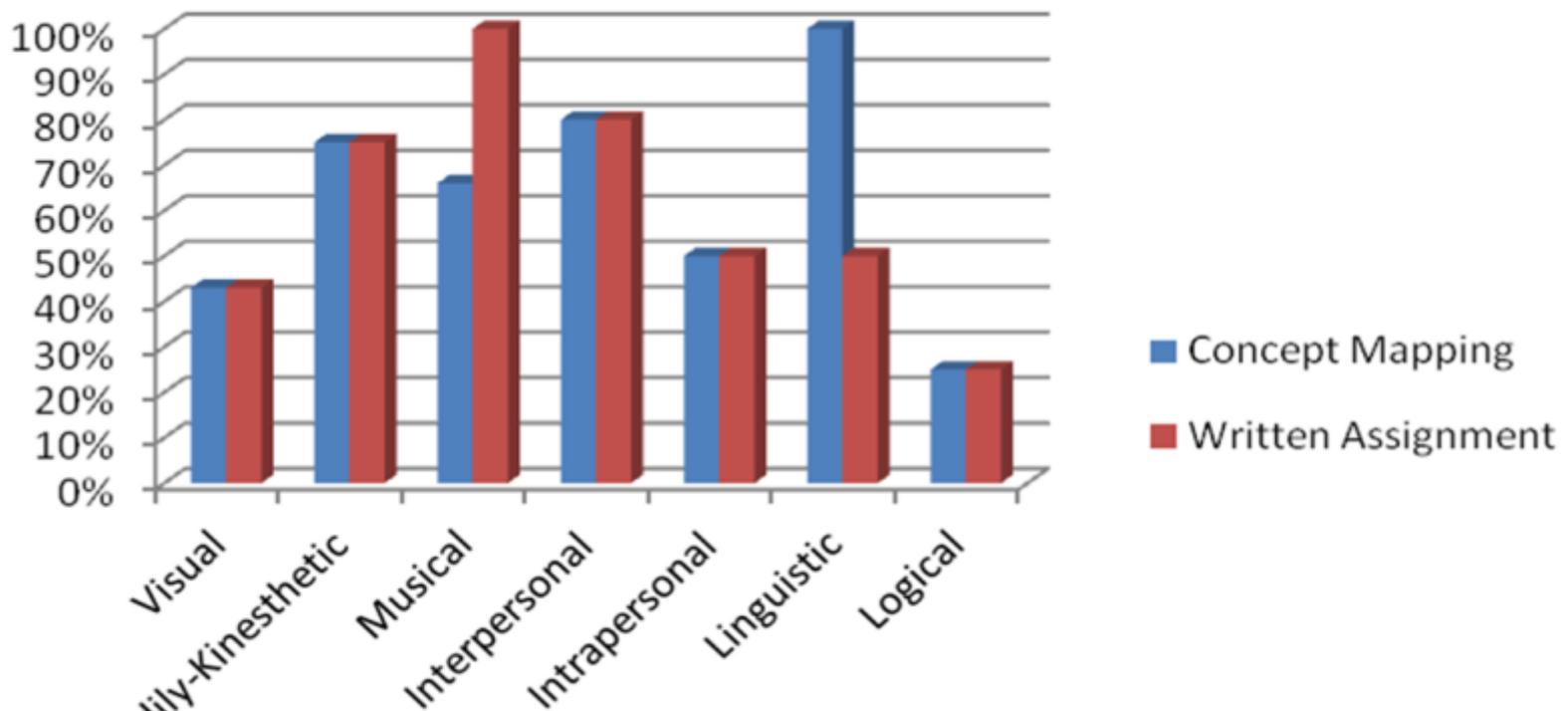


Figure 4 Students' Preferences of Concept Mapping or Written Assignment



Conclusions

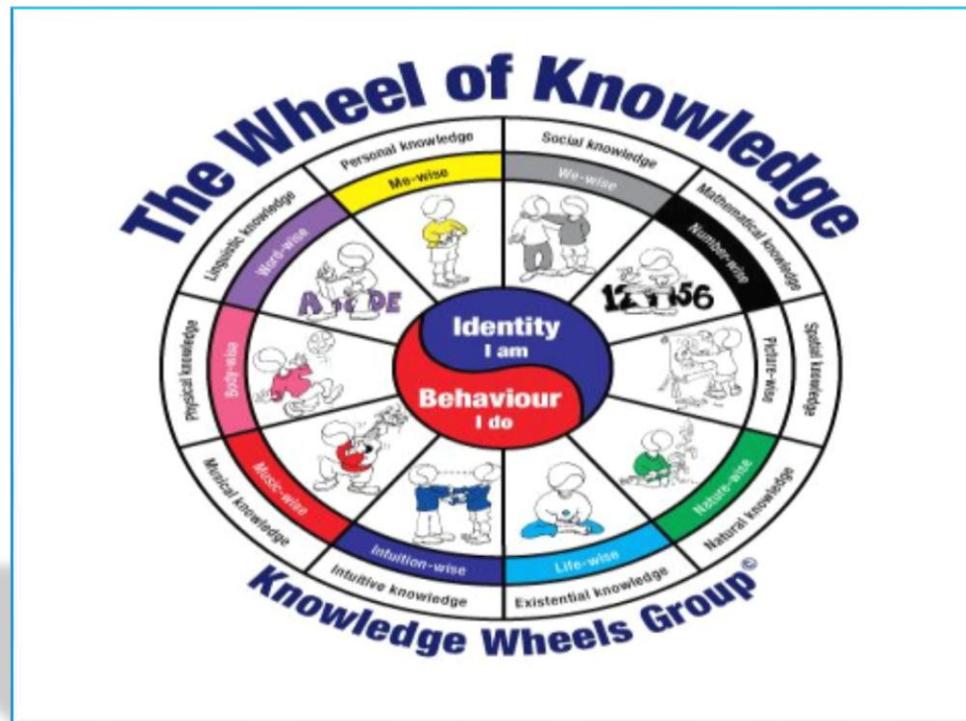
The concept mapping assignment encouraged organization of content and critical thinking. Both assignments yield equal preferences by most of the multiple intellects, except musical and linguistic.

Educators should consider instructional strategies stimulating variety of learning preferences and multiple intellects.

Concept mapping as well as written assignments engage students with different learning preferences in active learning and it meets the learning preferences of multiple intellects.

Looking Ahead

- Concept Mapping Use in Other Nursing Classes
- Different ways to identify student learning styles



References

- Conti, H. (2008). Multiple intelligences. *Multiple intelligences research starters education*, 1.
- Harrison, S., & Gibbons, C. (2013). Nursing student perceptions of concept maps: From theory to practice. *Nursing Education Perspectives*, 34(6), 395- 399. DOI:10.5480/10-465
- Hung, C. & Lin, C. (2015). Using concept mapping to evaluate knowledge structure and problem-based learning. *BioMedCentral*, 15(212). Retrieved from <http://mbcmmededuc.biomedcentral.com>
- Kostovich, C. T., Poradzisz, M., & Wood, K. (2007). Learning style preference and student aptitude for concept maps. *Journal of Nursing Education*, 46(5), 225-231.
- Lance, C. (n.d.). Gardner's multiple intelligences. *The Distance Learning Technology Resource Guide*. Retrieved from <http://www.tecweb.org/styles/gardner.html>
- Latif, R. A., Mohamed, R., Dahlan, A., & Mat Nor, M. Z. (2016). Concept mapping as a teaching tool on critical thinking skills and academic performance of diploma nursing students. *Education In Medicine Journal*, 8(1), 67-74. doi:10.5959/eimj.v8i1.406
- Taylor, J., & Wros, P. (2007). Concept mapping: A nursing model for care planning. *Journal of Nursing Education*, 46(5), 211-216.
- West, D. C., Pomeroy, J. R., Park, J. K. , Gerstenberger, E. A., & Sandoval, J. (2000). Critical thinking in graduate medical education: A role for concept mapping assessment. *JAMA*, 284(9), 1105-1110.

Questions



Concept Map Activity

Using the word “engage”, come up with 2 learning strategies that are based on the Gardner’s 7 Multiple Intelligences to engage a student/patient. Explain your choices.

