

# Can Concept Mapping Be Used as a Strategy to Engage Learners in Nursing Education?

## College of Nursing

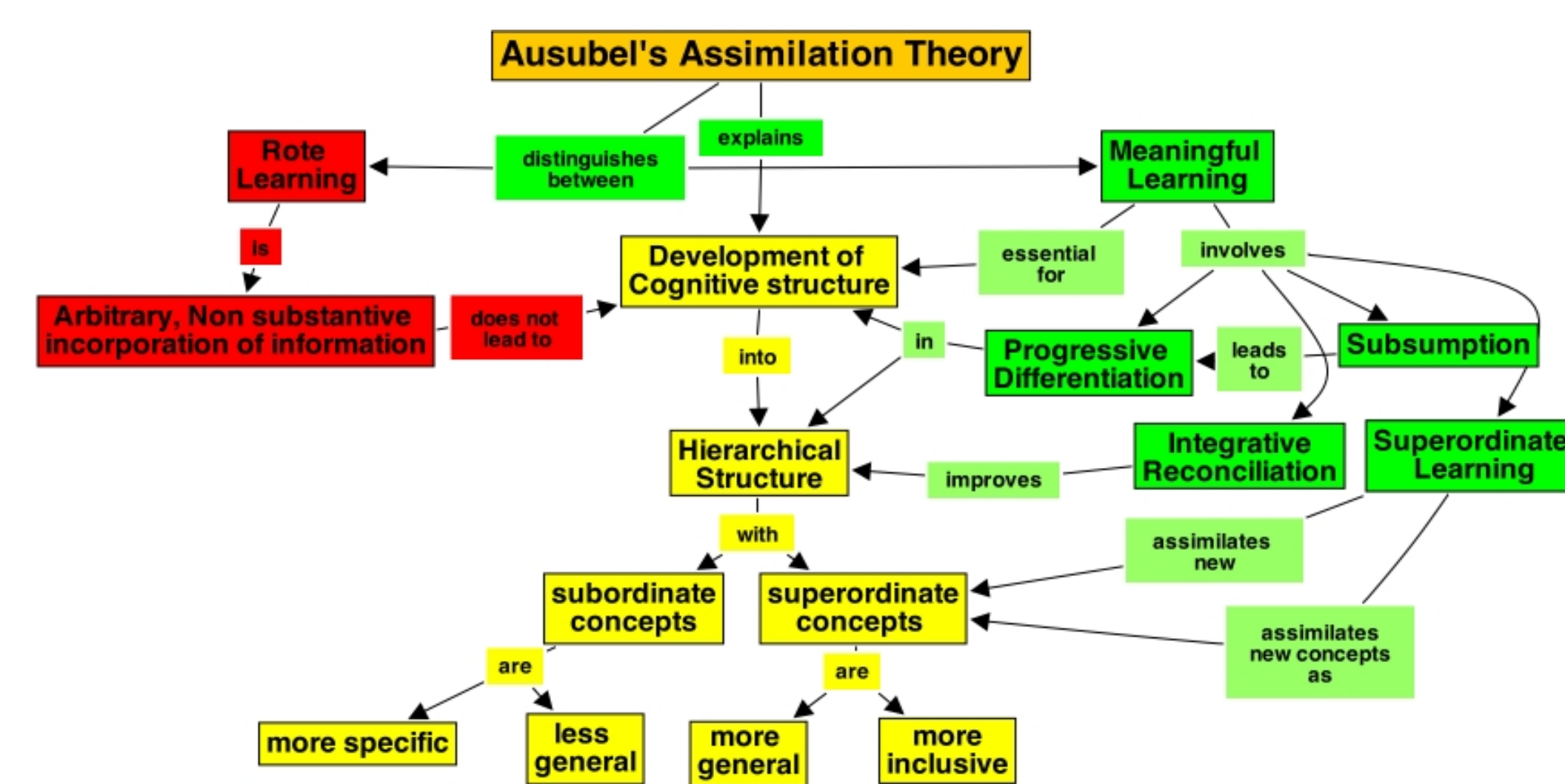
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### Background

#### Challenges in the Classroom; Engaging Students in Active Learning

- Balance of content vs. comprehension and cognitive skills
- Students must be engaged in active learning.
- Create strategies which engage different areas of the brain by mixing activities.
- Learners must move beyond basic knowledge (recall) to higher levels of learning application and synthesis.
- Consider learner styles and generational characteristics (Millennials, Gen X,Y) .

#### Theoretical Framework:



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#### Purpose:

The purpose of project was to evaluate if nurse educators would embrace concept mapping as a method to engage audience in active learning by providing a group activity involving concept mapping

#### Concept Mapping

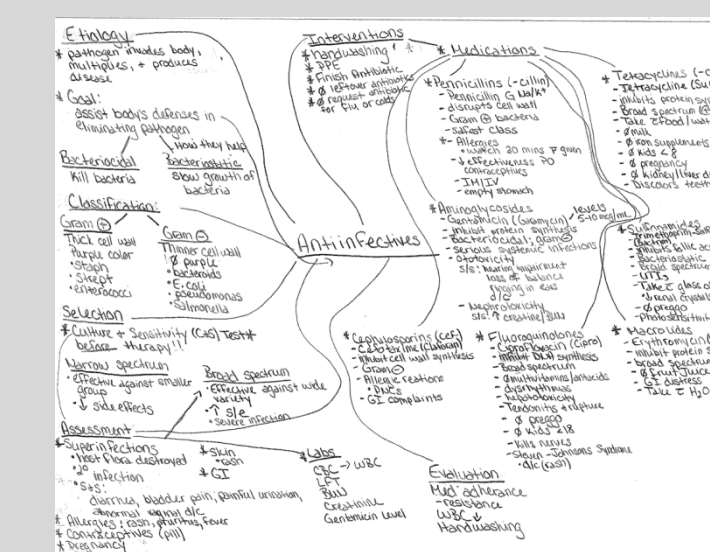
- A Graphical Display of Concepts -handwritten or computer
- Create circles/boxes displaying main concepts
- Hierarchy or importance of concepts can display student's critical thinking
- The links between concepts (prepositions) provides evidence of the student's understanding of the relationships
- Cross links between the concepts indicates a higher level of critical thinking
- Concepts can be one or two words and can also be emphasized by **colors**, symbols or **graphics** which engages the right and left brain for deeper learning
- The *act* of creating a concept map results in active learning
- Challenge students with the question "what is the worst case that could happen, and what would be your first action?" Asking this question requires *application, synthesis* and *creating* 'What if' questions promotes *critical thinking*

### Approach

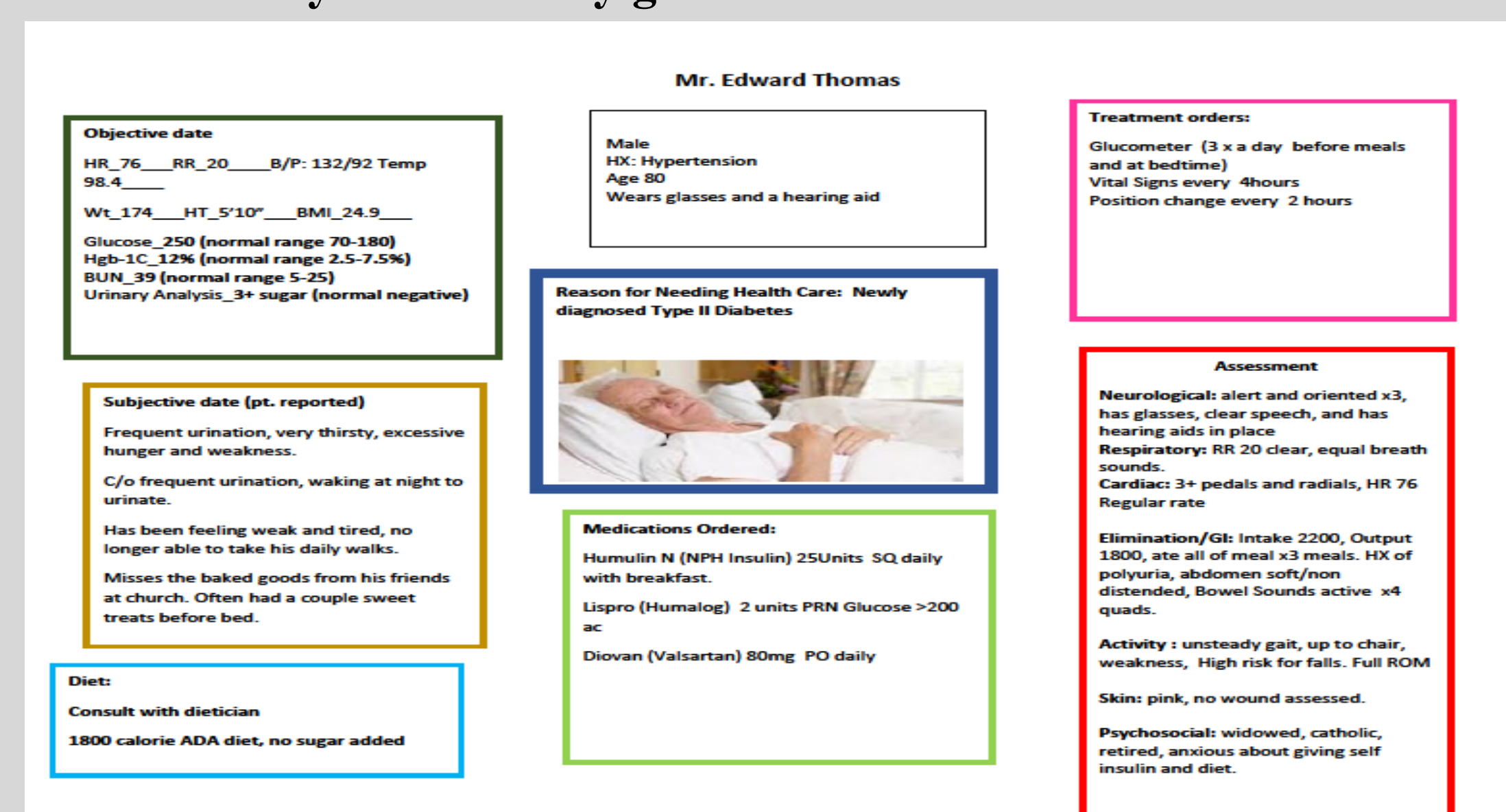
#### Method

- During an educational workshop, nurse educators completed a pre-survey (N=21) to gather demographic information and current familiarization of concept mapping as a teaching and learning strategy. The survey participation was anonymous and voluntary.
- Participants were provided with a brief outline of the use of concept mapping as a teaching and learning strategy in a variety of courses.

- Pathophysiology and specialty areas
- Concept-based curriculum
- Pharmacology
- Nursing Process



- Participants were placed into groups of five to create a concept map, using a diabetic case study of an elderly gentleman.



**Mr. Edward Thomas**

**Objective data**  
HR 76, RR 20, B/P 132/92 Temp 98.4  
Wt 175, HT 5'10", BMI 24.9  
Glucose 250 (normal range 70-180)  
HbA1c 12% (normal range 5-7.5%)  
BUN 18 (normal range 5-25)  
Urinary Analysis 3+ sugar (normal negative)

**Subjective data (pt. reported)**  
Frequent urination, very thirsty, excessive hunger and weakness.  
C/o frequent urination, waking at night to urinate.  
Has been feeling weak and tired, no longer able to take his daily walks.  
Misses the baked goods from his friends at church. Often had a couple sweet treats before bed.

**Medications (Ordered)**  
Humulin N (NPH insulin) 25U/100 50 units daily with breakfast.  
Lipiro (Humalog) 2 units PRN Glucose >200 mg/dL  
Diovan (Valsartan) 80mg PO daily

**Diet**  
Consult with dietician  
1800 calorie ADA diet, no sugar added

**Treatment orders**  
Glucometer (3 x a day before meals and at bedtime)  
Vital Signs every 4 hours  
Position change every 2 hours

**Assessment**  
Neurological: alert and oriented x3, has glasses, clear speech, and has hearing aids in place  
Respiratory: RR 20 clear, equal breath sounds  
Cardiac: 3+ pedal and radial, HR 76 Regular rate  
Elimination/GI: intake 2200, Output 1800, ate all of meal x3 meals, 100% of polyuria, abdomen soft/non distended, Bowel Sounds active x4 quads.  
Activity: unsteady gait, up to chair weakness, High risk for falls. Fall ROM  
Skin: pink, no wound assessed.  
Psychosocial: widowed, catholic, retired, anxious about giving self insulin and diet.

- Each participant was given a notecard with part of the nursing process (assessment, diagnosis, planning, intervention, and evaluation) to summarize the key components of the case study.
- After creating a concept map using the ADPIE models, each group created a multiple-choice question focusing on a potential complication and/or potential nursing intervention related to the disease process in the case study.
- Following the concept mapping activity, a post survey (n=19) was administered. The post survey used a 5-point Likert scale regarding the faculties' perceptions about concept mapping as a method to engage and promote thinking skills

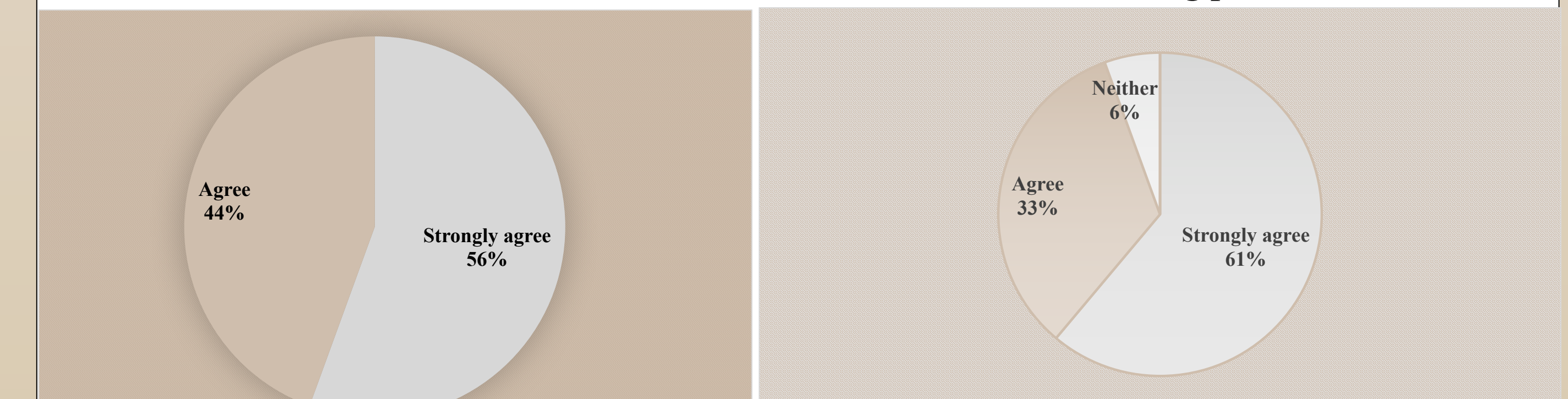
- I plan on using concept maps as a teaching and learning strategy
- I find concept maps are a visual display of information which can link all of the steps of the nursing process together
- I understand how concept maps could be used to teach a variety of nursing courses
- Concept maps can be a valuable teaching and learning strategy which promotes critical thinking
- I would like to use concept maps to help me prepare for lecture
- I found that completing a concept map as a group, engaged my attention

### Results

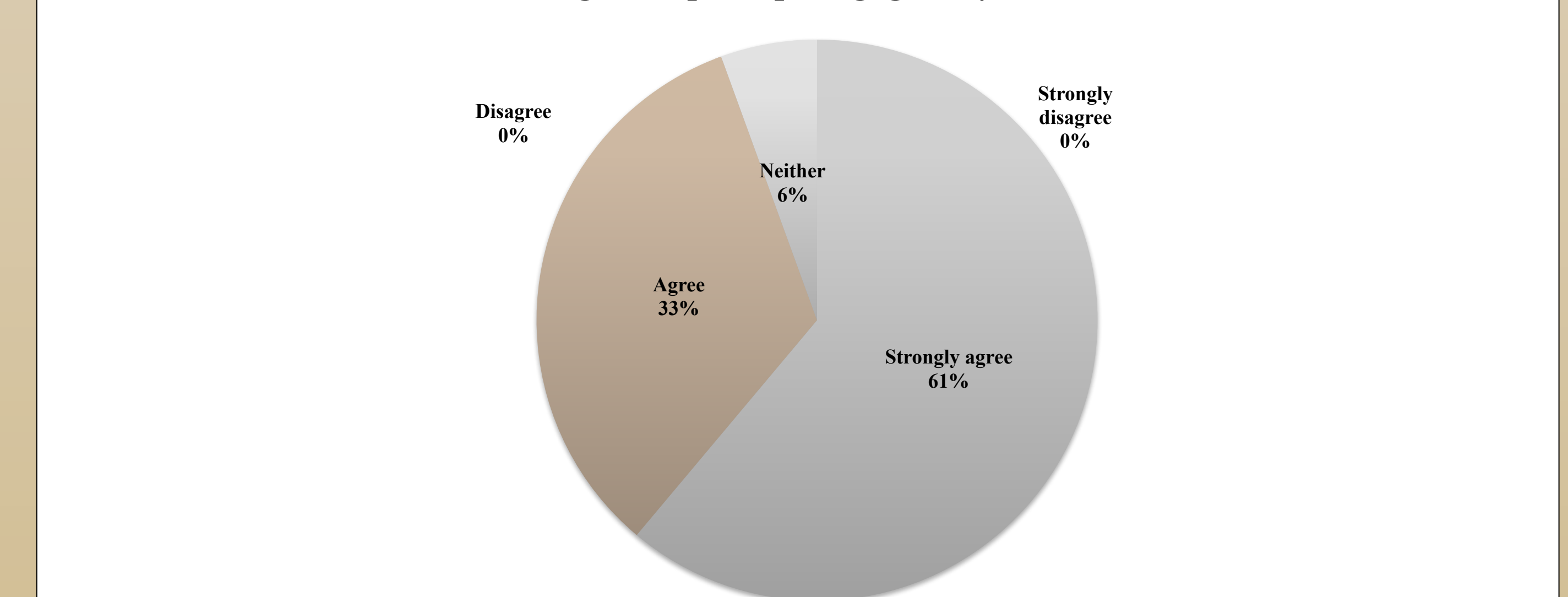


"CM can be a valuable tool to promote critical thinking"

"CM can be a visual display of information which links the nursing process"



#### Post-Survey "Creating concept maps engaged my attention"



### Conclusion

- Prior to the group activity the majority of participants agreed that keeping students engaged in the classroom can be difficult.
- After participating in the group activity the majority of faculty agreed that concept mapping is a valuable teaching and learning strategy which promotes critical thinking.
- The a group also reported that they found that completing the concept maps as a group activity engaged their attention.
- Concept maps can be valuable teaching and learning strategy used in nursing education.
- The creation of concept maps as a group activity can engage the learner in the nursing process.

#### References

- Ausubel, D. P. (1968). *Educational psychology: A cognitive view*. New York, NY: Holt Rinehart & Winston.
- Chabeli, M. (2007). Facilitating critical thinking within the nursing process framework: A literature review. *Health SA Gesondheid*, 12(4), 69-89.
- Forneris, S. G., & Peden-McAlpine, C. (2009). Creating context for critical thinking in practice: The role of the preceptor. *Journal of Advanced Nursing*, 65(8), 1715-1724.
- Harrison, S., Gibbons, C. (2013). Nursing student perceptions of concept maps; From Theory to practice. *Research Journal of the National League of Nursing*, 34(6), 395-399.
- King, M., & Shell, R. (2002). Critical thinking strategies: Teaching and evaluating critical thinking with concept maps. *Nurse Educator*, 27, 214-216.
- Novak, J. D., & Gowin, D. B. (1984). *Learning how to learn*. New York, NY: Cambridge University Press.
- Schuster, P. M. (2008). *Concept mapping: A critical-thinking approach to care planning* (2nd ed.). Philadelphia, PA: F. A. Davis Company.