#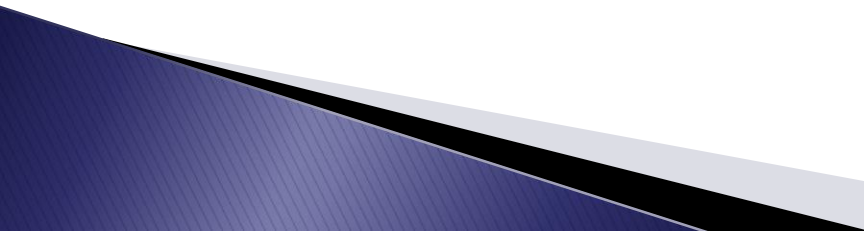 Content-based Curriculum vs. Concept-based Curriculum: A Retrospective Causal Comparative Study to Identify the Impact on the Development of Critical Reasoning

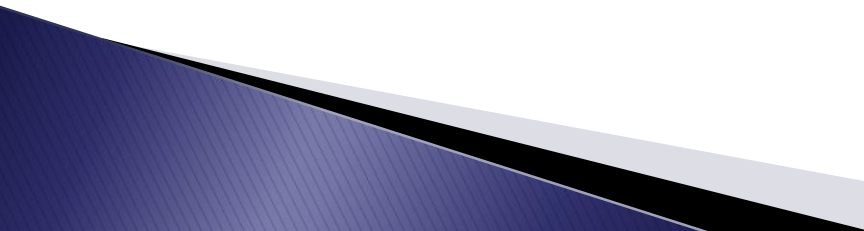Therese J. Ditto PhD, RN
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Disclosure

▸ The research was completed with IRB approval from both Miami Dade College & Capella University.

▸ The results of the Critical Thinking scores were obtained with permission from ATI.

▸ The objective of the research was to determine the development of Critical Thinking (Clinical Reasoning) in the classroom based on concept-based curriculum versus content-based curriculum.

Content-based Curriculum vs. Concept-based Curriculum

Objectives:

1. Discuss the differences between the two types of curriculum

2. Discuss the fears that faculty have with implementing concept-based curriculum.

3. Identify how active learning strategies increase the development of critical thinking.

Content-based Curriculum

- Follows the medical model
- Disease process
- Medical management
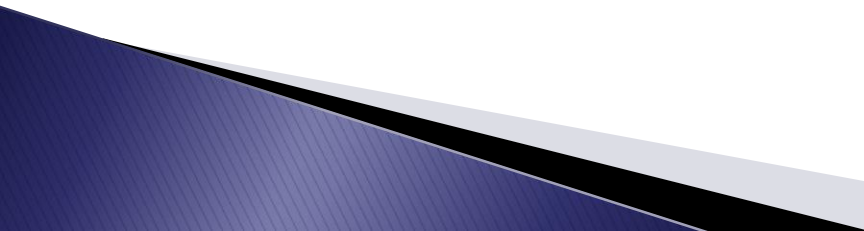- Medications
- Nursing care

Students want to memorize the information which is a lower level of thinking on Bloom's Taxonomy.
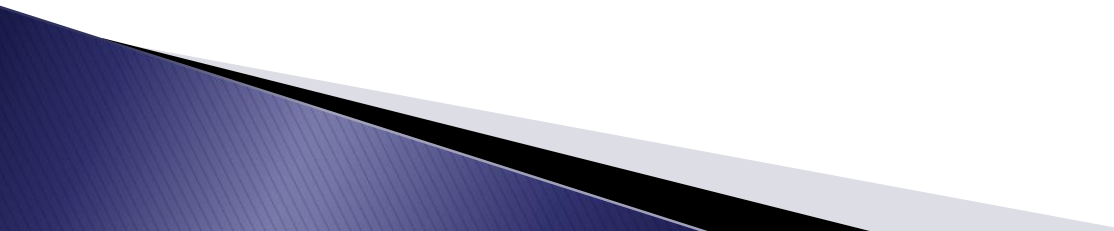
Concept-based Curriculum

▸ Follows a conceptual format - 55 nursing concepts (Giddens, 2012)

▸ Uses case studies & exemplars

▸ Uses concept mapping

▸ Emphasizes nursing implementation based on evidence-based practice within the nursing concepts.

▸ Contains the virtual learning platform of "The Neighborhood"

Promotes higher levels of learning on Bloom's Taxonomy.

Faculty Fears with Concept-based Curriculum

- NCLEX passage rates will drop

- Comfort with teaching content vs. concepts

- Discomfort with active teaching-learning strategies in the classroom (places the ownership of reading & learning on students)

- Instituting the Concept-Based curriculum changes within the nursing program

Active Learning Strategies for CT in the Classroom

- Concept mapping
- Flipped classroom
- Role play
- Simulation (portable SimMan)
- Case studies
- Use of "virtual community" programs

Introduction

The topic studied was the impact of a concept-based curriculum in an adult medical-surgical course, with specific attention paid to the development of critical reasoning (thinking) compared to a group that received content-based curriculum.
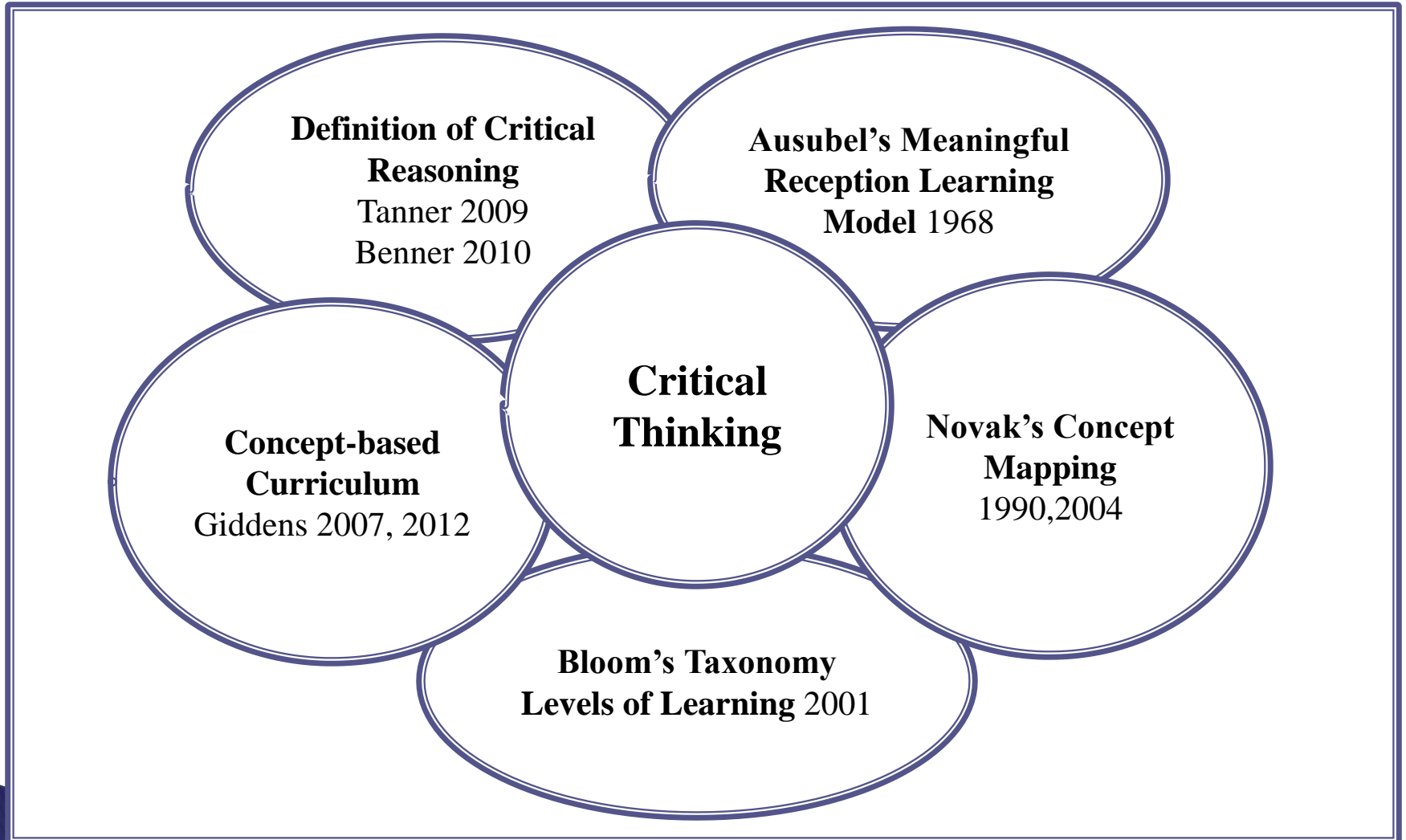
Statement of the Problem

Giddens & Morton (2010) had researched the results of end of program that utilized a concept-based nursing curriculum and the NCLEX-RN results.
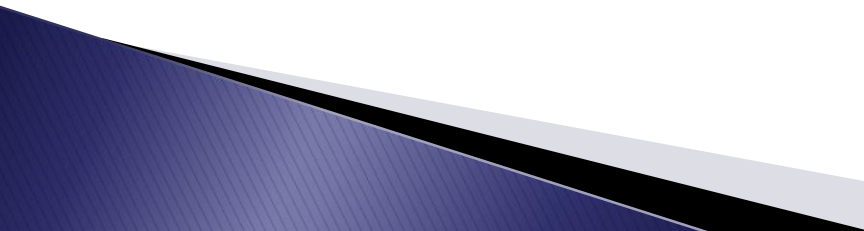
I wanted to know:

Whether performance on standardized unit exams & the ATI final exam sub-category score of CT would be differentially impacted by a concept-based curriculum in just one medical-surgical nursing course.

Theories Supporting this Research

Definition of Critical Reasoning
Tanner 2009
Benner 2010

Ausubel's Meaningful Reception Learning Model 1968

Concept-based Curriculum
Giddens 2007, 2012

Critical Thinking

Novak's Concept Mapping
1990, 2004

Bloom's Taxonomy Levels of Learning 2001

Review of the Literature

- Giddens & Morton 2010 provided research that content & concept-based curriculum results in the same results on the NCLEX-RN scores of students.
- Concept-based curriculum includes active learning strategies that enhance the development of critical thinking.
- NLN (2008) & IOM (2007) states that today's nurses need to develop critical thinking & clinical reasoning (judgment) during nursing school.

Methodology - Sample

▸ **Group 1**

Content-based Curriculum
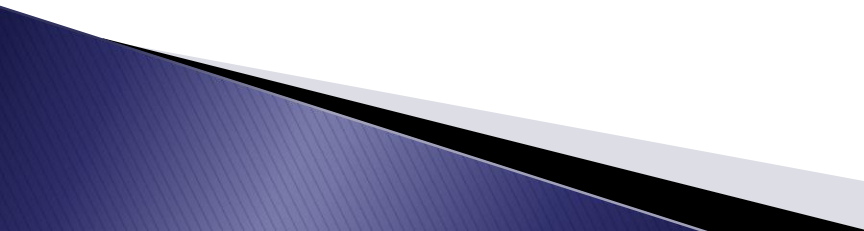Adult Medical-Surgical Course

101 students

▸ **Group 2**

Concept-based Curriculum
Adult Medical-Surgical Course

102 students

Implementation

▸ Looked at the content of the medical-surgical nursing course & use the correlating nursing concepts.

▸ The second group was introduced to the nursing concepts that coincided with the content.

▸ The second group used case studies and developed concept maps in the classroom based on the nursing concepts.

Methodology – Data Analysis

- Demographic data – gender, age, ethnicity, and ESL provided generalized information about the student population.

- Descriptive data – GPA & Reading Comprehension entrance exam scores using analysis of covariance provided a comparison between the two groups.

- MANCOVA provided information specifically looking at the development of critical reasoning between the two groups.

Demographic Data

Participants	N= 203
Age	Age Range 21–56 Mean = 38.5
Gender	Male = 20% Female = 80%
Ethnicity	Hispanic = 52.9 % African American = 7.80 % Caucasian = 5.9 % Asian = 1.0 % Caribbean Islander = 24 % European = 5.4 % African = 3.0 %
ESL (English as Second Language)	83.70%

Question 1

- Was there a correlation between groups with Grade Point Average (GPA) and Reading Comprehension (RC) scores?

Results

	Content-based Group1		Concept-based Group 2	
	M	*SD*	*M*	*SD*
GPA	3.32	.40	3.34	.42
RC	85.63	8.70	85.66	8.71

There was no significant difference between the variables of GPA and RC between the two groups.

Question 2

- Among undergraduate nursing students in an associate degree nursing program are the critical reasoning outcomes of the unit exams and the standardized final exam sub-category score for CT different for a group exposed to content-based curriculum versus a group exposed to concept-based curriculum?

Results

	Content-based Group 1		Concept-based Group 2			
	M	*SD*	*M*	*SD*	*t(402)*	*P*
Exam 1	2.74	1.13	2.81	.61	.66	.51
Exam 2	2.80	.51	3.36	.88	6.19	<.001
Exam 3	2.93	.59	3.08	1.02	1.65	.10
ATI CT	83.92	5.95	84.92	5.07	1.30[3]	.20

[3]*df* = 201

Results

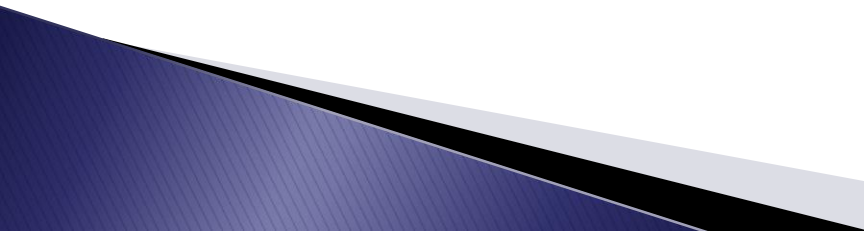Group 1 = had improved scores on each exam but they were not significantly higher.

Group 2 = had significantly higher scores on each exam.

Group 2 = had improved sub-category Critical Thinking scores on the ATI.

Conclusions

▸ Concept-based curriculum enhances the development of Critical Thinking in the classroom.

▸ Active learning strategies that include case studies and concept mapping improve application of nursing practice to test items.

▸ Concept-based curriculum aligns with the IOM and NLN call for curriculum changes that support higher levels of learning.

Recommendations

- Further research on the impact of concept-based curriculum and the development of Critical Thinking among several nursing courses within the associate degree program.

- Further research on the impact that Concept-based curriculum has on students who are ESL.

- Evaluation of students as they progress through the program with concept-based curriculum and results of the NCLEX-RN.

References

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- Novak, J. and Cañas, A. (2006). The theory underlying concept maps and how to construct and use them, Florida Institute for Human and Machine Cognition, Technical Report IHMC Cmap Tools. Retrieved from http://cmap.ihmc.us/publications/research.

Questions???