

FOSTERING  
STUDENT  
ENGAGEMENT AND  
HIGH-LEVEL  
COGNITIVE  
SKILLS THROUGH  
CLINICAL CASE  
STUDIES

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THE  
DILEMMA



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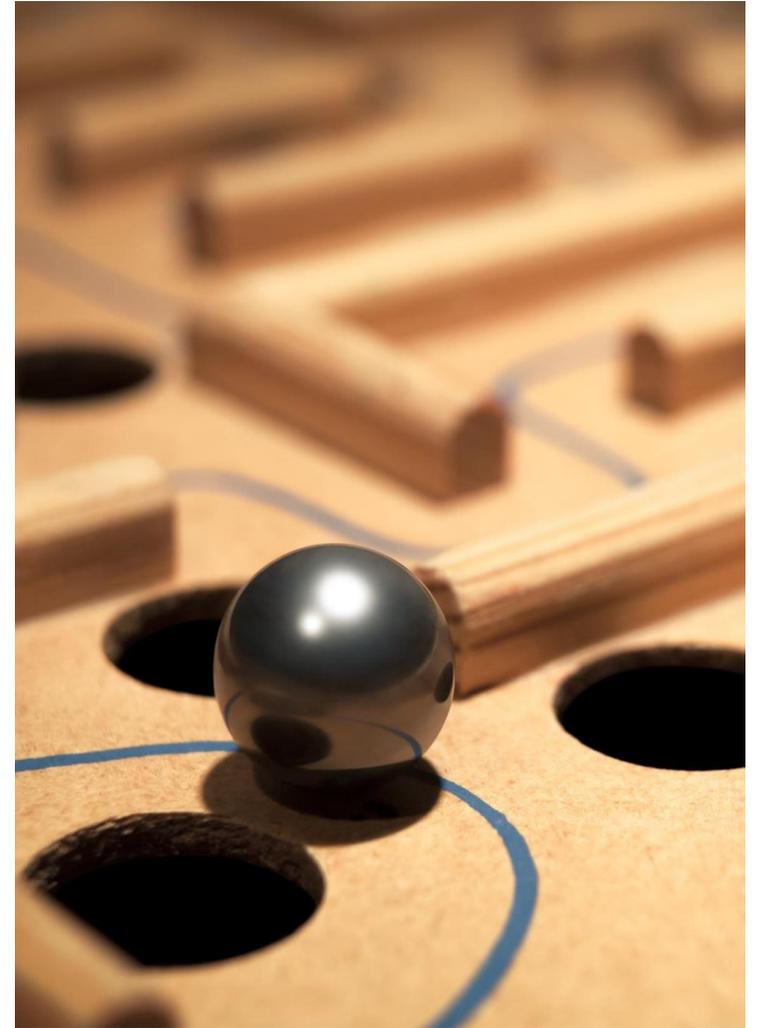
**The PHTH 206** (Measures and Interventions II) course integrates clinical tests and measures with clinical interventions for common problems encountered in physical therapy care.

Offered to second year Physical Therapist Assistant (PTA) students each Fall. This three-credit course is completed in seven weeks. It consists of a three-hour lecture and three-hour

The **challenge** is keeping *students engaged* during this three-hour lecture and to having students *apply* basic knowledge into new scenarios/situations associated with patient care

# CHALLENGE

- **Application of Knowledge:** Physical Therapist Assistant (PTA) students understand foundational concepts but are unable to apply these concepts to new situations/patient scenarios.
- **Critical Thinking/ Problem Solving Skills:** Physical Therapist Assistant (PTA) students have difficulty applying their knowledge and understanding to patient scenarios that require higher level thinking skills of analysis and application.



# GOAL

Foster  
student  
engagement  
and high-  
level  
cognitive  
skills  
through  
clinical  
case studies

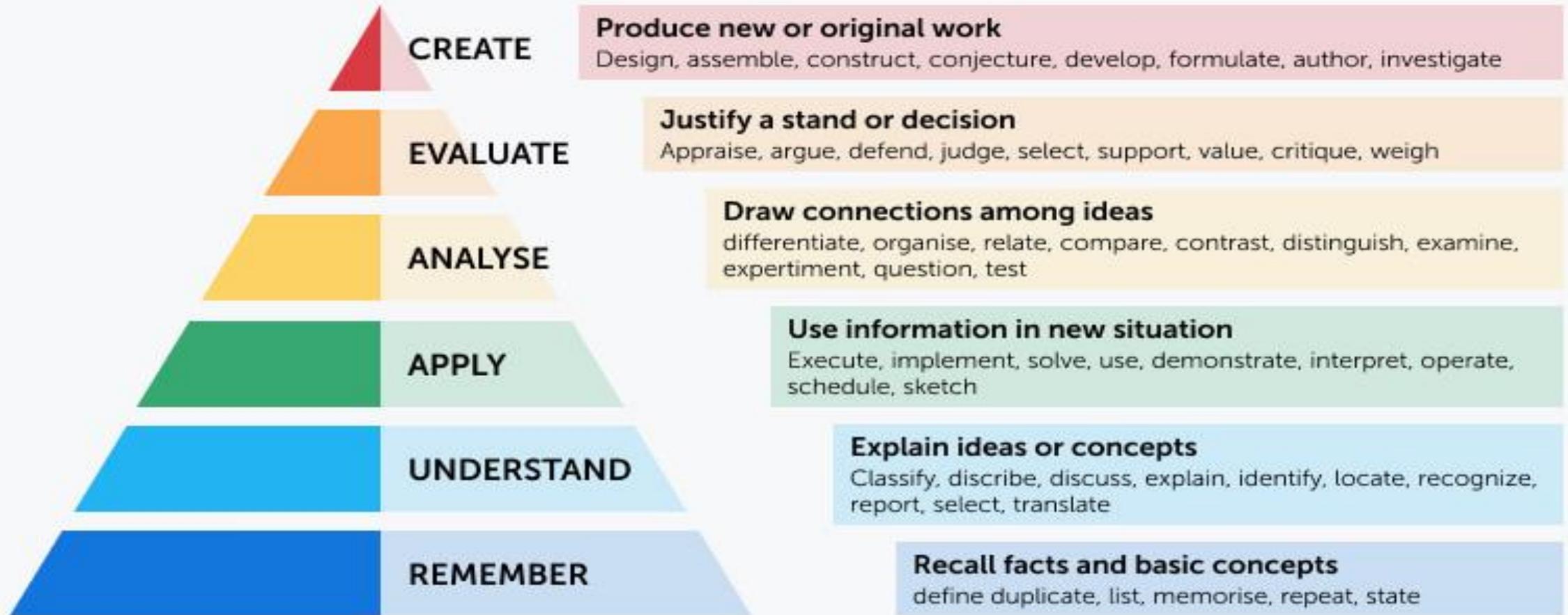




## BLOOMS TAXONOMY MODEL

- Classifies the thinking and learning process starting from the most basic cognitive function to more complex functions.
- An efficient and effective model helping you take control of your own learning.

# Bloom's Taxonomy



# BLOOM'S TAXONOMY IMPLEMENTATION USING CASE STUDIES

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Bloom's taxonomy was adopted to teach and reinforce higher level cognitive and thinking skills needed by students to provide excellent patient care through Case studies.

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Students utilize the Bloom's taxonomy model to transition from **basic knowledge and understanding** (memorization of concepts and the ability to explain in their own words) to **application** (the ability of applying concepts they understand to new situations/ patient scenarios). Solving Case Studies helps students apply their knowledge to different patient scenarios that mimic real world cases. This skill prepares them for clinical practice.

# SIGNIFICANCE OF CASE STUDIES

## Case Studies provide:

- Connections between course content skills and real-world patient problems/ scenarios
- An in-depth analysis of course content
- Gets students involved in problem solving and teamwork
- Enhances student engagement through active learning and real-world applications."

Barkley, E. F. (2010). *Student engagement techniques: A handbook for college faculty*. Jossey-Bass.

# BLOOM'S TAXONOMY IMPLEMENTATION USING CONCEPT MAPS

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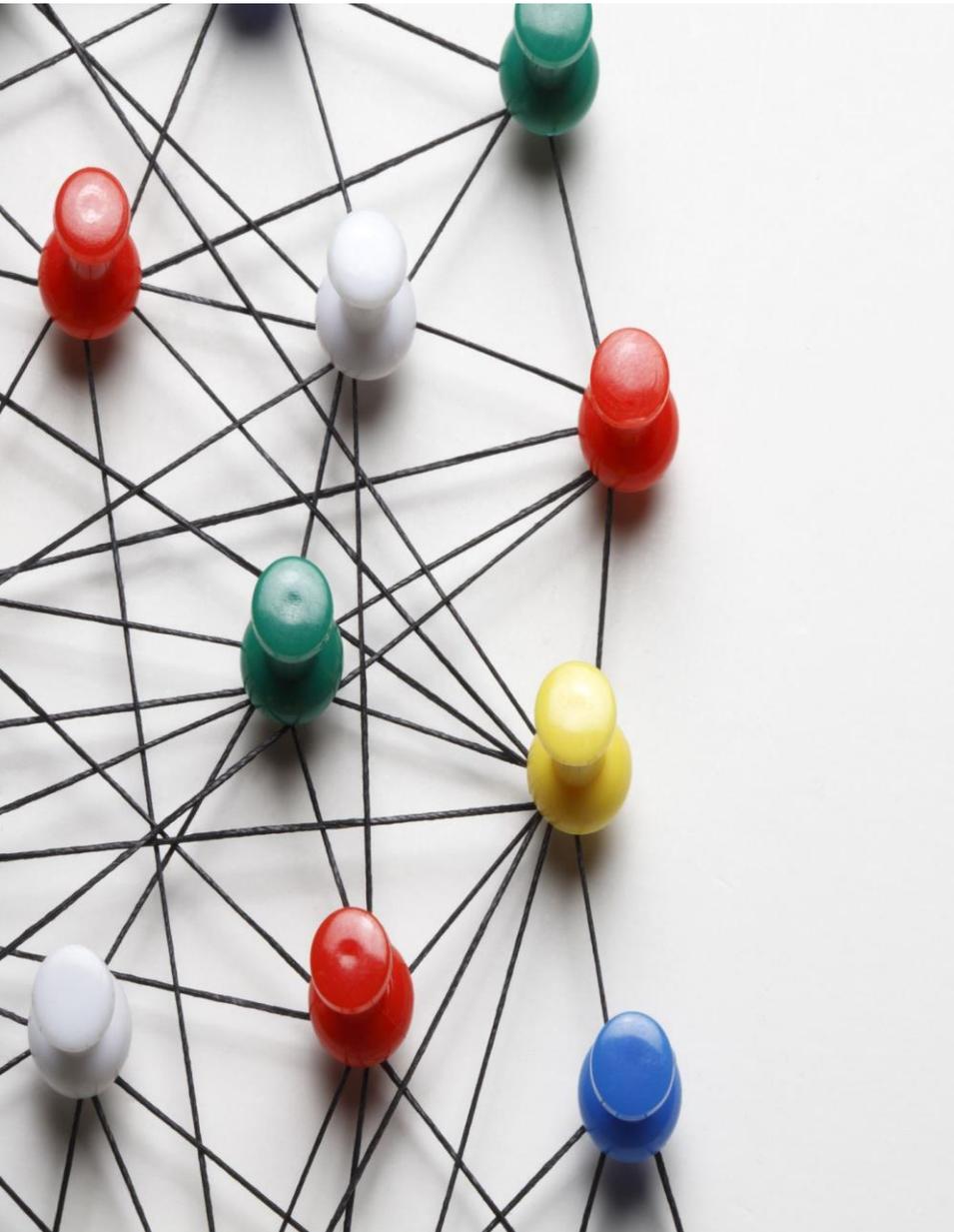
The Bloom's taxonomy model was used as a strategy with concept mapping.

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Students utilize the concept of Bloom's taxonomy to transition from **basic knowledge and understanding** (memorization of concepts and the ability to explain in their own words) to **analysis** (the ability to break down concepts they understand into smaller concepts).

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Engaging with Concept Maps helps students engage in higher order thinking skills by challenging them to find differences and similarities between different patient scenarios. This skill prepares them for clinical practice.



## SIGNIFICANCE OF CONCEPT MAPS

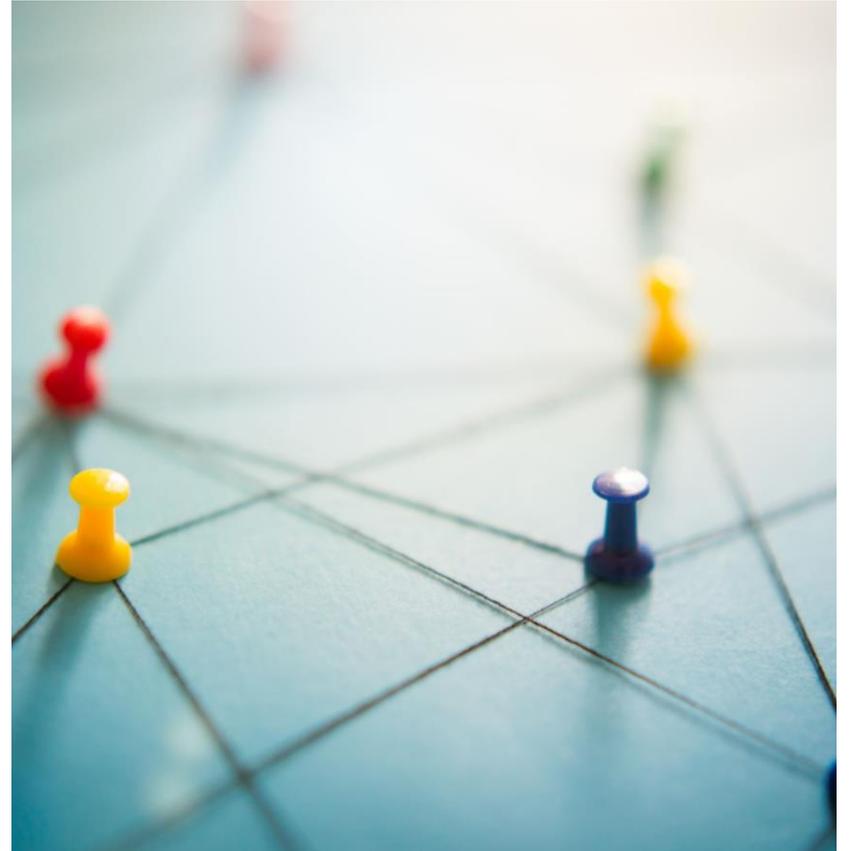
- Arrange and manipulate information in a visual manner to promote organization, comprehension and retention.
- Facilitates the development of higher order thinking skills by helping students
  - Focus on the “big picture”
  - Find connections and relationships between ideas, and concepts
  - Lays the foundation for learning to occur

# STRATEGY 1: USING BLOOM'S TAXONOMY MODEL FOR SOLVING A CASE STUDY

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- Students were assessed with three immersive case studies for modules covering different regions of the body.
- Students performed an in-depth analysis of a specific patient case and provided specific interventions.
- Students pulled information from other courses reinforcing retrieval practice

*(the ability to retrieve information stored in their long-term memory and apply it to a*

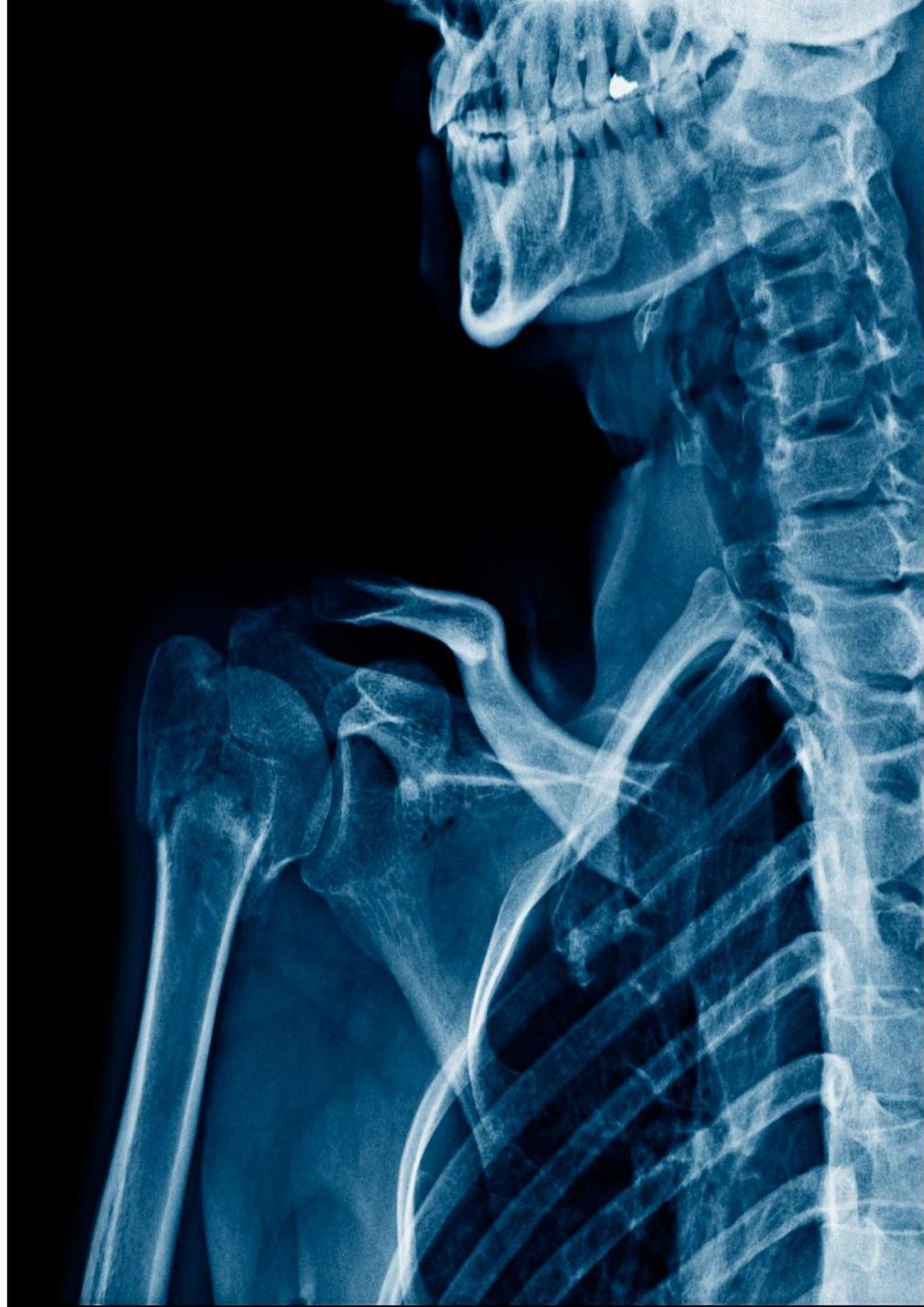


**CASE STUDY ONE** Patient #25, a 25-year-old involved in an automobile accident. He sustained femur and patella fractures of his left leg. His leg was immobilized in a long-leg cast for 3 months. He is allowed to perform partial weight bearing a short-leg cast. The cast was removed this morning, and he is to begin rehabilitation. He describes significant stiffness and discomfort when flexing his knee.



## CASE STUDY (CONT'D)

- Observation: left thigh and leg atrophy. Range is limited to  $25^{\circ}$  flexion and  $20^{\circ}$  extension. Patient with moderate antalgic gait. Pain level at rest is 3/10, 8/10 with bending knee.
- What interventions will you provide on your first visit and what is your clinical reasoning behind each intervention?

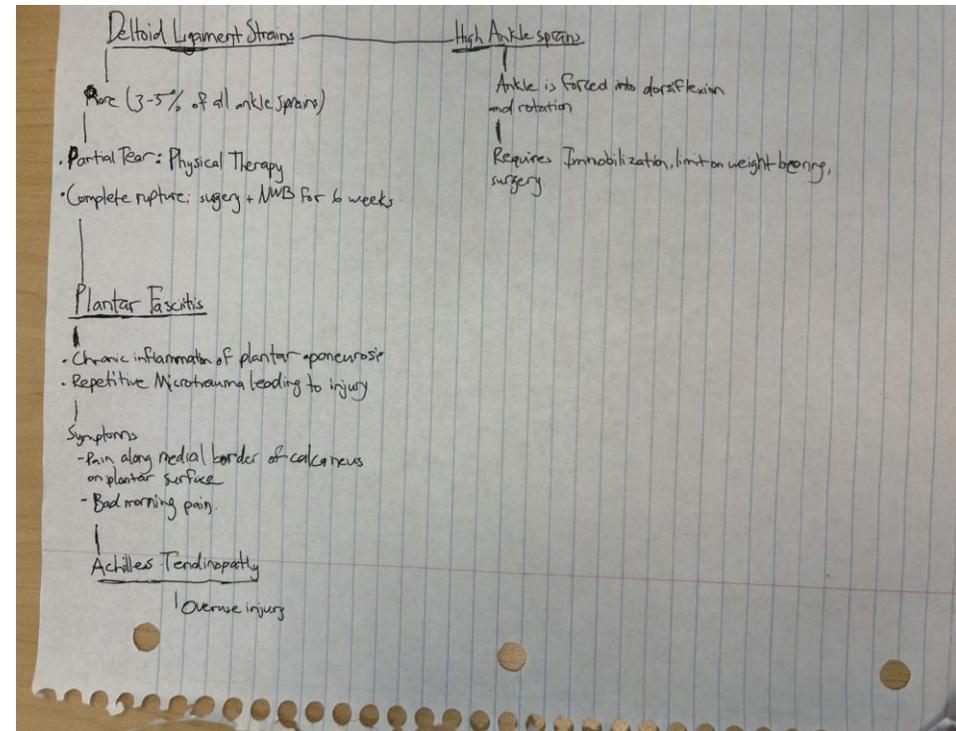
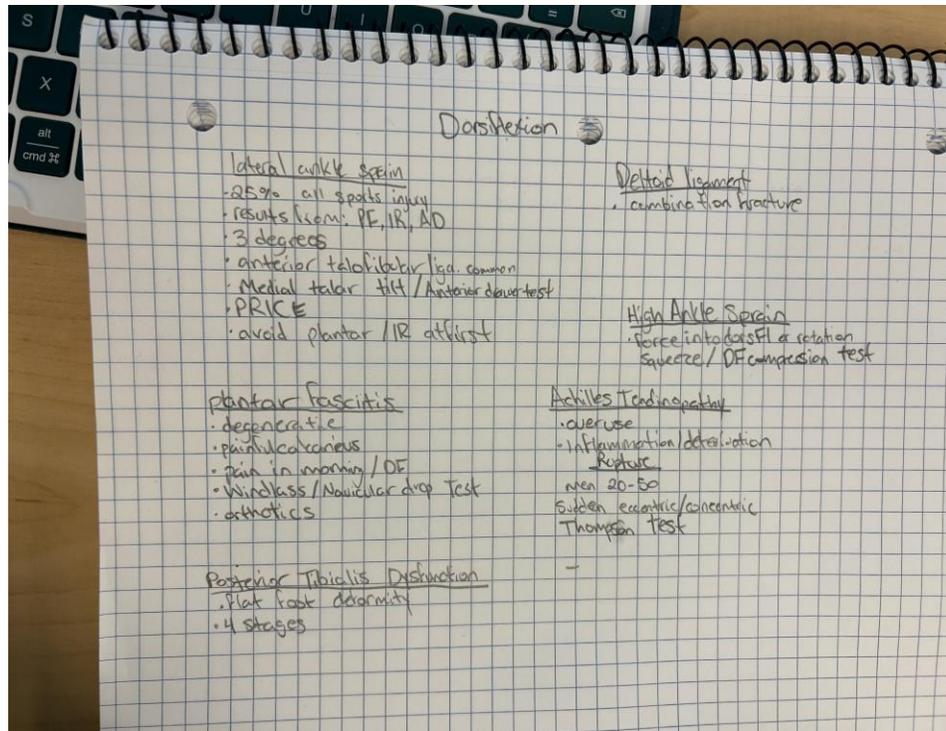




## STRATEGY 2: USING BLOOM'S TAXONOMY MODEL FOR DESIGNING A CONCEPT MAP

Students utilized concept maps during each lecture to provide a visual representation, overview and connections between concepts and topics learned.

# EXAMPLE OF CONTENT MAPS



# ASSESSMENT OF CASE STUDIES STRATEGY

- Assessment 1:
  - compare exam (3) grades between fall 23 and 24.
- Assessment 2:
  - student survey results



# SURVEY SAMPLE QUESTIONS STRATEGY 1: CASE STUDY

- How did this case study prepare you for your exam?
- What references did you use to solve the Case?
- Did you find the Case Study beneficial to your learning?
- If so explain



PRE EXAM 1 - CASE STUDY SURVEY QUESTIONS

How did this case study prepare you for your exam?

Strongly agree

Agree

Disagree

Strongly disagree

What references did you use to solve the Case?

Did you find the Case Study helpful? Explain your reason: *It helps us to simulate an actual clinical setting*

Strongly agree

Agree

Disagree

Strongly disagree

Did the Case Study make you more engaged with your learning? *Made us think out the scenarios*

Strongly agree

Agree

Disagree

Strongly disagree

5. Did the case study prepare you for your exams? *Helped us looking at a whole picture*

Strongly agree

Agree

Disagree

Strongly disagree

CONTENT MAP SURVEY

Did you find the content map helpful in finding the "big picture" of topics discussed in class?

Strongly agree

Agree

Disagree

Strongly disagree

2. Did the content map allow you to make connections and find relationships between different conditions covered in class?

Strongly agree

Agree

Disagree

Strongly disagree

3. Will you continue using content maps outside this course to help with your learning? *will try.*

Strongly agree

Agree

Disagree

Strongly disagree

# SURVEY QUESTIONS

How did this case study prepare you for your exam?

Strongly agree

Agree

Disagree

Strongly disagree

What references did you use to solve the Case?

Notes From class, Kisner and Manske, Articles From Pubmed.

Did you find the Case Study helpful? Explain your reason

Strongly agree

Agree

Disagree

Strongly disagree

Helped with putting everything learned in class together.

Did the Case Study make you more engaged with your learning?

Strongly agree

Agree

Disagree

Strongly disagree

5. Did the case study prepare you for your exams?

Strongly agree

Agree

Disagree

Strongly disagree

#### CONTENT MAP SURVEY

Did you find the content map helpful in finding the "big picture" of topics discussed in class?

Strongly agree

Agree

Disagree

Strongly disagree

2. Did the content map allow you to make connections and find relationships between different conditions covered in class?

Strongly agree

Agree

Disagree

Strongly disagree

3. Will you continue using content maps outside this course to help with your learning?

Strongly agree

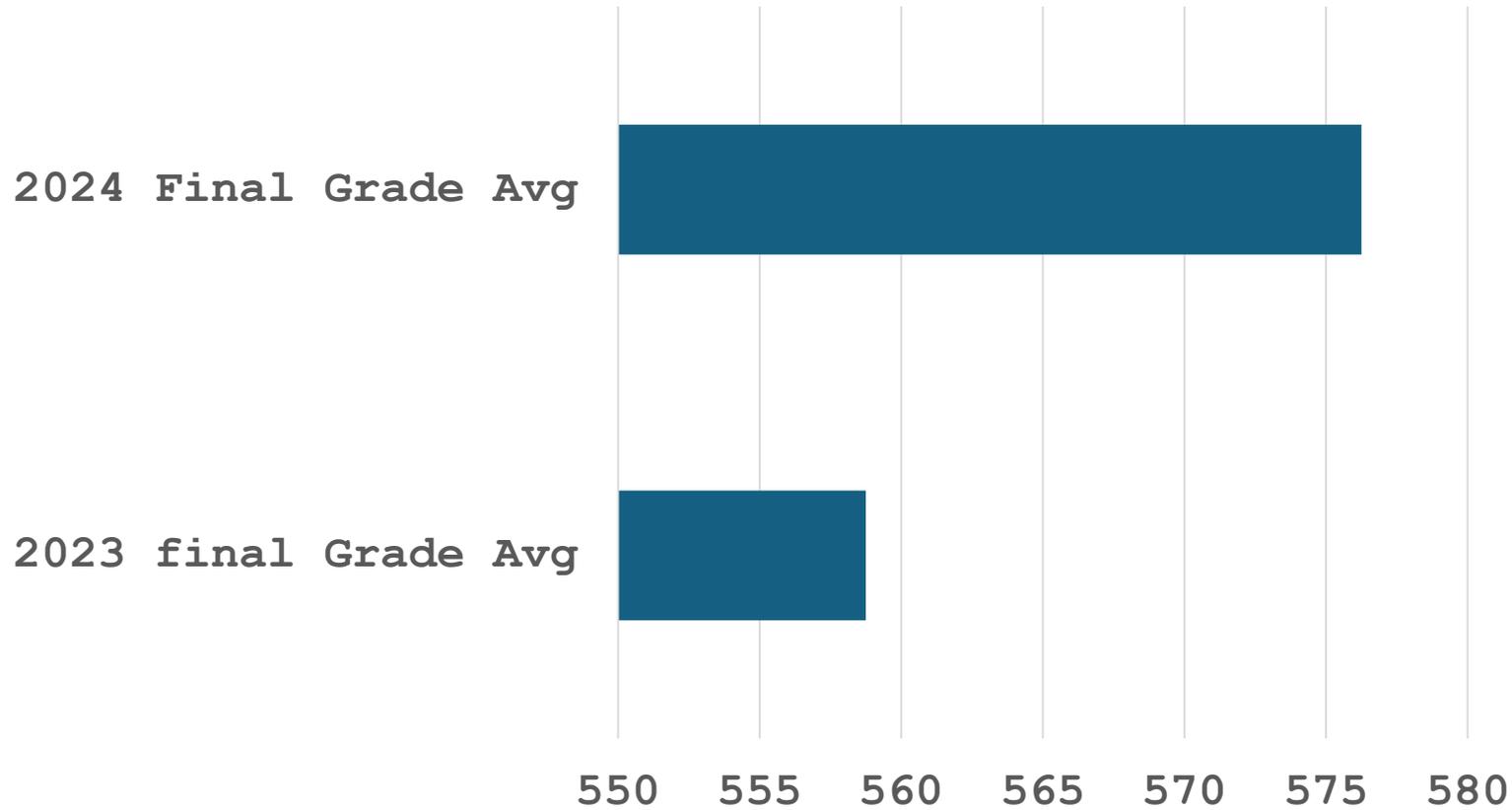
Agree

Disagree

Strongly disagree

Majority of students found the strategies helpful. This information was obtained from the surveys.

206 Avg Final Grade of three exams



EXAM GRADES  
COMPARISON  
23/24 average

## FUTURE MODIFICATION OF STRATEGY



In the future, I would introduce “active reading” and “reading for comprehension” strategies to assist students with reading their textbook for better comprehension to assist with adding more relevant and connections to their content mapping.



I would continue to use the Case studies and Content maps in future courses to enhance student engagement and higher order cognitive skills.

# CONCLUSION

Implementing Student Engagement and Problem-Solving Skills improves student active participation in the learning process, Application and Analysis skills and overall success and performance.

The SET program is highly effective in providing educators Practical interventions applicable to all courses to improve student engagement, learning, critical thinking skills and overall success and performance.

## SCHOLARSHIP SOURCES THAT SUPPORT STRATEGIES

- Barkley, E. F.: (2010). *Student Engagement Techniques: A Handbook for College Faculty*. San Francisco, CA: Jossey-Bass.
- McGuire, S. Y., & McGuire, S. (2023). *Teach Students How to Learn: Strategies You Can Incorporate Into Any Course To Improve Student Metacognition, Study Skills, and Motivation*. Sterling, VA: Stylus.

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