Multimodal Instructional Design to Support The Development of Health Coaching Skills and Self-Efficacy in Physical Therapy Students

Beth Black, PT, DSc, Assistant Professor, Physical Therapy Program, School of Health Sciences, Oakland University

Jennifer Lucarelli, PhD, Assistant Professor, School of Health Sciences, Oakland University

Eighth Annual Conference on Teaching and Learning: Empowering Students to Learn
Oakland University
Rochester Michigan
May 14-15, 2014

Bloom's Taxonomy

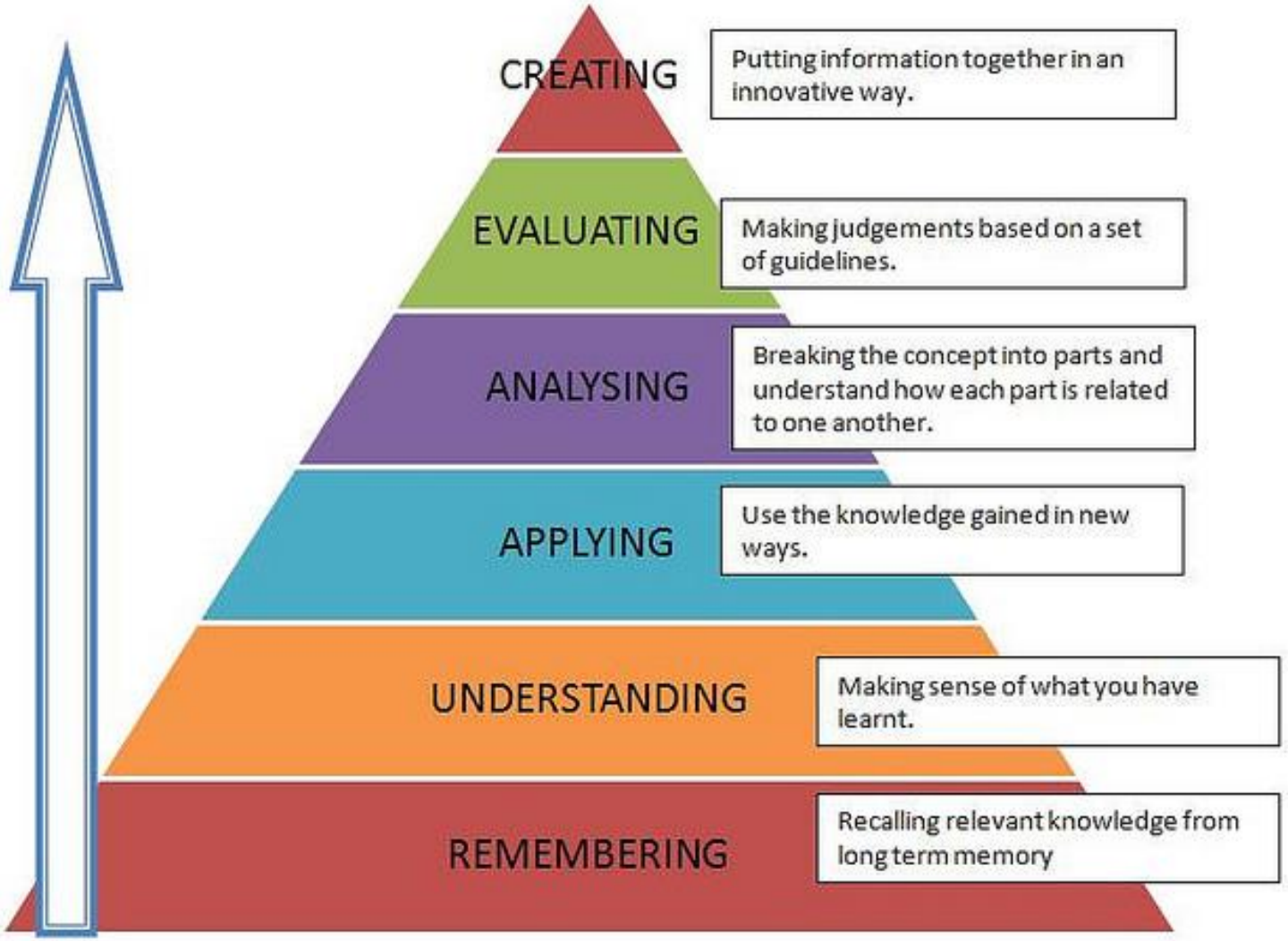


Image from: http://expertbeacon.com/blooms-taxonomy/#.U3Q6XIFdXYo

Multimodal Instructional Design

- Instruction designed to meet the needs of a variety of learners
- Use of a variety of learning techniques

Didactic lecture	Photos
Audio	Animations
Music	Discussion
Video	Activities
Illustrations	Kinesthetic

AG Picciano (2009) Blending With Purpose: The Multimodal Model. RCET 5(1), 4-14

Multimodal Design Principles

Guided Activity	• Interact with pedagogical agent who guides cognitive processing
Reflection	• Reflect upon correct answers during process of meaning making
Feedback	• Explanatory rather than corrective feedback
Pacing	• Control the pace of presentation of materials
Pretraining	• Pretraining provides or activates relevant prior knowledge

Morens R., and R. Mayer (2007) Interactive Multimodal Learning Environments. Educ Psychol Rev. 19:309-326.
Richard E Mayer (2008) Applying the Science of Learning: Evidence-Based Principles for the Design of Multimedia Instruction. American Psychologist. 760-769.

The Learning Challenge

What our third year DPT physical therapy students needed to learn within their Teaching and Learning course:

Patient Description

Mrs. Clark is a 57 year old woman who you have been treating for osteoarthritis of her left knee. She is overweight, and although you have helped her with her mobility and strength, she continues to have a fair amount of pain in her knee towards the end of each day. You are aware that her weight contributes to her continued problems with her knee.

Motivational Interviewing (MI)

A health-coaching technique that PTs can use to open discussion of health-related behaviors with their clients. Miller and Rollnick 1991

Confrontation ⟺ Collaboration

Telling patients they must change their behavior

Motivational Interviewing

MI: Listen to what the patient is saying and express empathy

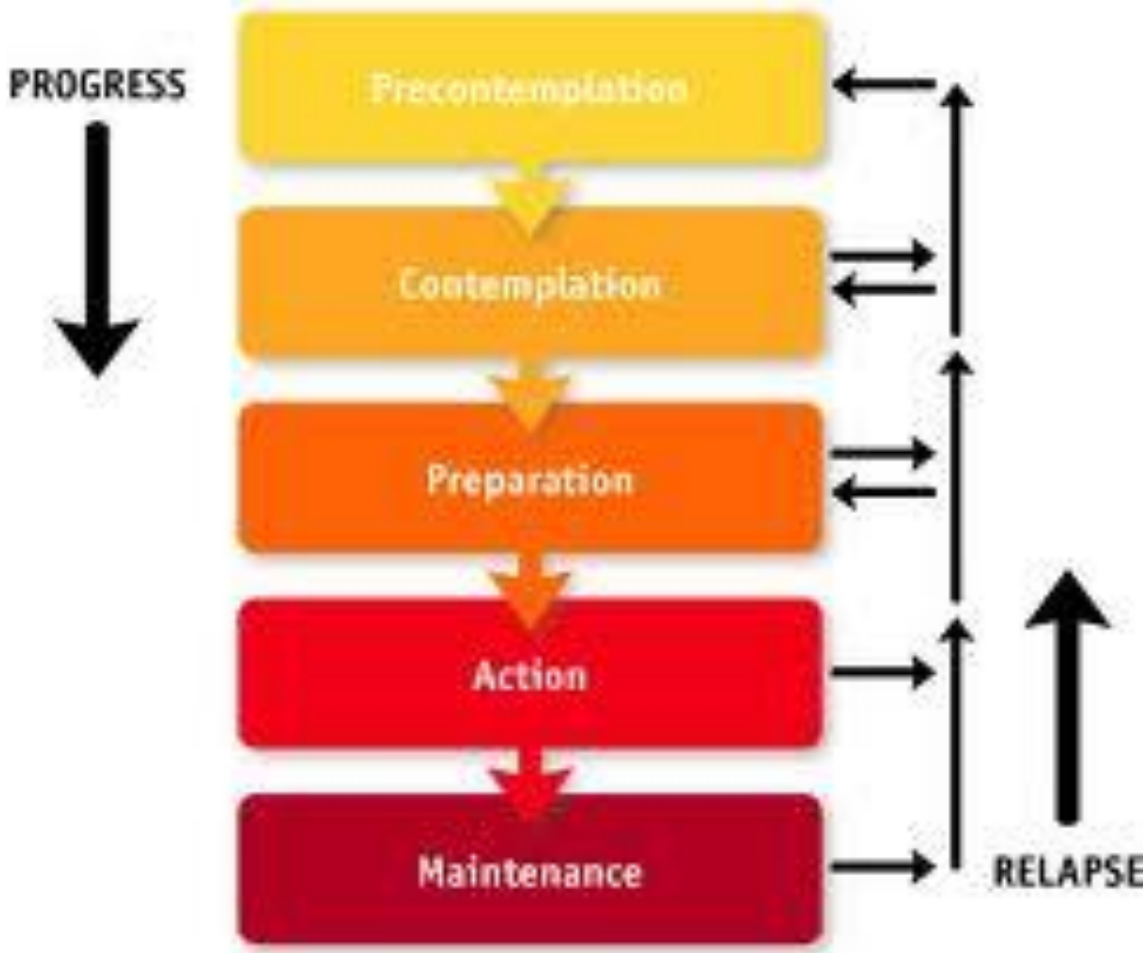
- Open–ended questions, non-threatening questions:
  - YES: "Tell me about your physical activity"
  - NO: "Are you exercising?"
- Reflective listening:
  - Brief summary statements

MI: Explore their ambivalence

- Have patient discuss the pros and cons of current behavior
- Repeat back to them

MI: Assess readiness for change

How important is it for you to ….(stop smoking, start exercising more) right now?



MI: Support self-efficacy

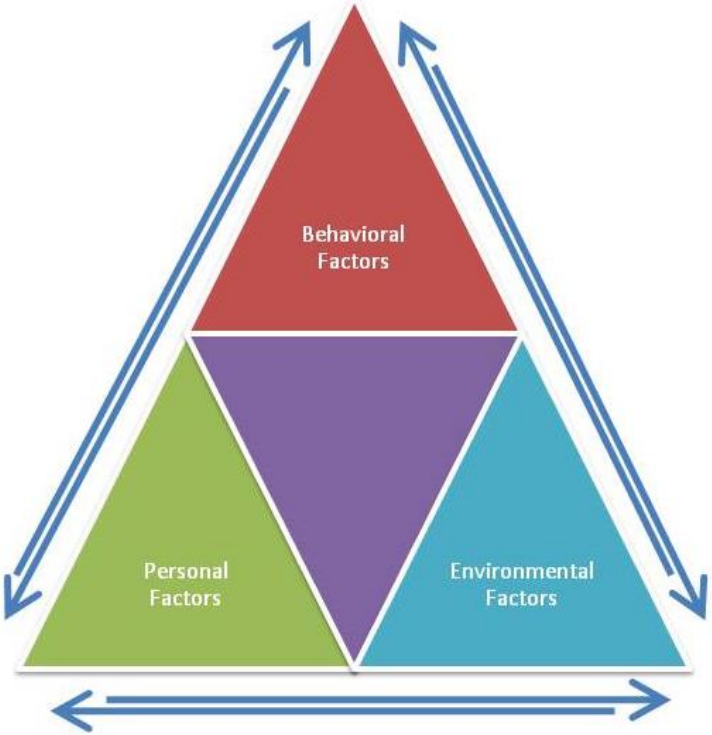
- Convey your belief that the client can successfully change the behavior
- Reinforce that past success - indicates they have the potential to be successful in the future
- Ask - on a scale of 1-10 how confident they are that they can change
  - Ask why they are higher than 1

MI: Ask about their plans and ideas for changing the behavior:

- Encourage the patient to come up with solutions, refrain from trying to suggest solutions
- Avoid the "expert" role
- Work as a collaborator/partner

Our learning objectives for the students addressed :

- Skills ✓
- Self-efficacy (Social Cognitive Theory) ✓



Multimodal Module Design

Educational Component	Multimodal Design Element	Bloom's Taxonomy
CLASS 1		
Informational lecture	Pretraining	Understanding and Remembering
Example videos	Pretraining	Understanding and Remembering
Class discussion	Reflection	Applying
Practice application of MI	Guided activity, reflection, feedback	Applying, evaluating
CLASS 2		
Interactive practice session with standardized patients	Guided activity, reflection, feedback	Applying, evaluating

Moreno, R., and R. Mayer. (2007) Interactive Multimodal Learning Environments. Educ Psychol Rev, 19:309-326

Practice MI with Standardized Patients

- Students pairs worked with one "patient"
- Observer (faculty/grad student)
- Given background information on patient
- Trade places half way
- "Time-out" and "time-in" to discuss with each other
- Immediate feedback and discussion between students, observer, and patient.

Assessing Student Learning

- Pre- and post- self-efficacy for motivational interviewing
- Student evaluation of session

Results – Self Efficacy
(median scores)

How confident are you that you could:	Pre Test	Post Test
Provide a brief intervention to motivate	50	80
Ask open-ended questions	80	90
Repeat back their thoughts and feelings	80	90
Ask about and then repeat their arguments against	65	90
Ask about and then repeat their arguments for	70	90
Assess the patient's stage of change	60	80
Assess a patient's self-efficacy	50	80
Assess the importance to the patient	60	90
Convey your belief they can successfully change	60	80
Refrain from giving advice	50	80

Wilcoxon matched pairs signed rank, $p < 0.05$ for all items

Results - Descriptive

- Student Evaluation Questionnaire
  - 100% agreed or strongly agreed the session provided a useful technique
  - 96% agreed or strongly agreed the session increased confidence in discussing physical activity
  - 93% agreed or strongly agreed they are more likely to discuss physical activity with their patients

ACTIVITY

How can YOU apply
multimodal instruction
in your classroom?

Assessment of Learning

- Self-evaluation, peer evaluation, observer evaluation for assessing student coaching skill
- We used pre- and post-session self-efficacy questionnaires to assess the change in self-efficacy
- We used student evaluations on value of session

Take Away Message

- Multimodal instructional design engages students in active learning
- Improved PT student knowledge, skill, and self-efficacy for MI
- Multimodal instruction is applicable in a wide variety of classes/settings

Acknowledgments

- Courtney Briskey, Research Assistant
- Jacklyn Charzynski, Research Assistant
- MarySue Ingman, PT, Research partner
- Volunteer standardized patients
- Chris Stiller, PT, Class Instructor