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# Prematriculation Programs: What Problem(s) Are We Trying Solve?

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## Objectives

- Establish cost benefit analysis of time spent in prematriculation program for:
  - Students
  - Faculty
- Establish goals for prematriculation program
  - Short term
  - Long term
- Evaluate implications for program design

## Introductory Anecdote: The Perceived Problem

- Informal advisory experience with students
- Persistent problems with student performance/adjustment
- Curriculum too fast for some
- Needed longer adjustment time

## Introductory Anecdote: The Obvious Solution

- Four to five first semester teachers
- Offered a two week introduction
- Designed to help adjustment, not to pre-teach
- Added: test taking skills, study skills, stress and time management

## Introductory Anecdote: The Unintended Outcome

- Some students still struggled
  - Presenting course content doesn't address learning problems
- Not all invited students attended
  - Viewed by some as a stigma
  - Financial issues
- Ended when leader couldn't continue
  - Several willing to play teaching role
  - Not willing to administrate

## Types Of Prematriculation Programs

- Designed for students already accepted
- Other types of programs
  - Enrichment programs for application to med school
  - Pipeline programs to structure premedical experience

## General Nature

- Purpose: Reduce attrition
  - Easier transition – socialization, personal adjustment
  - Provide what is missing
  - No time pressure
  - Time to correct weakness
- Precede matriculation
  - One week to two months
  - Constraints are cost of housing finding teachers extra work requires dedication
- Follow through support?
  - Support is the key perception

## What Is The Real Problem?

- Premedical education "qualifies" but doesn't "prepare"
- Students lack the Growth Mindset
  - No self-awareness
  - No self-understanding
  - Low ability to think about content
  - Ineffective use of learning time
- Lack of follow-up support
  - Integrated into the fabric of the educational program
  - Appropriate assessment?

## Metacognition As A Solution

- Fixed Mindset as a barrier (from Dweck, 2006)
  - Low self esteem
  - Low motivation
  - Low adaptability
- Growth Mindset as an enabler
  - Creating their own intelligence
  - Motivated
  - Highly adaptive

## Prematriculation As Growth Mindset

- Keep it simple
- Keep it relevant – to them
  - As producers not receivers
  - Adult ego state, not child ego state
- Provide skill training
- Become a metacognitive learner yourself
- Here's how

## Becoming A Guide To Metacognition

1. Teach Jungian types (MBTI)
2. Teach Deliberate Practice
3. Teach Experiential Learning/Cortical Specialization
4. Teach Concept Mapping
5. Teach Group Question Analysis
6. Use basic science content to practice each of these principles.

## Teach Jungian types (MBTI)

- Simple and easy to learn
- Only mental model correlated with functional areas of the brain
  - Intuitives prefer front-brain thinking
  - Sensing types prefer rear-brain thinking
- Non-threatening, normal behavior only
- Not a limitation but a beginning point
- Can illustrate Deliberate Practice

## Teach Deliberate Practice

- The only evidence-based route to expert skill development
- Highly applicable to skill areas of the brain
- Focused effort to correct weakness
  - Requires self-awareness (from MBTI)
- Every study session becomes self-directed practice
- Support 9/13 Core Entrustable Professional Activities.

## Teach Experiential Learning/Cortical Specialization

- Information processing model
  - Different ways to use your brain.
  - Medical school demands all of them be developed.
- Interplay between functional areas
  - Emotional involvement important
- Integrate sleep function in memory consolidation
  - Supports Growth Mindset
- Evidence-based model

## Teach Concept Mapping

- Constructivist model of representing understanding
- Transformational experience
  - "Receiver" becoming "producer"
- Employs at least seven different study methods
  - More time efficient
  - Inspectional reading

## Teach Group Question Analysis

- Replicates the dialogue from attending rounds
  - Attending rounds becoming extinct
- Analysis of learning needed for wrong answers
  - Rationale discussion digs deeper
  - Hearing other ways of thinking
  - Self-correction
- Carry over effects on individual study
  - More self-directed influence
- See Expert Skills Program at SuccessTypes website

## Main points

- Consider metacognition as a goal
  - Use content to teach thinking, not content
- Teaching "how" leads to self-directed learning
- Neurobiology insight fundamental to metacognition
- Two most time efficient methods
  - Concept mapping
  - Question analysis

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