

# Cognitive Aids to Learning (and teaching too!)

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# Introduction

- It takes two
  - Student
  - Teacher
- No magic bullets
- No one way to succeed
- Motivation and persistence are important

# My Background

- SAU since 1980
- Teaching college since 1976
- Lecturer! (but use other techniques too)
- Media Used
  - Chalk
  - Overheads
  - HyperCard
  - Web (but I don't use Bb)

# Personal Recommendations for Teachers

- Be yourself
- Be prepared (never wing it)
- Teach everybody (no favorites)
- Be fair
- Classroom is a sacred space
- Be on time (always)
- Communicate (speak clearly, answer e-mails, & have clear syllabus)

# Research Based Recommendations

- From:
- Putnam, A. L., Sungkhasettee V. W, & Roediger, H. L. (2016). Optimizing learning in college: Tips from cognitive psychology *Perspectives on Psychological Science*, 11 (5), 652-660. (aka PSR, 2016 hence)

# Student Strategies (PSR, 2016)

- Space out learning
  - Better to study a little every day
  - Start studying on day one of class
  - Read and review notes after each class

# Student Strategies (PSR, 2016)

- Test Yourself
  - Recall (in writing) what was read
  - Later, check (Read, Recite, Review)
  - Look and answer end of the chapter questions before AND after reading chapter
  - Use large stack of flash cards. Put missed items back nearer beginning. Aim to master all cards
  - Test yourself often

# Student Strategies (PSR, 2016)

- What to do in class
  - Come to every class session
  - Leave your laptop at home!
    - Learning is better when you take notes by hand
  - Ask for instructors PowerPoints/Notes
    - (and, instructors should provide, if possible, be careful, however, about copyright issues)
- \*Sana, F., Weston, T., Cepeda, N. J. (2013). Laptop multitasking hinders classroom learning for both users and peers. *Computers and Education*, 62, 24-31.



# Student Strategies (PSR, 2016)

- Active Reading
  - Read slowly
  - Understand what is being read
  - Question reading
    - What did I learn on this page?
    - What new information was there?
  - Ask own questions
    - What is an example related to the reading?
    - How are the theories different? Same?

# Student Strategies (PSR, 2016)

- General Tips
  - Organization!!!
    - Due dates, exam dates
    - Set calendar reminders (smartphones)
  - Exercise
    - Set time for some physical activity
    - Walks are good (focus mind)
  - Sleep
    - Regular time and regular amount

# More Research Based Recommendations

- From:
- Jankowski, N. A. (2016). Unpacking relationships: Instruction and student outcomes. *American Council on Education Report*. (aka UR, 2016 hence)
- Note: these apply to student AND teacher

# Learning Strategies (UR, 2016)

- Transparency
- Pedagogical Approaches
- Assessment
- Self-Regulation
- Alignment

# Learning Strategies (UR, 2016)

- Transparency
  - Obvious learning goals
  - Understand what must be learned
  - Understand why learning must take place

# Learning Strategies (UR, 2016)

- Pedagogical Approaches
  - Collaborative Learning
  - Service Learning
  - Undergraduate Research
  - Experiential Learning
  - Flipped Classroom
  - Inquiry Based Learning
  - Mastery Learning

# Learning Strategies (UR, 2016)

- Assessment (of students!)
  - Linked to learning
  - Real settings
    - Problem solving
    - Creativity
    - Reflection
    - Student Interests
  - Feedback
    - Early as possible!

# Learning Strategies (UR, 2016)

- Self-Regulation
  - Active student involvement
  - Metacognition-how do I learn?
  - Reflection
  - Move from passive to active learner
  - Mindfulness (subject of upcoming Academy)



# Learning Strategies (UR, 2016)

- Alignment
  - Of content, instructional design & assignments
  - Links: outcomes, approaches, assessment, and student reflection
  - Learning occurs in classroom AND elsewhere

# Learning Strategies (UR, 2016)

- Conclusions
  - Learning environment consists of:
    - Student, teacher, approach, curriculum, institution, and prior experiences
- Student-centered environments are:
  - Interactive
  - Multiply complex
  - Foster deep understanding

# Note Taking Hints (Kardas)

- Take Notes
  - Some SAU students don't (?????)
- Be ready to take notes
  - Pencil, pen, paper
- Abbreviate ( $\Psi$  = psychology)
- One notebook (or section of) per course
- Take notes of notes

# How to Read a Textbook (Kardas)

- Read it at least three times
  - First time for fun (don't study)
  - Second time to learn (slow)
  - Third time to review (before tests)
- Use all of the textbook's tools (paid for)
  - Glossaries
  - Chapter summaries
  - Chapter tests

# Teacher's Responsibilities (Kardas)

- Do your part
  - Plan lessons
  - Deliver lessons
  - Answer questions
  - ASK questions
    - My trick is to say “X questions?” at the end of class and make class ask.
    - Why?
    - Now, students who ask end the class!

# Final Words for Instructors

- No class should be boring
- Up to instructor to convey excitement
- Instructors need not be entertainers
- Questions are important
- Learning is fun
- Be open to new methods but don't abandon old ones because of fads

# Final Words for Students

- Commit to each class:
  - Attend
  - Study
  - Ask questions
- Remember the long view
  - Graduation
  - Graduate School or on-the-job training
  - Career

Thank You!

- Questions?
- Comments?