

# Backward Design:

Teaching with an emphasis on student **understanding**



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# Teaching - my first approach

- Look at available texts & choose
- How many chapters can I cover
- Which chapters do I have to look at
- How many lectures per week
- Choose exam date & write syllabus
- Teach the stuff
- Write the tests





# Why did my students do so poorly?

Were they...

- Too passive during lecture?
- Not reading the book?
- Not preparing ahead of time for class?
- Not studying appropriately?

# My next approach



Explore active and collaborative learning

- Think-pair-share, group projects, two-minute papers, muddiest point, case studies, problem-based learning, clickers, exam retakes, take-home exams...



My students still couldn't apply course content the way I thought they should...

Were they...

- Too passive during lecture?
- Not reading the book?
- Not preparing ahead of time for class?
- Not studying appropriately?

Why couldn't they “get it?”



# Two basic methods of instruction

- Coverage-based instruction
  - “teaching by mentioning it”
- Activity-based instruction
  - hoping for “learning by osmosis”

Which is better for teaching for understanding?



# What does it mean to **understand**?

“To understand a topic or subject is to use knowledge & skills in sophisticated, flexible ways.”

- Wiggins & McTighe



# The 6 Facets of Understanding

When we understand, we:

- can explain
- can interpret
- can apply
- have perspective
- can empathize
- have self-knowledge



“To think like an assessor prior to designing lessons – what backward design demands – does not come naturally or easily to many teachers. We are far more used to thinking like an activity designer once we have a target.”

- Wiggins & McTighe



## For one of your courses...

1. Write down one topic or skill that you would like students to **understand**

(use the back of your handout)



# How can you tell if someone understands?

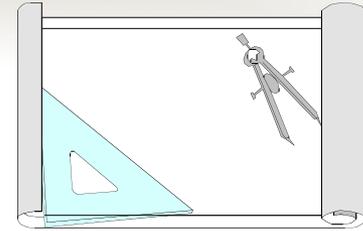
- What must someone do to demonstrate it?
- Where do you look for it – what does it look like?
- What do you look for – what evidence of it can you collect?



# How can we guide students to understanding?

- What knowledge & skills do they need?
- What activities will best convey these skills & knowledge?
- What parts do we need to teach &/or coach?
- How can we put all this into a coherent package?

# The Three Stages of “Backward” Design



**1. Identify desired results**

**2. Determine acceptable evidence**

**3. Plan learning experiences  
& instruction**



# Stage 1 – Identify desired results

Key: Focus on Big Ideas

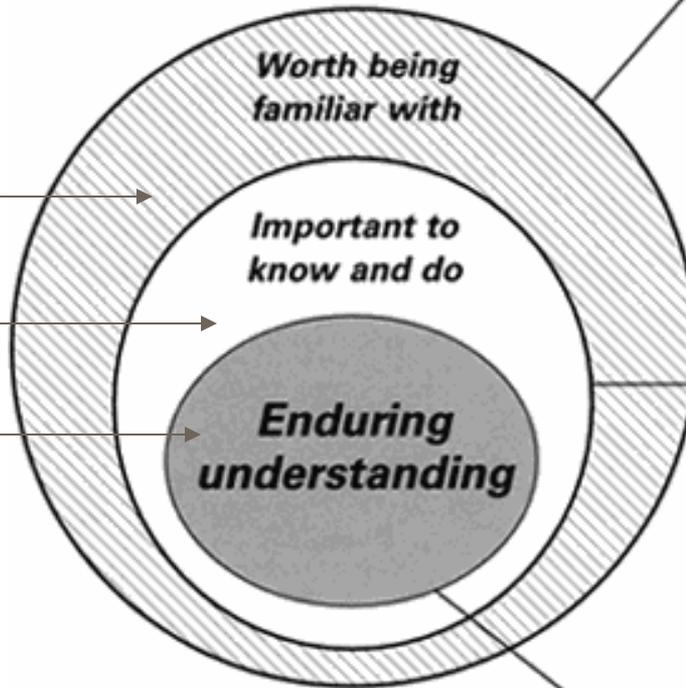
- *Enduring Understandings*: What specific insights about big ideas do we want students to leave with?
- What *essential questions* will:
  - frame the teaching & learning?
  - point toward key issues & ideas?
  - suggest meaningful & provocative inquiry into content?
- What should students *know and be able to do*?
- What *content standards* are addressed explicitly?

# “Flavors” of course content

“Nice to knows”

“Ought to knows”

“Must knows”



Knowledge that is worth being familiar with

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Knowledge and skills that are important to know and do

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Understandings that are enduring

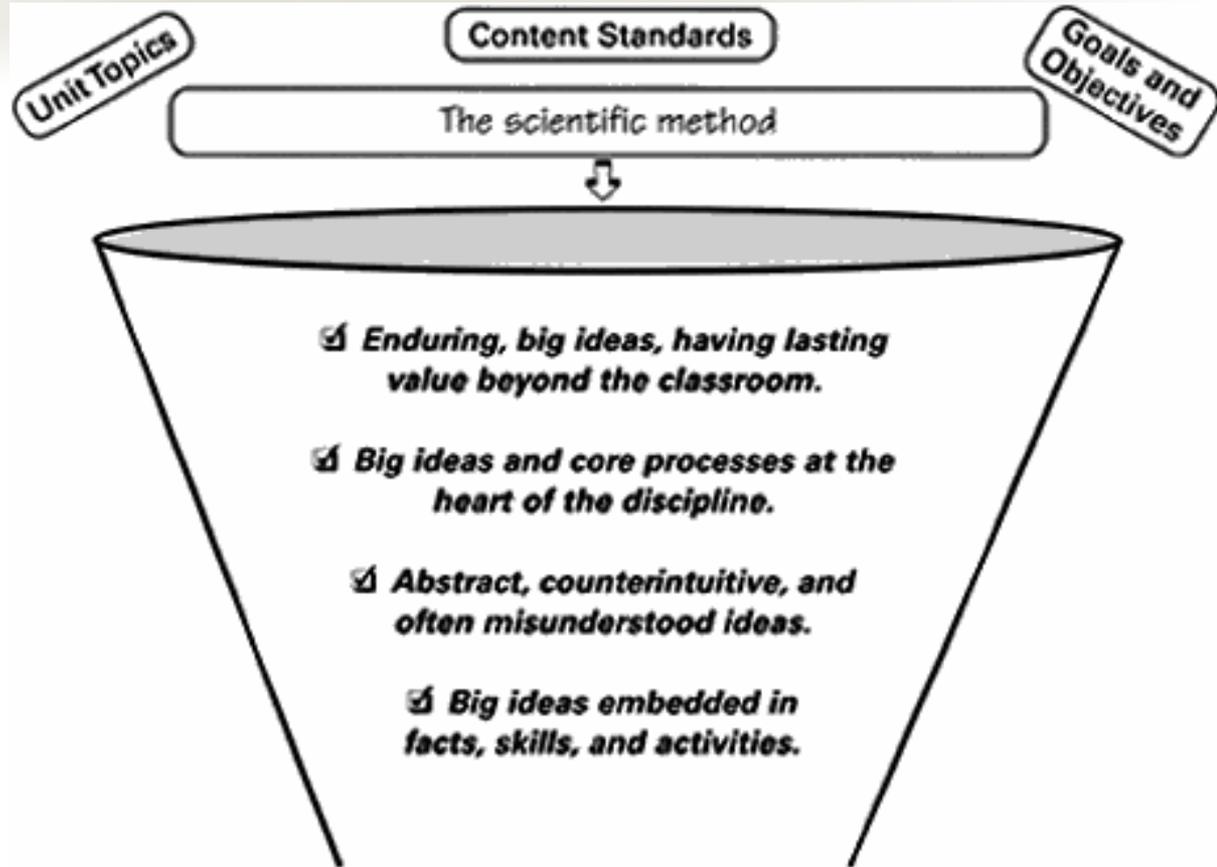
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Use a  
“content filter”



**Possible enduring understandings**

- Scientific knowledge develops through carefully controlled investigations.
- The scientific method deliberately isolates and controls key variables. (It is not simply trial and error.)



## Stage 2 – Choose the evidence to assess

Focus on evidence of understanding –

NOT on evidence of knowing correct answers

- What performance tasks can indicate understanding?
- What *other evidence* of understanding, knowledge, and skill can be collected?
- What rubrics will be used to assess complex performance?



# The 6 Facets of Understanding

- can explain
  - dialogue, interaction, evoke misconceptions, separate assessment of breadth vs depth
- can interpret
- can apply
- have perspective
- can empathize
- have self-knowledge



# The 6 Facets of Understanding

- can explain
- can interpret
  - weave a coherent story, explain an idea's history
- can apply
- have perspective
- can empathize
- have self-knowledge



# The 6 Facets of Understanding

- can explain
- can interpret
- can apply
  - apply content toward specific goal & audience, respond appropriately to feedback,
- have perspective
- can empathize
- have self-knowledge



# The 6 Facets of Understanding

- can explain
- can interpret
- can apply
- have perspective
  - so what?, critically evaluate alternative views
- can empathize
- have self-knowledge



# The 6 Facets of Understanding

- can explain
- can interpret
- can apply
- have perspective
- can empathize
  - why were now-refuted ideas once plausible?  
require students to teach to specific audience
- have self-knowledge



# The 6 Facets of Understanding

- can explain
- can interpret
- can apply
- have perspective
- can empathize
- have self-knowledge
  - self-assessment of past & present work or of current skills & ability



For the topic or skill you identified...

2. What complex performance task(s) would reveal a student's level of understanding?

3. What evidence of understanding could you observe or measure as a student performed that task?

(use the back of your handout)



## Stage 3 – Plan learning experiences & instructional approach

- What instruction & learning experiences will promote the understanding, knowledge and skills specified in Stage 1?
  - Lecture? Active learning? Service learning? Other?
- How will you ensure that all students are fully engaged and effectively meet your goals?
- Student engagement and effective learning are “designed in” from the start



For the topic or skill you identified...

4. What skills and/or knowledge would a student need to perform this task well?

How can you best help students acquire these?

(use the back of your handout)



# Time for some cognitive psychology...

- Automatic or “autopilot” thinking
  - fast, parallel, effortless, associative processing of perceptions & content
  - evoked by current stimuli
- Deliberative thinking
  - slow, serial, effortful, rule-governed, flexible processing of concepts & content
  - evoked by language

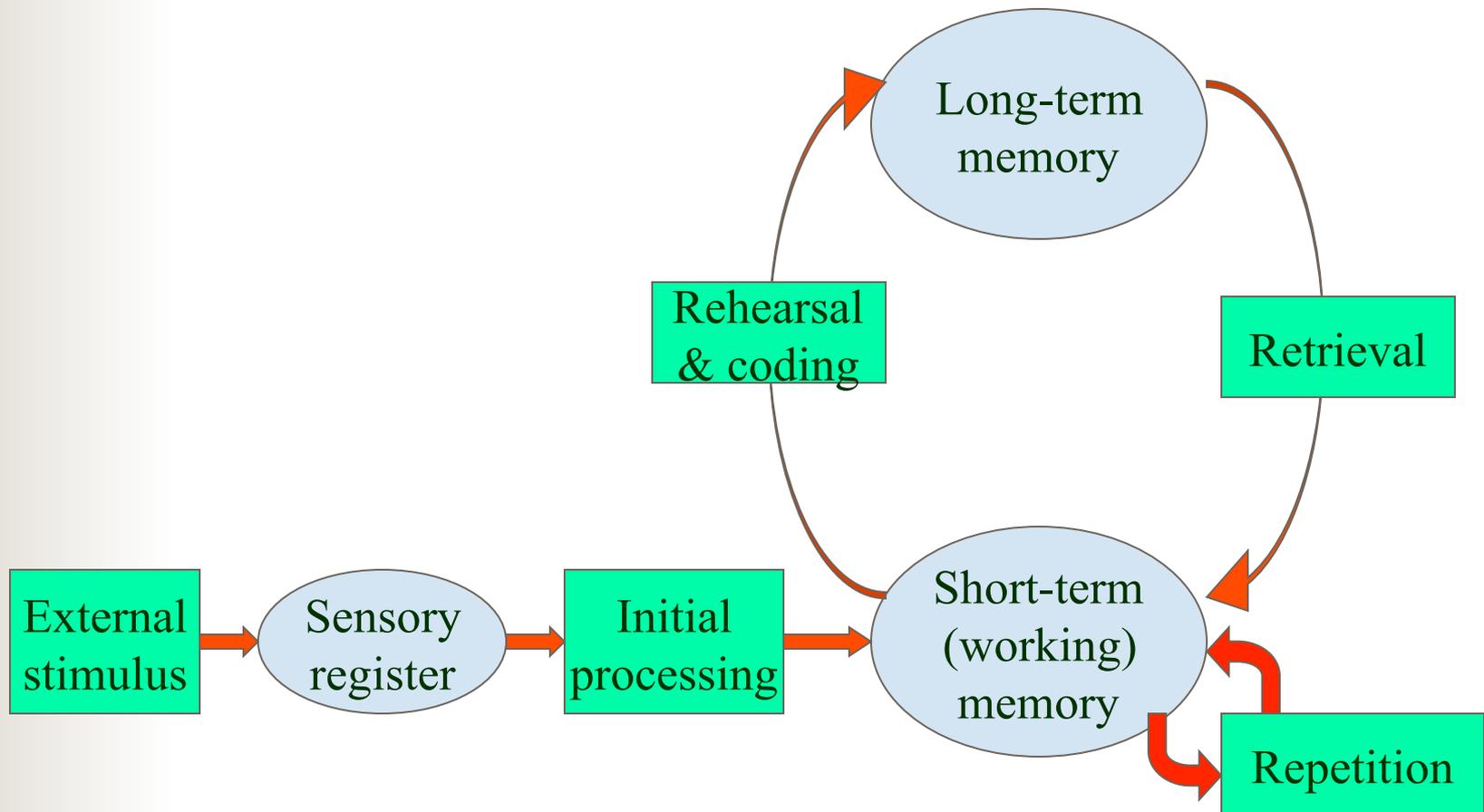


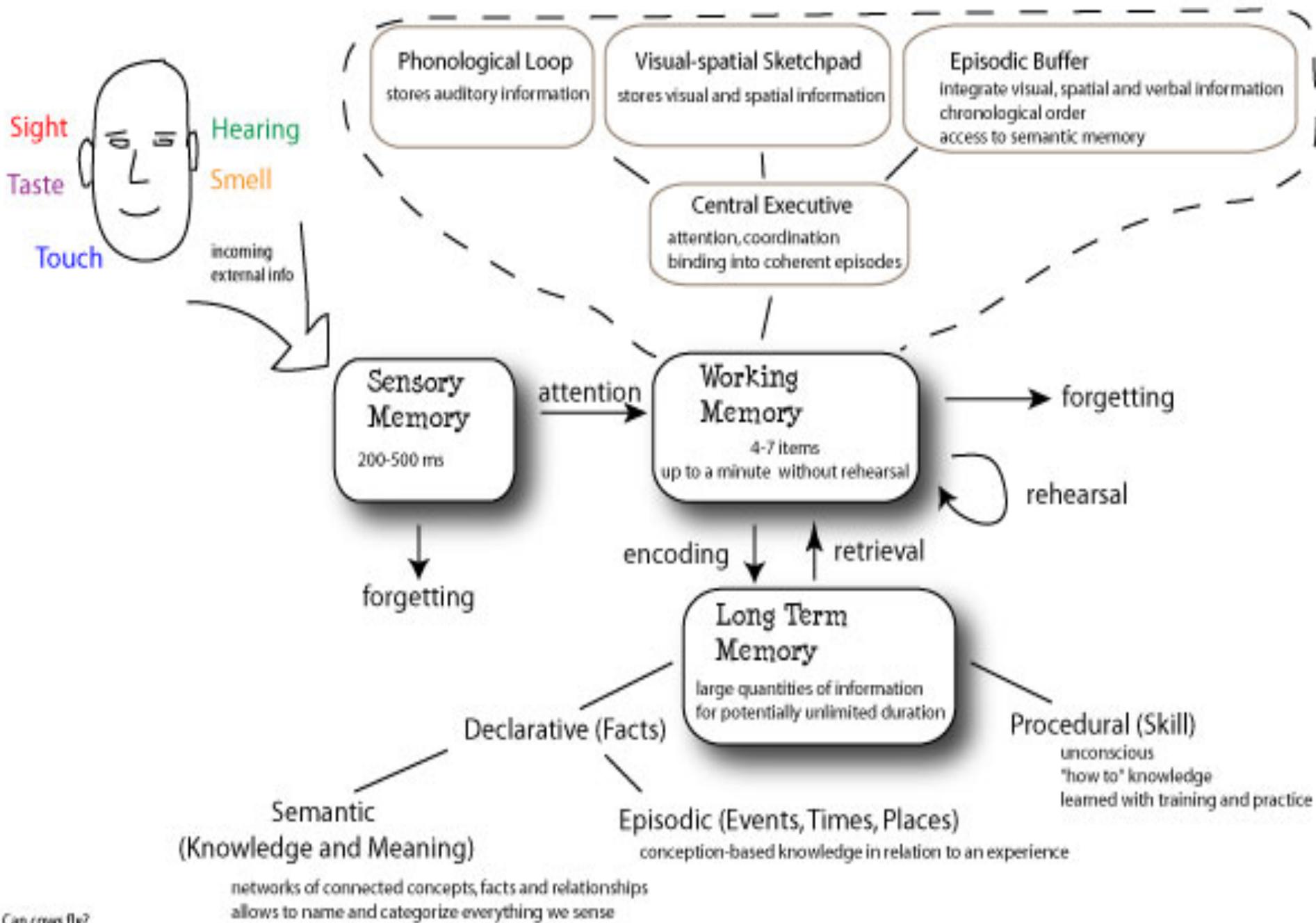
Automatic thought is our default mode unless we have:

- the time for deliberation  
AND
- the ability for deliberation  
AND
- a sense that deliberation is needed.

We need to provide these for our students if we want them to gain deep understanding.

# A cognitive psychology model of memory





Can cows fly?  
 What is the capital of France?

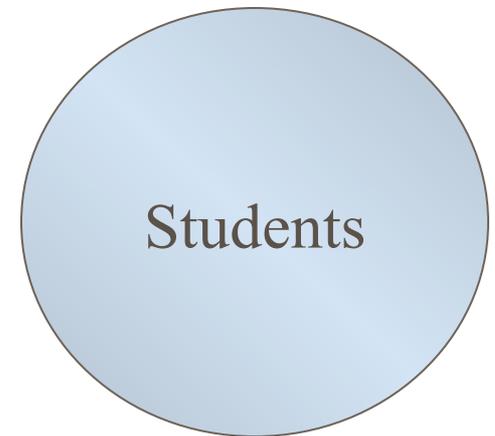


# As you plan instructional activities:

- How do you want students to have changed after their time with you?
- In 10 years, what do you want them to recall?
- How will their thinking, feelings, or movements be different?
- What will they know? What will they understand?
- What should they be able to do, and how well?
- How have you helped prepare them for their futures?

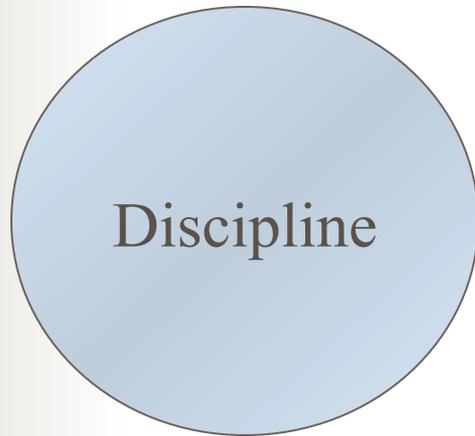
# Audience-based filtering of potential course content

- What attitudes, knowledge, & skills do they already have?
- Will they be active or passive?
- How do they learn best?
- What motivates them?



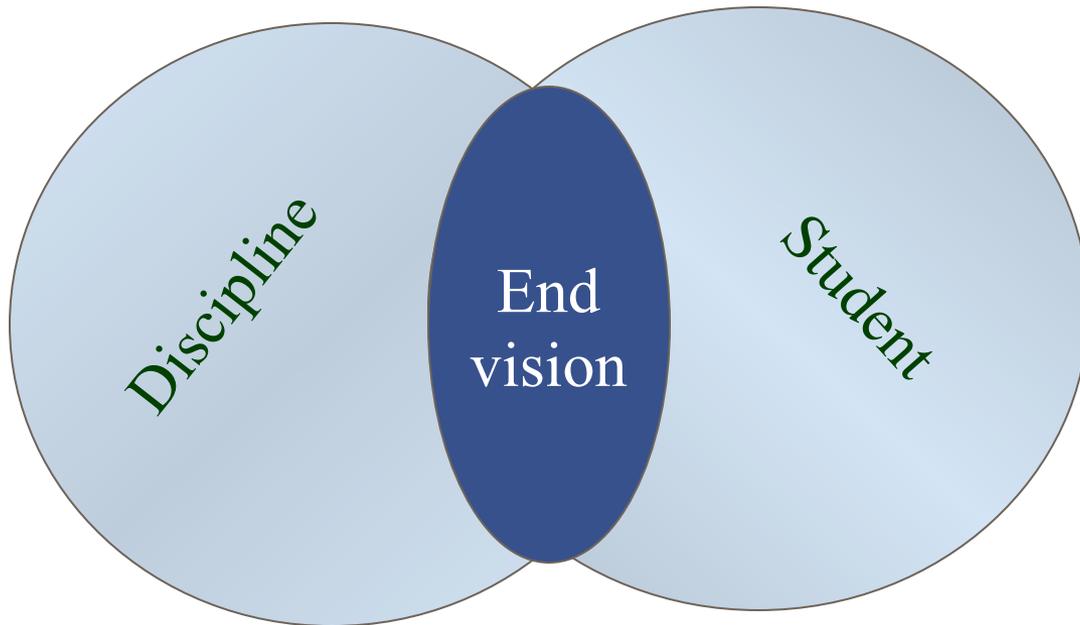
This filter is based on what you think you know about and will expect of your students)

# Discipline-based filtering of potential course content



- What is worth knowing?
  - “Nice-to-know” vs. “Ought-to-know” vs. “Must-know”
- What needs “uncovering?”
- What activities are important or relevant?
- Which materials & resources are best?
- Is the overall approach coherent & effective?

Intentional instruction - envision your student  
as an integration of these two filters

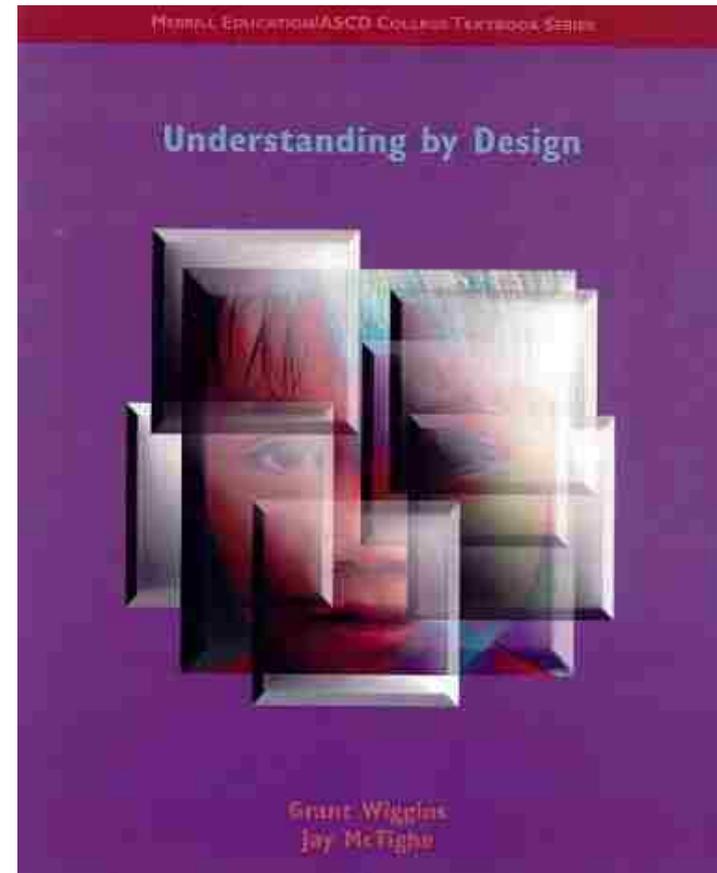


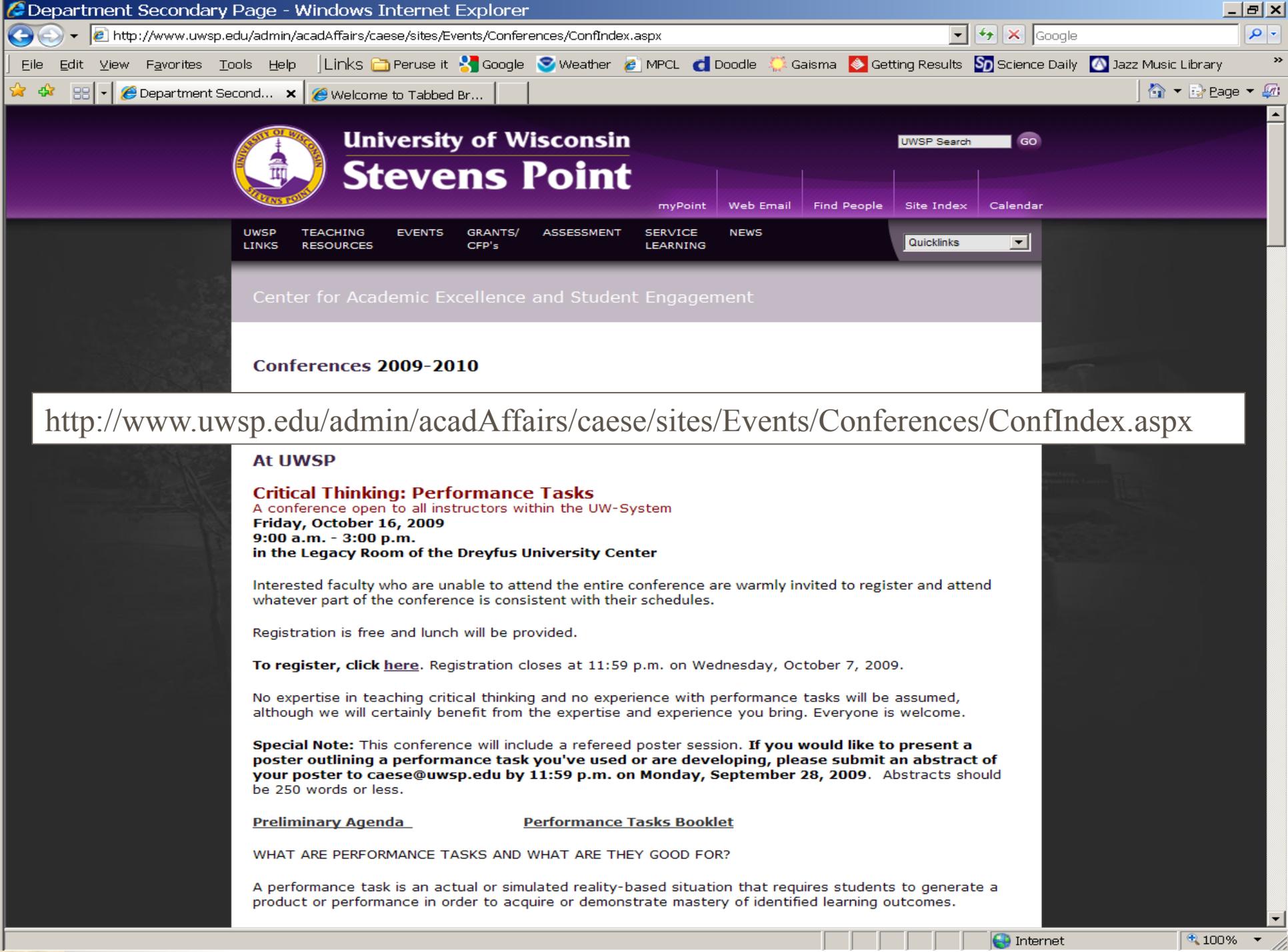
# *Understanding by Design*

Grant Wiggins &  
Jay McTighe. 1998.  
Association for Supervision  
& Curriculum Development

<http://www.ubdexchange.org>

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<http://www.uwsp.edu/admin/acadAffairs/caese/sites/Events/Conferences/ConfIndex.aspx>

### At UWSP

#### Critical Thinking: Performance Tasks

A conference open to all instructors within the UW-System  
**Friday, October 16, 2009**  
**9:00 a.m. - 3:00 p.m.**  
**in the Legacy Room of the Dreyfus University Center**

Interested faculty who are unable to attend the entire conference are warmly invited to register and attend whatever part of the conference is consistent with their schedules.

Registration is free and lunch will be provided.

**To register, click [here](#).** Registration closes at 11:59 p.m. on Wednesday, October 7, 2009.

No expertise in teaching critical thinking and no experience with performance tasks will be assumed, although we will certainly benefit from the expertise and experience you bring. Everyone is welcome.

**Special Note:** This conference will include a refereed poster session. **If you would like to present a poster outlining a performance task you've used or are developing, please submit an abstract of your poster to [caese@uwsp.edu](mailto:caese@uwsp.edu) by 11:59 p.m. on Monday, September 28, 2009.** Abstracts should be 250 words or less.

[Preliminary Agenda](#)

[Performance Tasks Booklet](#)

#### WHAT ARE PERFORMANCE TASKS AND WHAT ARE THEY GOOD FOR?

A performance task is an actual or simulated reality-based situation that requires students to generate a product or performance in order to acquire or demonstrate mastery of identified learning outcomes.