

Strategies for Using Exam Reviews as Assessment FOR Learning

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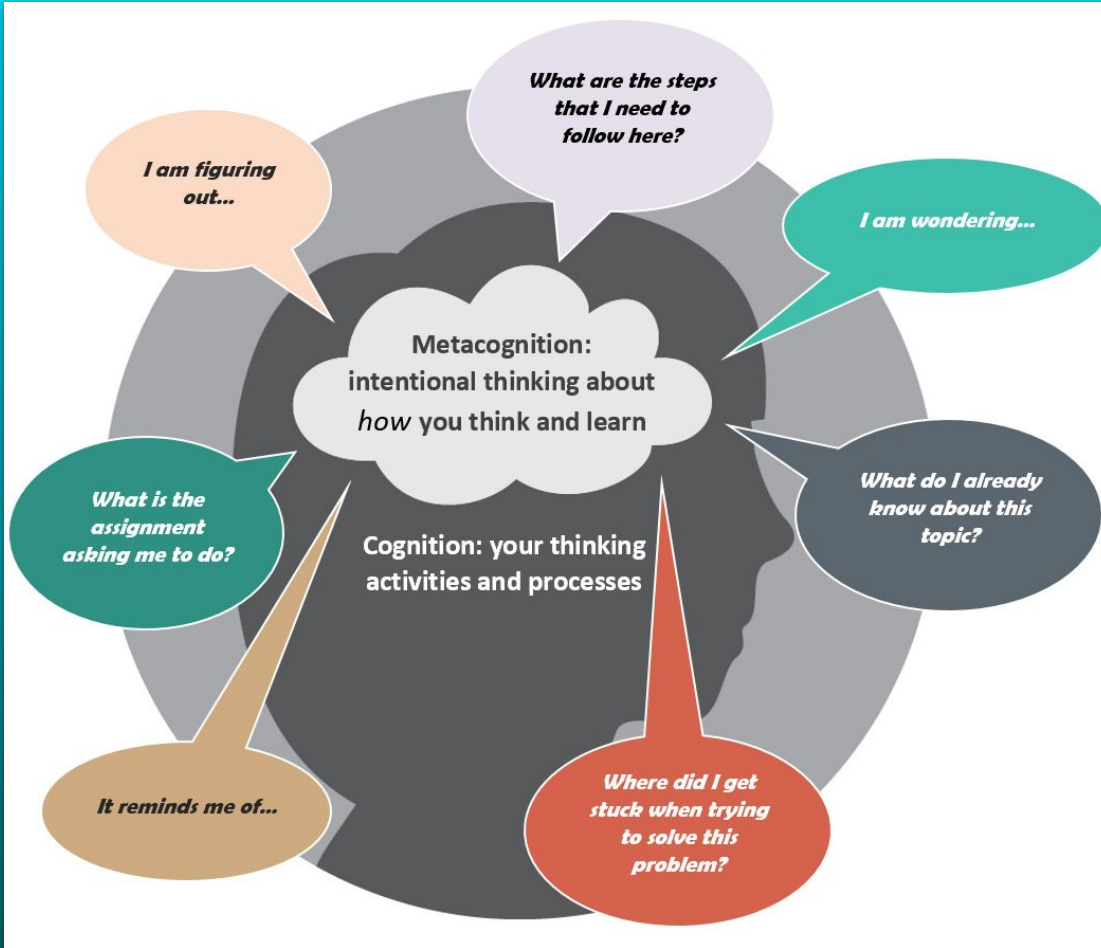
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METACOGNITION

- Knowledge and cognition about cognitive phenomena
 - *Thinking about thinking*
- Higher order cognition that regulates thinking





“metacognition lies at
the root of all learning”

“...self-knowledge, awareness of how and
why we think as we do, and the ability to
adapt and learn, are critical to our survival as
individuals...”

- James Zull (2011) *From Brain to Mind: Using Neuroscience to
Guide Change in Education*

Why is *METACOGNITION* so important?

- Development of critical thinking
- Development of lifelong learning
- Guide learning strategies
- Improve student performance

Objectives

- Describe exam review options
- Review best practices to ensure exam integrity
- Provide resources to facilitate student learning during the review process.

College Background Information

Sullivan University College of Pharmacy and Health Sciences (SU COPHS)

- Private institution in Louisville, KY
- COPHS contains 2-year Master's level Physician Assistant program and 3-year Doctor of Pharmacy (PharmD) program
- Year-round, Quarter-based system
- Small assessment office
- Electronic assessment platform used for exam administration



*College of Pharmacy
and Health Sciences*



The University of Texas at Austin

College of Pharmacy

- Public institution in Austin, TX
- 4-year Doctor of Pharmacy (PharmD) program
- Year-round, semester-based system
- Small assessment office
- Electronic assessment platform used for exam administration

About You

Which assessment technology platform do you use?

Do you administer exam reviews?



Objective 1:
Describe exam review options

Exam Reviews for Metacognition

Several different types of exam reviews:

- Release full exam (all questions/all answers) with or without question rationales
- Release missed questions only with or without question rationales
- Release rationales only
- Strength and opportunity type reports



"I feel like you're limiting me to correct answers."

Objective 2:

**Review best practices to ensure
exam integrity**

Remote environment

Review security becomes main concern

Option	Pro	Con
Immediate secure review with proctoring	Still being proctored	Scrap paper?
Delayed review, virtually proctored	Security	Scheduling and finding another proctor
Delayed review, unproctored	Ease and flexibility in scheduling	Security!

In-person setting

Security is less concerning, and execution often must be more creative

Option	Pro	Con
Immediate secure review with proctoring	Security	Limited time for reflection
Delayed, immediate review	Security; more creativity allowed	Logistical considerations for any papers
Delayed review	More time for reflection	More time for “stewing”

Best Practices

1. Determine assessment execution (virtual vs live)
2. Identify logistical constraints (rooms, proctors, etc.), depending on route of execution
3. Reflect on your feelings about papers
4. **Consider your priorities**
 - a. Time for reflection
 - b. Data availability
 - c. Time allotment
 - d. Ease of execution

Objective 3:

Explore “exam wrappers” in both remote and in-person settings.

SU COPHS

Therapeutics sequence: Exam wrappers

- Trial & error!
- The what: Intentional reflection & thoughtful planning for the future
- The how:
 - Paper & electronic delivery
 - Delayed, immediate review via ExamSoft
 - Students “required” to backenter data in LMS or Microsoft Forms
 - 1-point incentivization



Exam wrapper: Part 1 & 2

The process

- Print exam wrapper form with scrap paper
- Submit the assessment
 - Do not see grade, etc.
- Answer “Part 1” questions on paper and enter answers into Microsoft Forms
 - End of “Part 1” is secure review password

- The what: Intentional reflection & thoughtful planning for the future
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Paper & electronic format

Paper & Microsoft Forms

Name: _____

Step 0: Go to <https://rotf.lol/wrapper> (or BB→Course Material→Exam Wrappers) and predict your score for this assessment. You will get the exam password as part of this. Write it here: _____

Step 1: Go to <https://rotf.lol/Wrapper1> (or BB→Course Material→Exam Wrappers)

Step 2: As part of the above process, you will get your secure review passwords. Write those here:

Exam password: _____

Secure review password: _____

Step 3: Go back to ExamSoft, look for the downloaded “secure review of the test” and **enter the above passwords (in order)** to enter the secure review so you can see your entire exam.

Step 4: As you review your exam, jot down notes to the questions below. You will go back and enter this information electronically, so make notes here.

If your actual score was different from your pre-exam and post-exam predictions (by more than 10% on either prediction), why do you think this occurred? (For example: Studied stuff that wasn't on exam, didn't follow objectives, overconfidence based on the previous performance, etc.)

How many questions did you miss? _____

The screenshot shows a web interface for an exam wrapper. At the top, it says "Exam Wrapper: Part 1 - Saved". Below that, there are two tabs: "Questions" and "Responses" (with a count of 193). The main content area displays a question: "4. How did you do on this exam? Please predict your exam score out of 100%." Below the question is an input field labeled "Enter your answer". Below this, there is a section header "Section 2" followed by a sub-section "Study habits" with the text "The next few questions ask you to reflect on how you studied for this assessment." Below this, there is another question: "5. How many hours of sleep did you get last night?" with an input field labeled "Enter your answer".

Objective 3:

**Provide resources to facilitate
student learning during the
review process.**

Activity

*How would you help a student
with this autopsy form?*

Exam Autopsy

Type of Error (Circle the error most frequently identified)	Description of the Error	Suggested Strategies to Reduce Errors (Check the box(es) next to the solution that you WILL use in your action plan below)
Test Taking Error(s)	Mistakes that you make because of the specific way you take tests: <ul style="list-style-type: none"> ▪ Not completing a problem to its last step ▪ Changing test answers from the correct ones to incorrect ones ▪ Getting stuck on one problem and spending too much time ▪ Not reviewing difficult questions at the end ▪ Test anxiety 	<input type="checkbox"/> Only change the answer IF you can PROVE to yourself that the changed answer is correct <input type="checkbox"/> Set a 'time limit' for each problem before moving to the next problem <input type="checkbox"/> Set 'check-points' for yourself - half way point by X minutes, review 'tagged' questions by X time, etc. <input type="checkbox"/> Taking a deep breath at the beginning of the exam or when feeling anxious <input type="checkbox"/> Doing a brain dump of 'memorized information' on the scrap paper
Misread Direction Error	These errors occur when you skip directions or misunderstand directions	<input type="checkbox"/> Thoroughly read ALL the directions <input type="checkbox"/> Highlight key words in the directions or questions, etc.
Careless Error	Mistakes made which can be caught automatically upon review of the test	<input type="checkbox"/> Read instructions / questions / case, etc. THOROUGHLY <input type="checkbox"/> Review the question to be sure you know what the question is asking for and REVIEW each problem step by step
Preparation (study) Error	<ul style="list-style-type: none"> ▪ Mistakes that occur when you learned the wrong type of material ▪ Do not spend sufficient time learning pertinent material ▪ Do not use the lecture objectives to guide your learning 	<input type="checkbox"/> Identify why the errors occurred and identify more effective learning strategies <input type="checkbox"/> Consider exploring how you learn ('learning preferences' - http://vark-learn.com/the-vark-questionnaire/) and aligning your learning (study) strategies with your learning preferences
Concept Error	<ul style="list-style-type: none"> ▪ Mistakes made when you do not understand the properties / principles / foundation, etc. required to complete the problem ▪ Trouble remembering what you studied (mental block) 	<input type="checkbox"/> Review your textbook / notes and identify why you missed the concept (metacognition) <input type="checkbox"/> Practice explaining concepts to peers (use lecture objectives to guide your learning) <input type="checkbox"/> Review Bloom's taxonomy to learn what is expected on the assessment (https://www.cloud.edu/Assets/PDFs/assessment/revised-blooms-chart.pdf)
Application Error	<ul style="list-style-type: none"> ▪ Mistakes that you make when you know the concept but CANNOT apply it to the problem 	<input type="checkbox"/> Use learning objectives to predict the type of application problems that will be on the test, work through cases while learning.

Aggregate Data

What NUMBER of missed points were due to not understanding foundational concepts (I just didn't get it)?	What NUMBER of missed points were due to careless mistakes?	What NUMBER of missed points were due to changing the correct answer to the incorrect answer?	What NUMBER of missed points were due to not being able to apply studied information?	What NUMBER of missed points were due to trouble remembering what you studied?	What NUMBER of missed points were due to test anxiety?
1.14	2.01	1.60	1.17	3.46	0.94

95	anonymous	affected my overall score, I dont feel like a specific question and contribute to test anxiety	142	anonymous	100% of them
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36	anonymous	I would say all and you can attach anxiety to all of the other categories for me.
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137	anonymous	always have anxiety affects overall grade not a specific answer
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74	anonymous	0- But my anxiety was high the entire exam
75	anonymous	I have anxiety 100% of the time, so that is just an added bonus to the above questions.

102	anonymous	all of them if we're being honest
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Activity

What course level change(s) would you consider based on exam wrapper data?

What advice would you give learners in future classes?



Best Practices for Delayed Exam Reviews

- Use same security practices as exams to ensure integrity of exam content
- Conduct exam review *AFTER* exam grades are posted
- Add rationales for all questions, if possible
 - Enhances student understanding
 - Reduces debate over item content
- Review item adjustments before you start the review

Group Discussion

Frequently Asked Questions

FAQ's

- How long should the review be?
- Should we just release the incorrect answers only?
- Should we show the rationale?
- What are the pros and cons of incentivizing?
- What if we don't want to do an exam review?

Want to connect or collaborate?

We would love to chat!



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Make a Plan!

Look for patterns in your exam autopsy, reflect upon which types of errors lead you to lose points, and then using the suggested remedies above, name 3 SPECIFIC things that you will do differently in preparing for or taking the next exam:



Action Item 1:

Action Item 2:

Action Item 3:

CHECK off the activities / techniques you primarily used to prepare for this exam and CIRCLE the ones you believe were the most helpful / effective:		Based on your review, CHECK off the following activities / techniques will you use in preparation of your next assessment:	
<input type="checkbox"/> Narrative responses to lecture learning objectives	<input type="checkbox"/> Reading primary literature (guidelines, reviews, studies, etc.)	<input type="checkbox"/> Narrative responses to lecture learning objectives	<input type="checkbox"/> Reading primary literature (guidelines, reviews, studies, etc.)
<input type="checkbox"/> Reading the textbook (first time)	<input type="checkbox"/> Connecting new material to things you already knew	<input type="checkbox"/> Reading the textbook (first time)	<input type="checkbox"/> Connecting new material to things you already knew
<input type="checkbox"/> Repeating concepts for memorization	<input type="checkbox"/> Rereading / highlighting textbook and / or primary literature	<input type="checkbox"/> Repeating concepts for memorization	<input type="checkbox"/> Rereading / highlighting textbook and / or primary literature
<input type="checkbox"/> Rereading / reviewing class notes	<input type="checkbox"/> Transcribing class notes	<input type="checkbox"/> Rereading / reviewing class notes	<input type="checkbox"/> Transcribing class notes
<input type="checkbox"/> Rewriting concepts / rephrasing ideas in your own words	<input type="checkbox"/> Sharing ideas / explaining concepts to others	<input type="checkbox"/> Rewriting concepts / rephrasing ideas in your own words	<input type="checkbox"/> Sharing ideas / explaining concepts to others
<input type="checkbox"/> Solving new, harder problems / cases for practice or using problems / cases discussed in class with modifications	<input type="checkbox"/> Watching or listening to podcasts or class recordings	<input type="checkbox"/> Solving new, harder problems / cases for practice or using problems / cases discussed in class with modifications	<input type="checkbox"/> Watching or listening to podcasts or class recordings