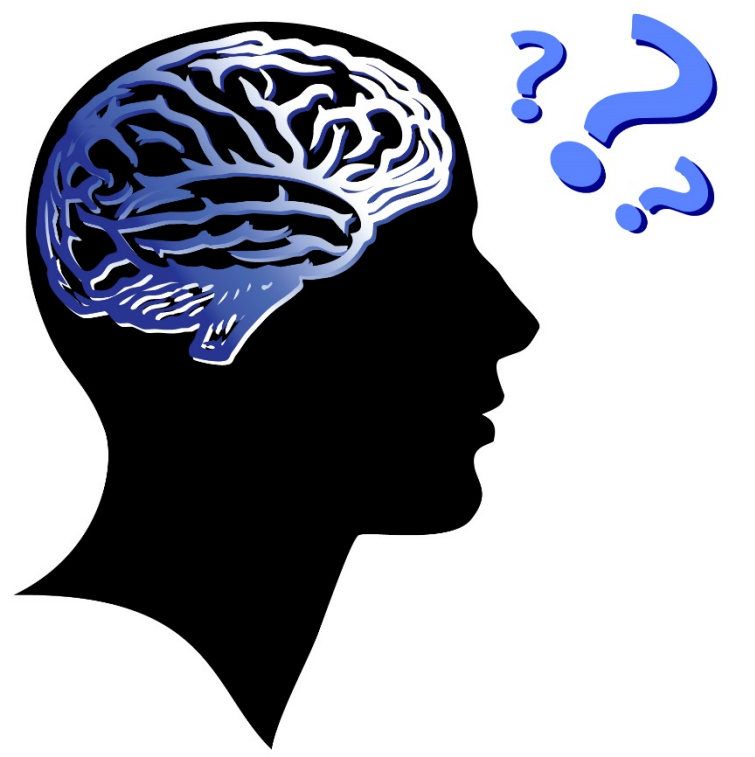
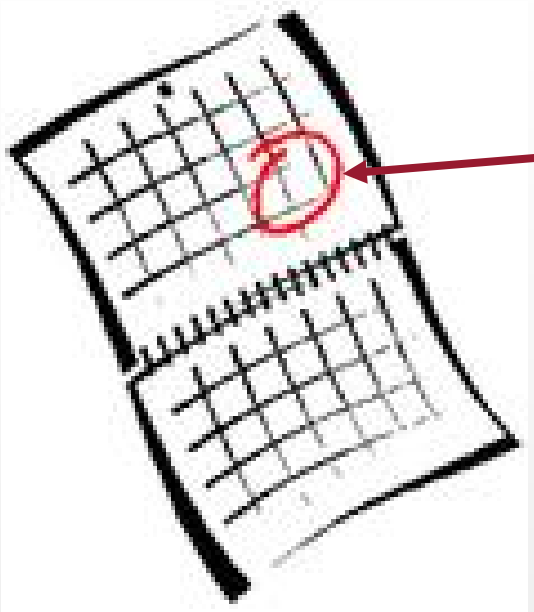
What's On Friday? A New Twist to a Traditional Lecture Course





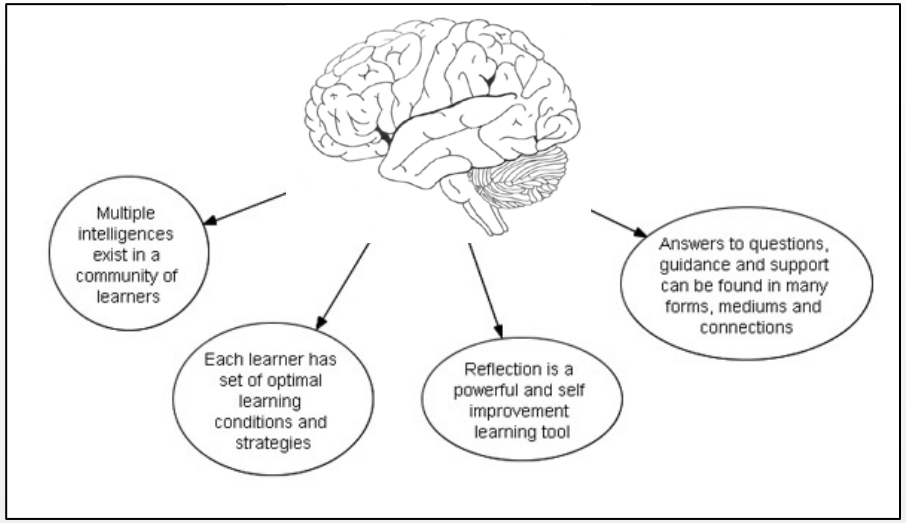
Steve Lampa and Heiko Jansen
IPN and College of Veterinary Medicine

CVM TEACHING ACADEMY SUMMER PROGRAM PRESENTS:
TEACHING TOOLKIT

What's On Friday? Framework

Friday Sessions in NEURO 404_Spring Semester of 2018

Topics included:



- Basic Clinical Problem Solving (Neurologic Signs/Symptoms)
- **Exam Wrapper (Post Exams 1 & 2)**
- Introduced Study Strategies (e.g. Concept Mapping)
- Student Group Presentations of Neurological Disorders
- Review sessions– Student groups worked through review questions
- Guest Lecturer (Dr. Annie Chen-Allen) – Veterinary neurologic disorders

Exam Wrapper (Post Exam Self Assessment)

Idea arose after a CVM TA Workshop by Dr. Julie Stanton (September 22nd, 2017)

Metacognition "Regulating Your Own Thinking"

- **Importance of teaching self-assessment in student learning (Planning, Monitoring and Evaluating)**

See your Handout for the Metacognition questions.

Take 5 minutes to go through these questions and think about how your students might answer each of these questions.

https://brainquench.wikispaces.com/Meta-Cognition

Summary of Student Reported Exam 1 Strategies

- Attended Lectures
- Crammed the night before the exam
- Took Notes in Class
- Reviewed Lecture Slides
- Review Lab Material (integrated)
- Read Textbook
- Read Textbook and took notes
- Correlated the lecture slides and used the book for clarification
- Rewrote Notes
- Flashcards/Study Guide
- Self-Quizzing on Slides
- Group Studying
- Drawing neuroanatomic structures (White Boards)
- Did Top Hat Review Questions
- Concept Map
- Old Exams as a review
- Glossary of Key Terms
- Other Resources (e.g. Blackboard, online videos, study guides)

Reported Exam 1 Strategies Effective for Higher Performing Students

- Attended Lectures
- Crammed the night before the exam
- Took Notes in Class
- Reviewed Lecture Slides
- Review Lab Material (integrated)
- Read Textbook
- Read Textbook and took notes
- **Correlated the lecture slides and using the book to clarify points**
- Rewrote Notes
- Flashcards/Study Guide
- **Self-Quizzing on Slides**
- Group Studying
- **Drawing neuroanatomic structures (White Boards)**
- Did Top Hat Review Questions
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- Other Resources (e.g. Blackboard, online videos, study guides)

GRADE % Δ's FROM EXAM 1 TO EXAM 2

What are your learing goals for exam	Grade Exar	Part b	What would you like to be able to do?	Grade Exam 2	Accomplished Goals? (co	Improvement	If yes, how
Repeat book/notes strategy and get a	91	Student 1	Feel as knowledgeable as for exam 1	91	Y	0	Read book and took notes - NIGHT BEFORE!, tophat questions
Understand all concepts	68	Student 2	Form a study group and prepare well for ex	80	Y	12	Flash cards, studied lecture slides and textbook
Improve my score and have more solic	60	Student 3	Form a study group, make flashcards, bette	32			
Redive an A	83	Student 4	Not forget fundamentals	84	Y	1	Studied with group, flash cardss (CNs), slides, made study guide
Don't cramm	90	Student 5	Spend more time studying	96	Y	6	More time studying
Score better	74	Student 6	Change study habits to better suit neuroan	80	Y	6	Quizlet note cards, tophat questions
Study until I know what is going on	97	Student 7		84			
Continue as for exam 1	89	Student 8		89	Y	0	Note cards, review slides, book
Start studyihg earlier	97	Student 9	Focus more on the slides	97	Y	0	Study group, made detailed (colored) notes
Get above an 85%	78	Student 10		84	Y	6	Studied with budy, whiteboards, tophat questions, book and slides
Focus more on slides	69	Student 11		88	Y	19	More time on lecture material
Keep up with material	68	Student 1	Better time management	87	Y	19	more time studying, tophat questions
Remember the full for names	81	Student 1	Study in the same way	78			
Feel comfortable with all material incl	95	Student 1	Increase detail and accuracy of anatomical	100	Y	5	Handwritten study guide with colofful drawings in a blank journal, met with classmate
Receive an A bu tno less than B	75	Student 1	Retain information after exmai is over	65			
Get a good grade	80	Student 1	Never have to look at a concept map again	79			
Link concepts more effectively	83	Student 1	Use flowchart software to link concepts mo	89	Y	6	rewrote notes, drew pathways , flash cards (Anki), organizational charts
Receive an 80% or higher	66	Student 1	Study more ahead of time	66			
Pick out big picture items	68	Student 19		57			
Keep up with material and score in the	93	Student 2	Keep up with the material more	85			Powerpoint slides, tophat questions
Get a score in the 90s	75	Student 2	Be familiar with graphics and terms	74			
Make a study plan and stick to it	87	Student 2	Be able to write my own questions and pra	82			
Earn an A	66	Student 2	Learn the information more efficiently	63			
Improve score to at least a B	77	Student 2	Spend more time with unfamiliar concepts	80	Y	3	Rewrote notes, reviewed textbook
Be better prepared for exam 2	87	Student 2	Create more visual aids	95	Y	8	More time studying, studied with group, drawing pathways
Focus more on emphasized material	93	Student 26		85			
No change	100	Student 2	Review lecture material in more detail	96			
	95	Student 2	Ask more questions, take clearner notes, q	100			

Students strategies that improved scores from Ex1 to Ex2

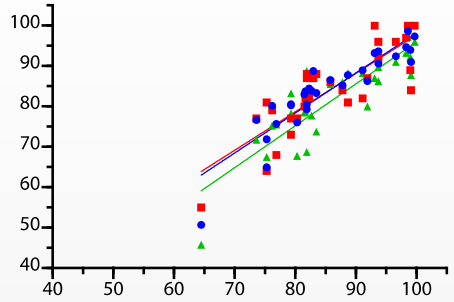
- REWROTE NOTES, DIAGRAMS, PATHWAYS - USED COLOR
- MORE TIME STUDYING
- GROUP STUDYING
- TOPHAT REVIEW QUESTIONS
- NOTE CARDS

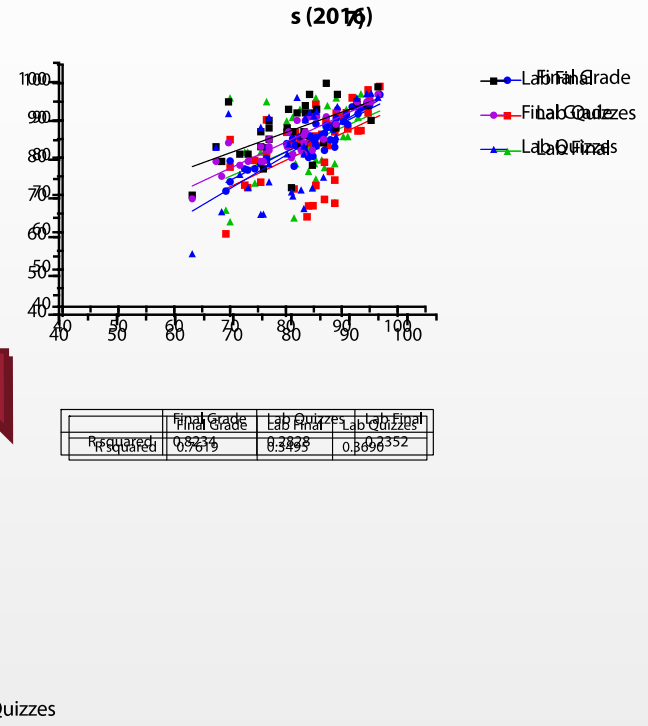
- 14 Out of 28 students achieved their stated goals
- 11 Out of 28 students improved their scores between Exam1 and Exam2

Statistics - 2018

Final Grade Breakdown

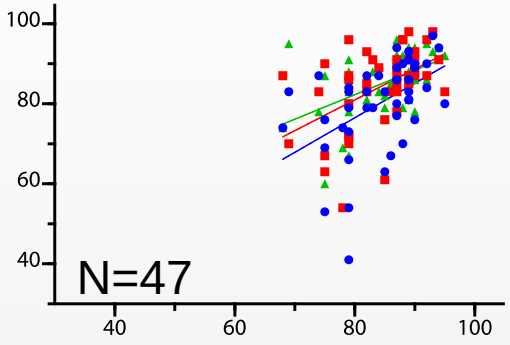
Lecture exams -	40%
Lab quizzes -	20%
Lab final -	20%
Term paper -	10%
Participation -	10%



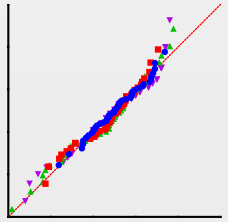


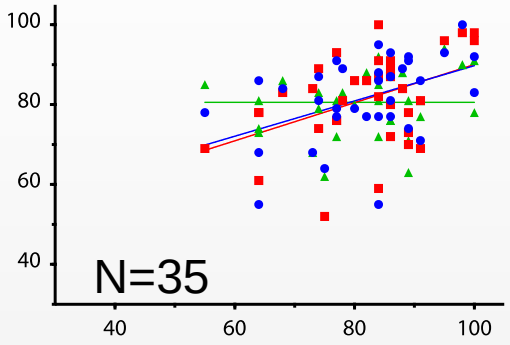
	Final Grade	Lab Final	Lab Quizzes
R squared	0.8735	0.5988	0.7372

Statistics (cont'd)

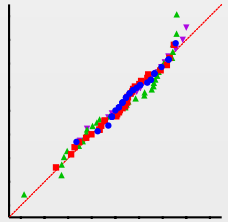


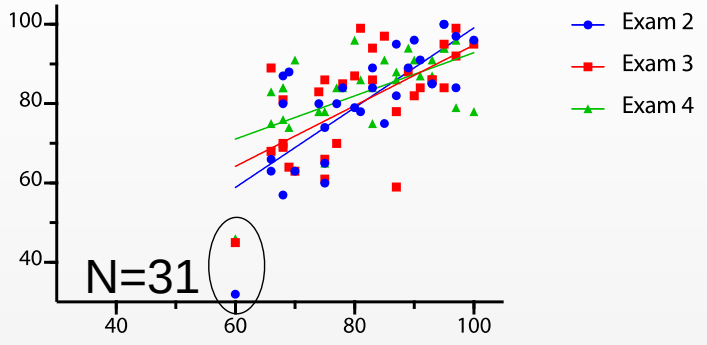
	Exam 2	Exam 3	Exam 4
d	0.2362*	0.2466*	0.2479 *



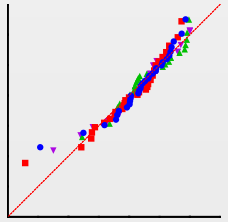


	Exam 2	Exam 3	Exam 4
uared	0.1908 *	0.1947*	0.06422





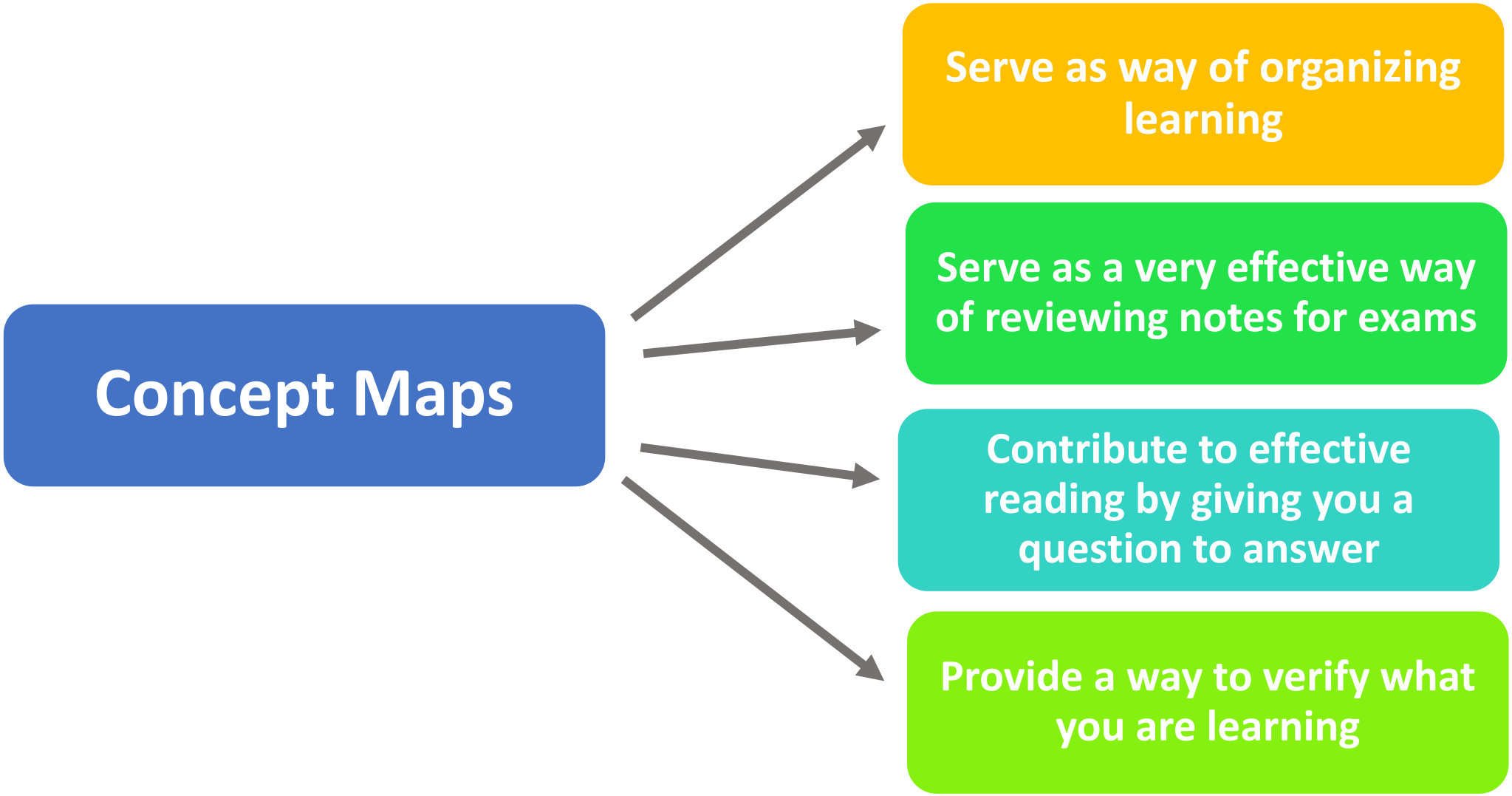
			xam 4
	*	*	0.3115*



*p<0.05 (B1=0)

Conclusions of Exam Wrapper Experience

- The Self-Evaluation of performance (Metacognition) is effective in informing and then modifying student study strategies.
- Making students aware of different study strategies used by higher performing students, may yield gains in the lower performing students.
- Overall, a stronger (positive) relationship between 1^{st} & 2^{nd} and 1^{st} & 3^{rd} exams in 2018 supports the effectiveness of having an exam wrapper.
- Benefits of WOF are apparent in the integration of material as evidenced by the increased R^2 for exam vs. lab quiz and exam vs. lab final relationships in 2018 compared to previous years.


Concept Maps
Serve as way of organizing learning
Serve as a very effective way of reviewing notes for exams
Contribute to effective reading by giving you a question to answer
Provide a way to verify what you are learning

Concept Mapping Experience

Presented using a Concept Map as a Study Strategy Prior to 1st Exam:

Provided a partially filled in concept map to all groups:

1) Randomly assigned groups to complete separate parts of the concept map as a means of reviewing for Exam 1;
2) Then had each group report out separate parts of the map to the other groups.

Activity was nice for engagement, but…

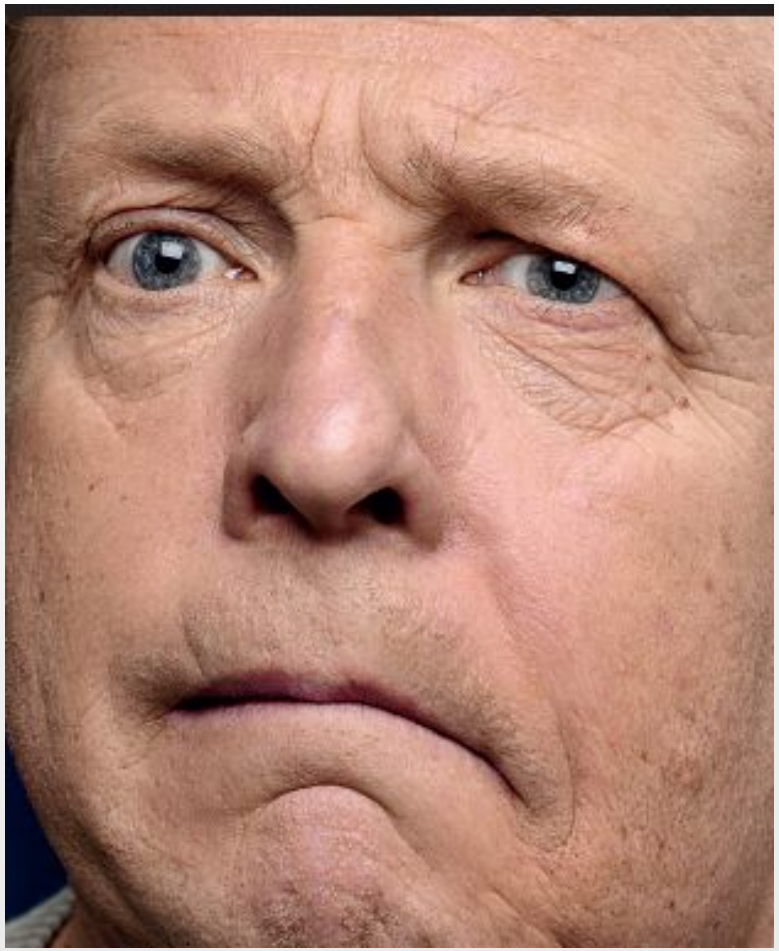
Complaints included:

- Students felt the need to memorize the map, instead of thinking about connections of material in map
- Too detailed concept map for 1st time
- Too close to 1st Exam

Basic Clinical Problem Solving

Initial Observation—From looking at the image of this patient what do you see?

In your groups discuss this for 3 minutes with someone acting as a scribe using the white boards answering these questions.

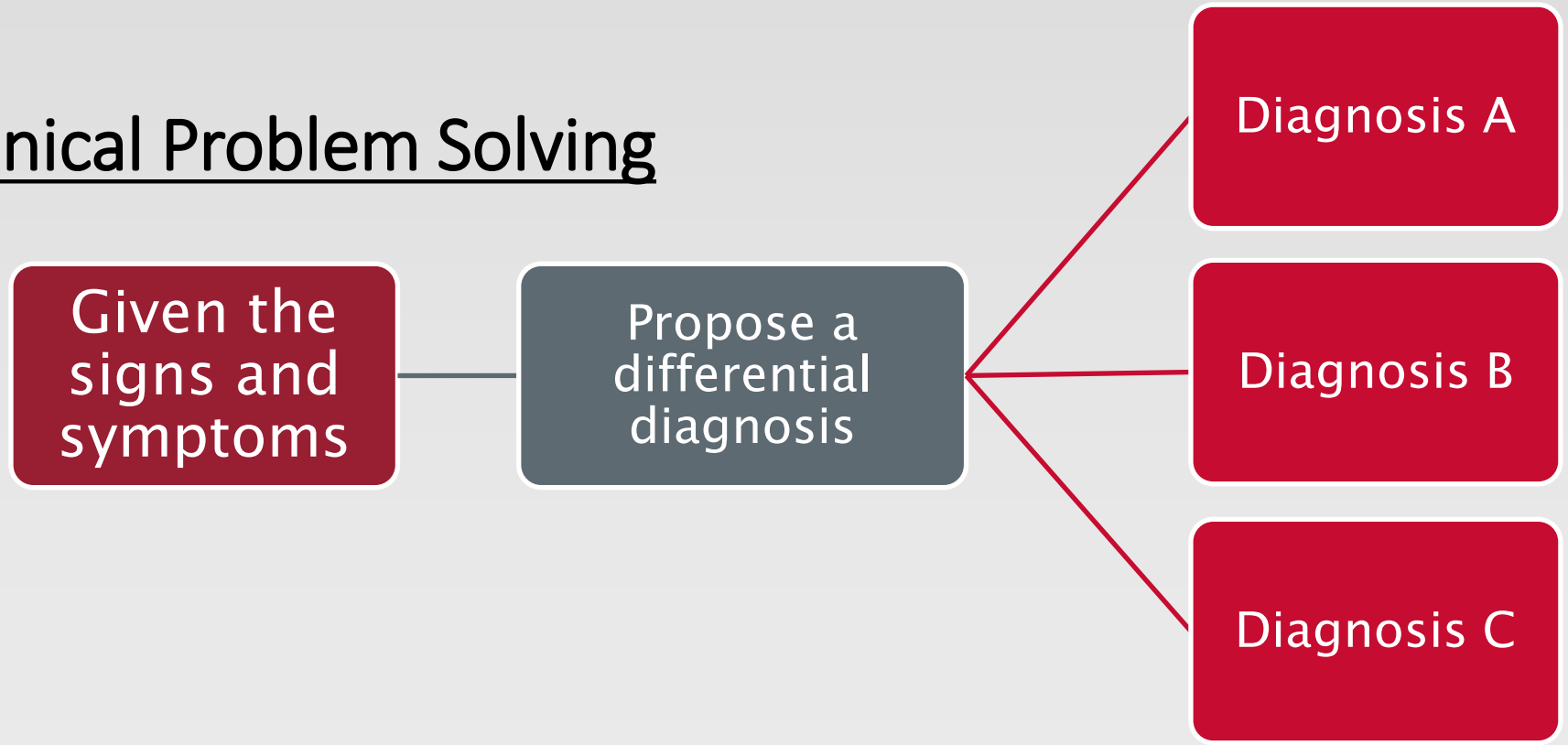


- **What might the patient say about themselves? (e.g. Symptoms)**
- **How would a physician describe the appearance of this patient? (e.g. Signs)**

Clinical Problem Solving

In the cases to be presented: Describe the signs and symptoms and try to come up with a possible differential diagnosis.

Example of Clinical Problem Solving



Exam Case History #1

- A 72-year-old woman was brought in by her family. The patient herself said that she felt well, but her family said that she had been "forgetting everything" recently.
- For example, she would purchase the same products at the grocery store, forgetting that she had bought them only several days earlier.
- She had also become paranoid, feeling that someone was moving her glasses and wallet. She had no awareness of her deficits.
- There was also no history of recent trauma.

- What are some possible **differential diagnoses**?

What's on Friday Anonymous Feedback

Pro's

- Clinical Cases- applications
- Problem solving
- Solidifying material learning in lectures and labs
- Good to get to know classmates (working in groups) and professors
- Student Presentations

Con's

- More Review (at least highlights of week)
- Learning Strategies were not necessary
- More context
- More quizzes or like a recitation section
- Concept map (presented too late and used as a question on Exam 1)

Take Away Message

- Self-assessment on performance (the “exam wrapper”) is a helpful mechanism to improve learning outcomes in an undergraduate course.

  “Incorporating self-assessment into the classroom will help students move toward becoming self-regulated, lifelong learners capable of confronting any challenge.” – Siegesmund (2017)

- Exposure to clinical problems and problem solving can integrate information in an undergraduate course and stimulate deeper learning.

- Still need to find ways to help the lowest performers improve.

Acknowledgments

- Dr. Julie Stanton, University of Georgia (Exam Wrapper Instrument)
- Dr. Erika Offerdahl, SMB (Consultations pre and during the class)
- 2018 Neuro 404 Students (for being thoughtful and open to this experience)

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- Siegesmund, A; Using self-assessment to develop metacognition and self-regulated learners, *FEMS Microbiology Letters*, Volume 364, Issue 11, 15 June 2017, fnx096, https://doi.org/10.1093/femsle/fnx096

- How learning works : Seven research-based principles for smart teaching. (1st Ed.) San Francisco, CA : Jossey-Bass, [2010]

- https://www.vetmed.wsu.edu/innovative-education/teaching-academy/events/invited-guest-spearkers/julie-stanton

What's on Friday Anonymous Feedback (using Tophat)

"I enjoyed the case studies that we had to do for the WTF sessions. I think that they were a nice mixture of problem-solving skill and also the materials that we have learned in class. "

"While I generally liked WTF sessions, I wished we focused a little more on reviewing what we had learned that week."

"Sometimes I feel like they were kind of unrelated to what we were doing in class. I wish they were more review sessions. I also think it would be good to be quizzed on what we learned Monday and Tuesday, even if the quizzes were mostly for just participation. I think I would actually learn the information better and feel a lot better going into exams."

These WTF sessions reinforced my learning on neuroanatomy and helped me connect the science to clinical findings that affect people. I enjoyed and learned a lot from the days we connected signs and symptoms to the potential areas that may have been damaged.

"I am really interested in going into the medical field so I thought the Friday sessions were extremely interesting. I really enjoyed the days when we talked about specific cases and used our knowledge from class to figure out probable causes of the symptoms. It made it feel like what we were learning in class was actually beneficial to my future goals"