Open-Book Exam Success

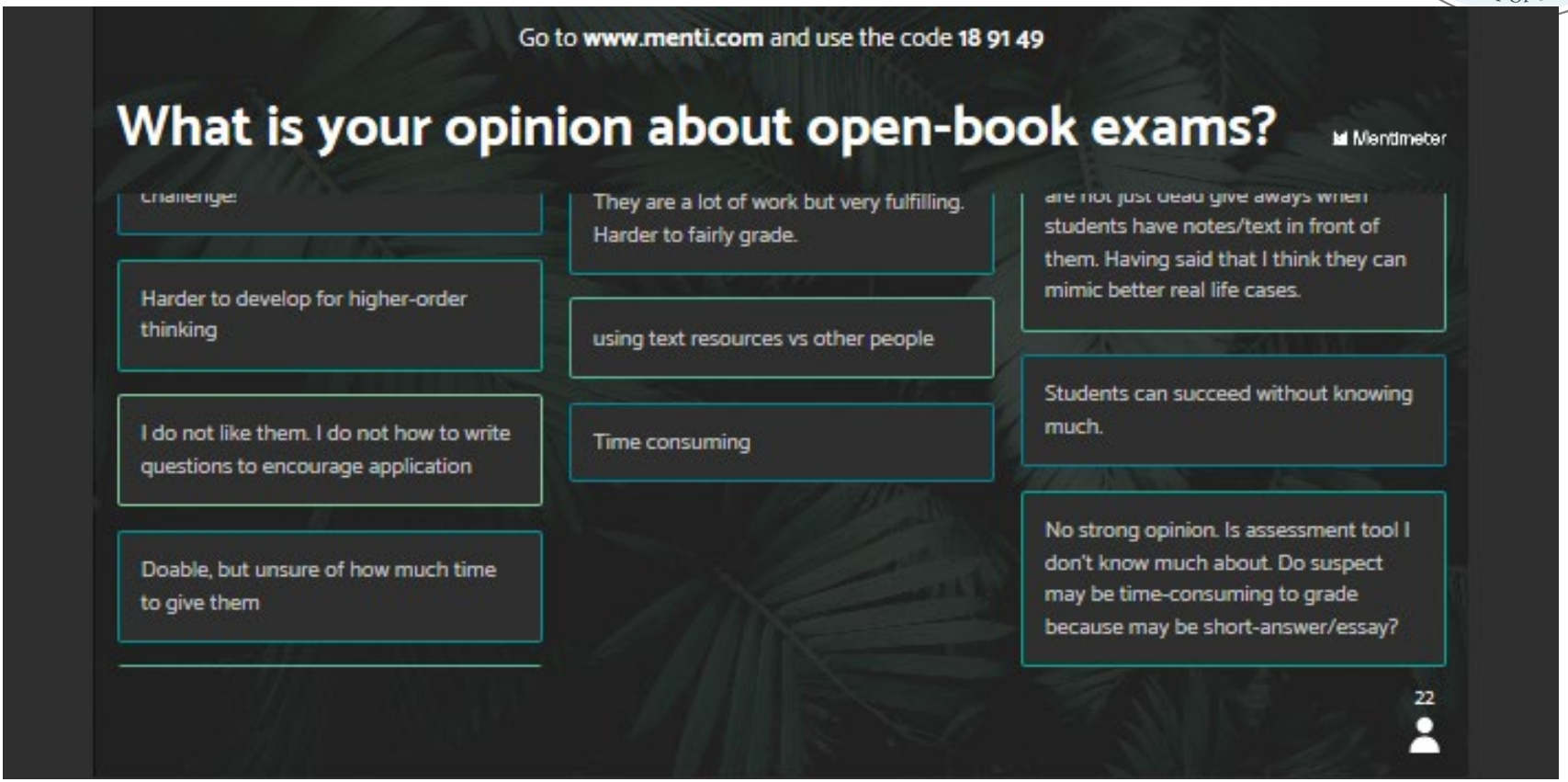
Created by Misty Bailey & Holley Linkous

Objectives

- Explain pros & cons of open-book exam
- Write effective open-book questions
- Assist students in preparing for open-book exams

Warm Up: Group Discussion

Mentimeter - Interactive Presentations



Exams and Learner Experience

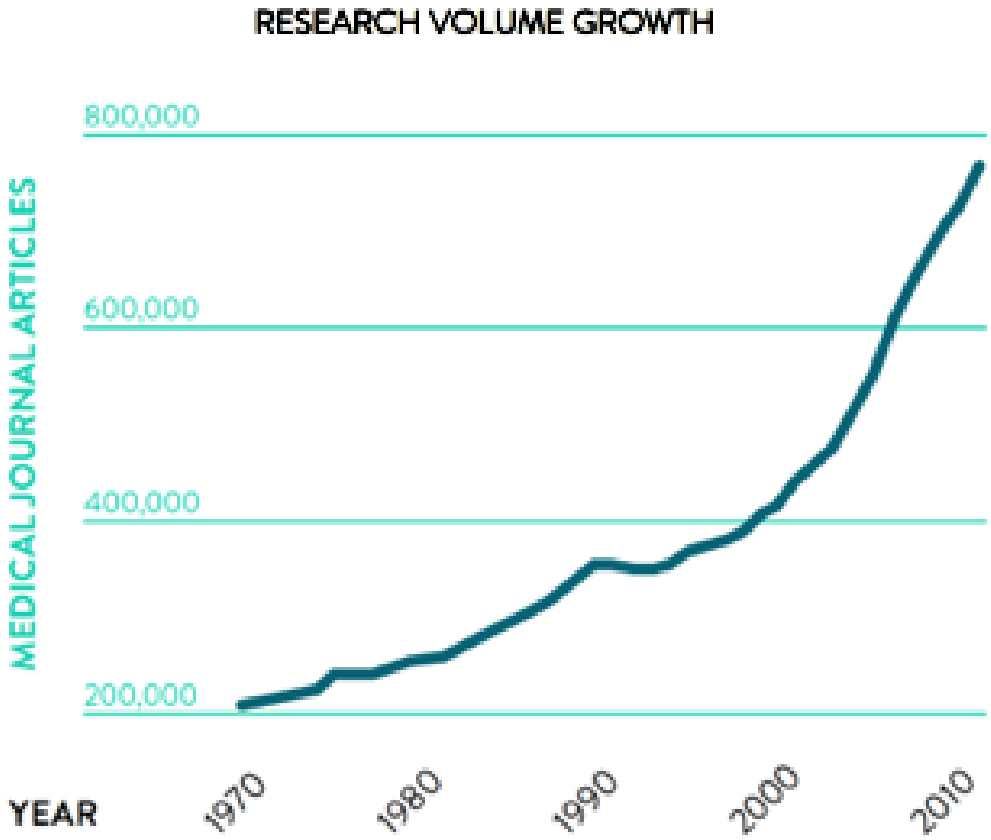
- Focus on memory retrieval through recognition instead of recall
- Encourages learners to take responsibility for personal learning style (strategies such as time management, goal setting)
- Facilitation of success now creates building blocks for future success
- However, learners are self-directed and autonomous, but not necessarily spontaneous in these characteristics.

Learner Autonomy

- Promotion of reflection, reflexivity, critical thinking, and problem solving
- Increased self-efficacy and self-esteem
- Fosters a sense of empowerment
- Two-way communication
- Indicative of online student success

Nielsen, Bean, & Larson, 2018

Growing Body of Knowledge



Health FX, Jun 12., 2018; Heinjne-Penninga et al., 2008

Application Example

- U.S. Air Force Academy
  - Pilots, emergency procedures

Green et al., 2016

Similar Psychometrics

Advances in Health Sciences Education (2008) 13:263–273
DOI 10.1007/s10459-006-9038-y
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Open-book Tests to Complement Assessment-programmes: Analysis of Open and Closed-book Tests

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Pros & Cons

Pros

- Application of knowledge (deep learning)
- Learners can show what they know vs. what they *don't* know
- Reduction of test anxiety

Block, 2012; Williams, 2004; Dhall, 2016; Green et al., 2016; Gupta, 2007

Pros

- Use of resources = slight (if any) higher achievement
- No need for $11,000 test monitoring software (yes, PER test)
- Proctoring burden decreased

Block, 2012; Williams, 2014

Cons

- Writing new or revising previous exam questions
- More difficult & time-consuming to grade
- Potential for cheating

Dhall, 2016; University of Newcastle, n.d.

Cons

- False sense of security for students
- Learners spend more time finding answer than answering question
- Students might study less

Block, 2012; Green et al., 2016

Open-Book Question Writing

Role of Resources?

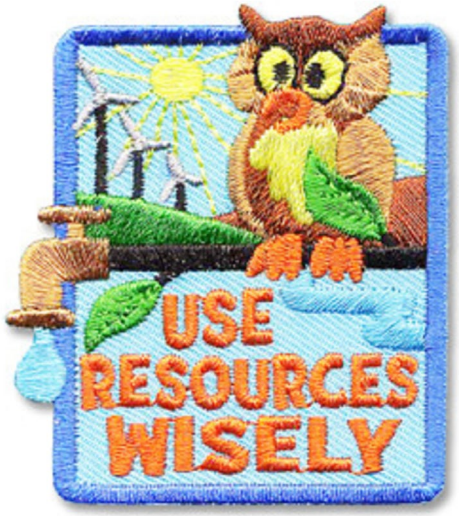
- What would be the role of notes and other resources?
  - Organization of ideas
  - Concise presentation of information
  - Applying information to solve problems
  - Evaluating information from sources
  - Assessing relationships between ideas

Dhall, 2016

Role of resources?

- Students should DO things with information
  - NOT just locate information and reproduce it

Arthur, 2018



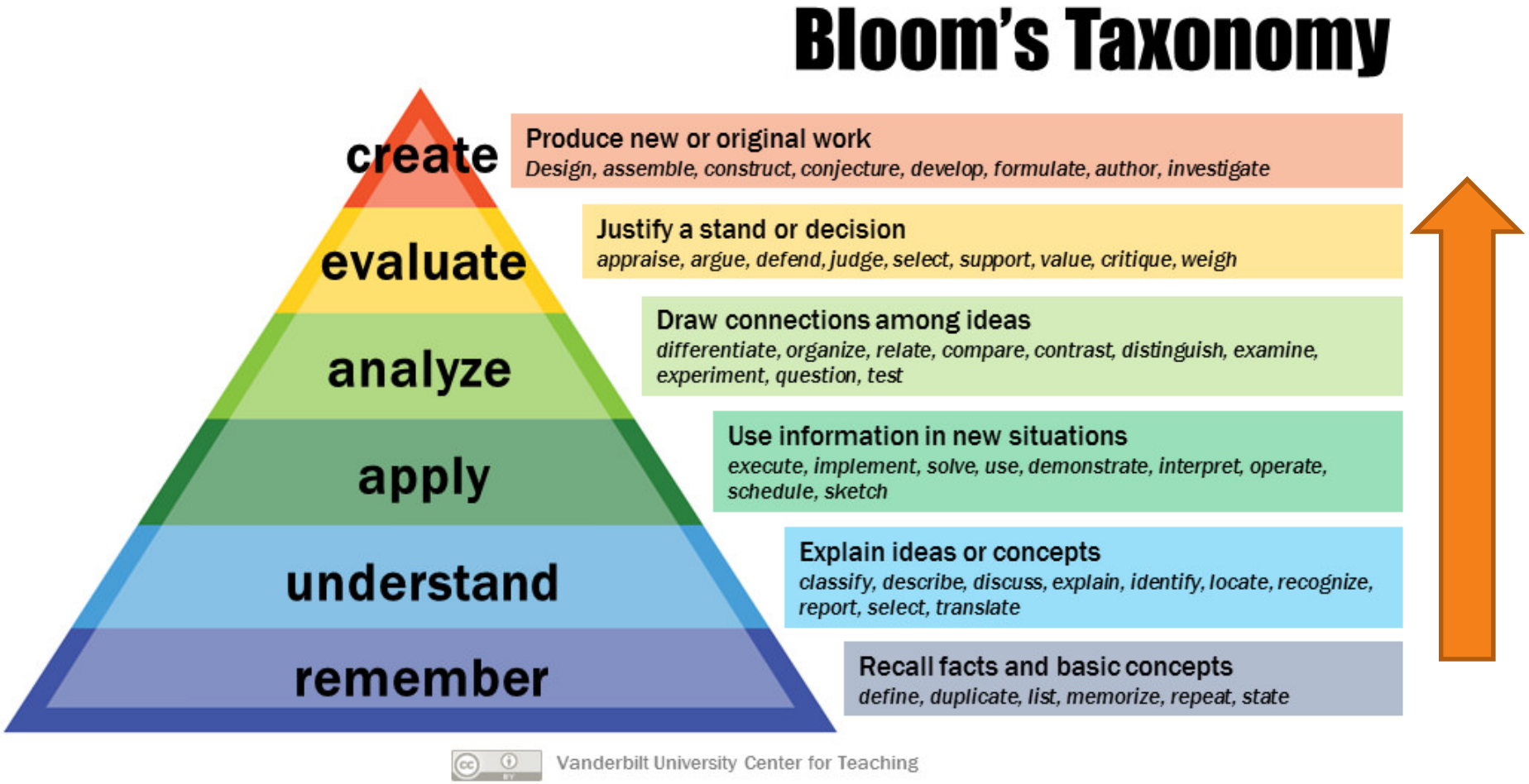
SNAPPY LOGOS

Open-Book Questions

- Replicate real-world conditions
- Rich, messy clinical learning environments
- Set student up as the “expert advisor” or “key decision maker”

Arthur, 2018; Williams, 2004

Bloom's Taxonomy



Vanderbilt University Center for Teaching

Focus on the Conceptual

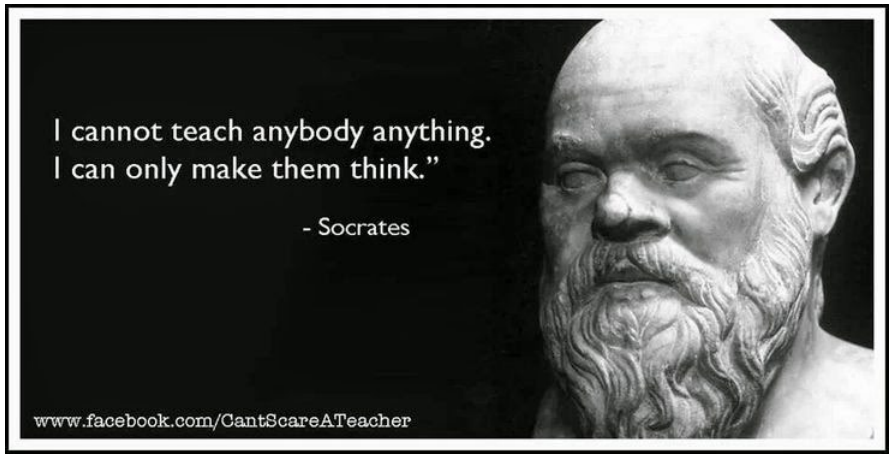
- Ask students to apply and synthesize multiple pieces of information to answer

Siering, 2020

Socratic Questions

- Clarification
- Assumption
- Reason & evidence
- Origin & source
- Implications & consequence
- Viewpoint

University of Newcastle, n.d.



Conceptual Examples

- Describe (what is) the next step in this process…
- Define (which of the following defines) X within context Y…
- Explain this situation through the lens of theory Z…
- What would have happened if…?
- Identify/explain/fix the error in a computation

Siering, 2020

Mini Case Study

- Provide mini case & ask questions related to it
  - Based on the case above, which of the following is the most likely cause of the patient's pain?
  - Based on the above patient's needs, which of the following is the preferred course of action?

Siering, 2020; University of Newscastle, n.d.

Outcome Prediction

- Describe an interaction, and ask students to predict the outcome
  - What would happen if we prescribe X?

Siering, 2020

Identify a Concept/Principle

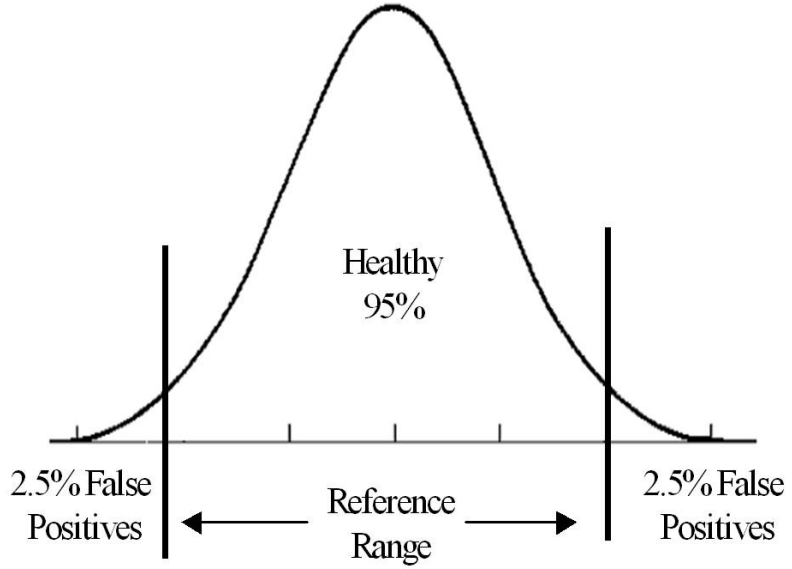
- Which of the following is an example of a Z?
- Which of the following best exemplifies the principle of X?

Siering, 2020

Interpretation

- Provide a chart or laboratory results for students to interpret.
- Ask “what if” questions

Siering, 2020



Other Tips

- Have students show their work by uploading a scan
- Use multilevel thinking by including phrases like “most appropriate” or “most important”

Siering, 2020

Other Tips

If using problems from a textbook publisher, change names, numbers, and the scenario

Siering, 2020

Helping Students Succeed

How can we help students succeed on open-book exams?

Preparation: Strategies that Work

- Focus on pertinent information, reinforce with examples
- Encourage learner involvement throughout the learning process with activities and engagement
- Allow and promote verbalization, encouraging a safe learning environment.
- Handouts, practice tests, etc. including examples and key topics

Mitchell, 2004

It Begins with the Instructor

- Set your expectations to higher-level skills
  - Conceptualization
  - Problem solving
  - Reasoning

Green et al., 2016

Setting the Stage for Success

- Time management (24 hrs?)
- Clear, unambiguous questions
- Design with learning outcomes in mind
- Match exam questions with the kind of information emphasized in class

Arthur, 2018; Siering, 2020; Green et al., 2016; University of Newcastle, n.d.

Setting the Stage for Success

- Lay ground rules
- All students have all resources and materials needed
- Encourage learners to study and not rely on a book or notes
- What will be rewarded with partial credit?

Block, 2012; Gupta, 2007

Key Points

- Consider role of resources
- Similar to MCQs based on higher levels of Bloom's Taxonomy
- Focus on the conceptual
- Help students prepare for success

Resources

- Arthur, L. (2018). How to design a good open book exam. University of Technology, Sydney. Retrieved from https://lx.uts.edu.au/blog/2018/02/13/design-open-book-exam/
- Block, R. M. (2012). A discussion of the effect of open-book and closed-book exams on student achievement in an introductory statistics course. *PRIMUS*, *22*, 228–238.
- Dhall, M. (2016). Fear not the open book. IndianLink. Retrieved from http://www.indianlink.com.au/fear-not-the-open-book/
- Gupta, M. S. (2007). Open-book examinations for assessing higher cognitive abilities. IEEE Microwave Magazine. doi:10.1109/MMM.2007.906034
- Heijne-Penninga, M., Kuks, J. B. M., Adriaan Hofman, W. H., & Cohen-Schotanus, J. (2008a). Influence of open- and closed-book tests on medical students' learning approaches. *Medical Education*, 42, 967–974.

Resources

- Heijne-Penninga, M., Kuks, J. B. M., Schonrock-Adema, J., Snijders, T. A. B., & Cohen-Schotanus, J. (2008b). Open-book tests to complement assessment-programmes: Analysis of open and closed-book tests. *Advanced in Health Sciences Education*, 13, 263–273.
- Mitchell, G. (2004). Adult learning and high stakes testing: Strategies for success. *Adult Learning*, *15*(3-4),16-18. DOI:10.1177/10451595040150030 4
- Mohanan, K. P. (n.d.). Open book examinations. Indian Institute of Science Education and Research Pune. Retrieved from http://www.iiserpune.ac.in/%7Emohanan/educ/openbook.pdf
- Neilsen, P. L., Bean, N. W., Larsen, R. A. (2018). The impact of a flipped classroom model of learning on a large undergraduate statistics class. *Statistics Education Research Journal*, *17*(1), 121-140.

Resources

- Siering, G. (2020). Tips for creating open book exams. Indiana University. Retrieved from https://blogs.iu.edu/citl/2020/03/27/open-book-exams/
- The University of Newcastle Center for Teaching and Learning. (n.d.). A guide for academics – Open book exams. Retrieved from www.Newcastle.edu.au/ctl
- Williams, J. B. (2004). Creating authentic assessments: A method for the authoring of open book open web examinations. In R. Atkinson, C. McBeath, D. Jonas-Dwyer, & R. Phillips (Eds.), *Beyond the comfort zone: Proceedings of the 21st ASCILITE Conference* (pp. 934–937). Perth, 5–8 December. http://www.ascilite.org.au/conferences/perth04/procs/Williams.html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Questions?