

An aerial photograph of a university campus with several buildings, a swimming pool, and tennis courts. In the background, there are large mountains under a clear sky. The text is overlaid on this image.

3 Ways to Maximize Your **Multiple Choice Assessments**

1. Write clear questions
2. Incorporate higher level thinking
3. Reduce cheating & guessing

Compiled by Megan Bates, Instructional Designer I

1. Write clear questions

Anatomy of a Question

Question 1 1 pts

Moana's father wants her to avoid the water, stay on her island, and lead the people. Moana, a teenager, isn't sure who she is, what she wants, or who she believes. Moana is heavily influenced by her role model, Maui, and her peers. Which stage of Erikson's stage of psychosocial development is Moana in?

Identity vs. Confusion

Trust vs. Mistrust

Integrity vs. Despair

The question, scenario, or problem is called the **stem**.

The possible answers are called **alternatives**.

Alternatives include the **best or correct answer** and **distractors**.

Studies have found there is **no difference in test reliability** between tests with 3, 4, or 5 alternatives. Students can answer questions with 3 alternatives five seconds faster. **Provide 3 total choices per question**, including the correct answer, so you can cover more content in the same amount of time (Xu, Kauer & Tupy, 2016).

1. Write clear questions

Keep Them Clear

- Write your stem as a direct question rather than an incomplete sentence (Dubins, Poon & Raman-Wilms, 2016)

✓ Aim For: Who wrote *To Kill a Mocking Bird*?

✗ Avoid: *To Kill a Mocking Bird* was written by _____.

- Avoid negatives which are less valid & reliable for all students. They are especially challenging for students learning English. One study found negatively worded questions can cause test scores to vary by as much as 40% (Chiavaroli, 2017).


✓ Aim For: Which was a key event that led to the Hundred Years War?


✗ Avoid:
All of the following are key events *except*?
Which is *not* a key event?
Which is *not correct*?

2. Incorporate Higher Level Thinking

Going Beyond Recall


- Avoid questions that ask for a concept's definition. Instead, write items stems that describe a situation, case study, or example. Require the student to identify the rule or concept. This type of question assesses comprehension, rather than just recall (Scully, 2017).

 Avoid: What is identity foreclosure?
A. Commitment without exploration*
B. Exploration without commitment
C. Neither commitment nor exploration

 Aim For: Instead of exploring majors, Jane decides to study accounting because that's what her parents do. Jane is in which status of identity development?
A. Identity achievement
B. Identity foreclosure *
C. Identity moratorium

- Craft 'multiple-fact' questions which require students to combine or apply more than one fact to get the correct answer (Scully, 2017).

 Avoid:
1-Fact: What is the name of this bone?

 Aim For:
2-Facts: What does this bone do?
3 Facts: How does the function of this bone differ from the femur?

2. Incorporate Higher Level Thinking

Quizzing to Learn

- Provide feedback either immediately or after a brief delay. Both have been shown to promote learning. However, avoid waiting too long which cause students to be less motivated to fix their mistakes (Butler, 2018; Mullet et al., 2014).



Ideas:

- Give students half credit for correcting missed questions
 - Use the Canvas feedback feature in quizzes
 - Use data from the assessment to post videos after the quiz addressing commonly missed questions.
- Quizzes not only assess learning, but also can motivate students *to learn*. Be aware that untimed open note/open book quizzes can de-incentivize students from actually learning the material as they assume they can look up the answers. Negate this effect by including a time limit for any open note assessments (Whisenhunt et al., 2022).



Idea:

- In the quiz description, state the time limit and that it will not be enough time to look up all the answers. Clarify your expectation that students engage with the material enough to remember main concepts.

3. Reduce Cheating & Guessing

Minimize Cheating

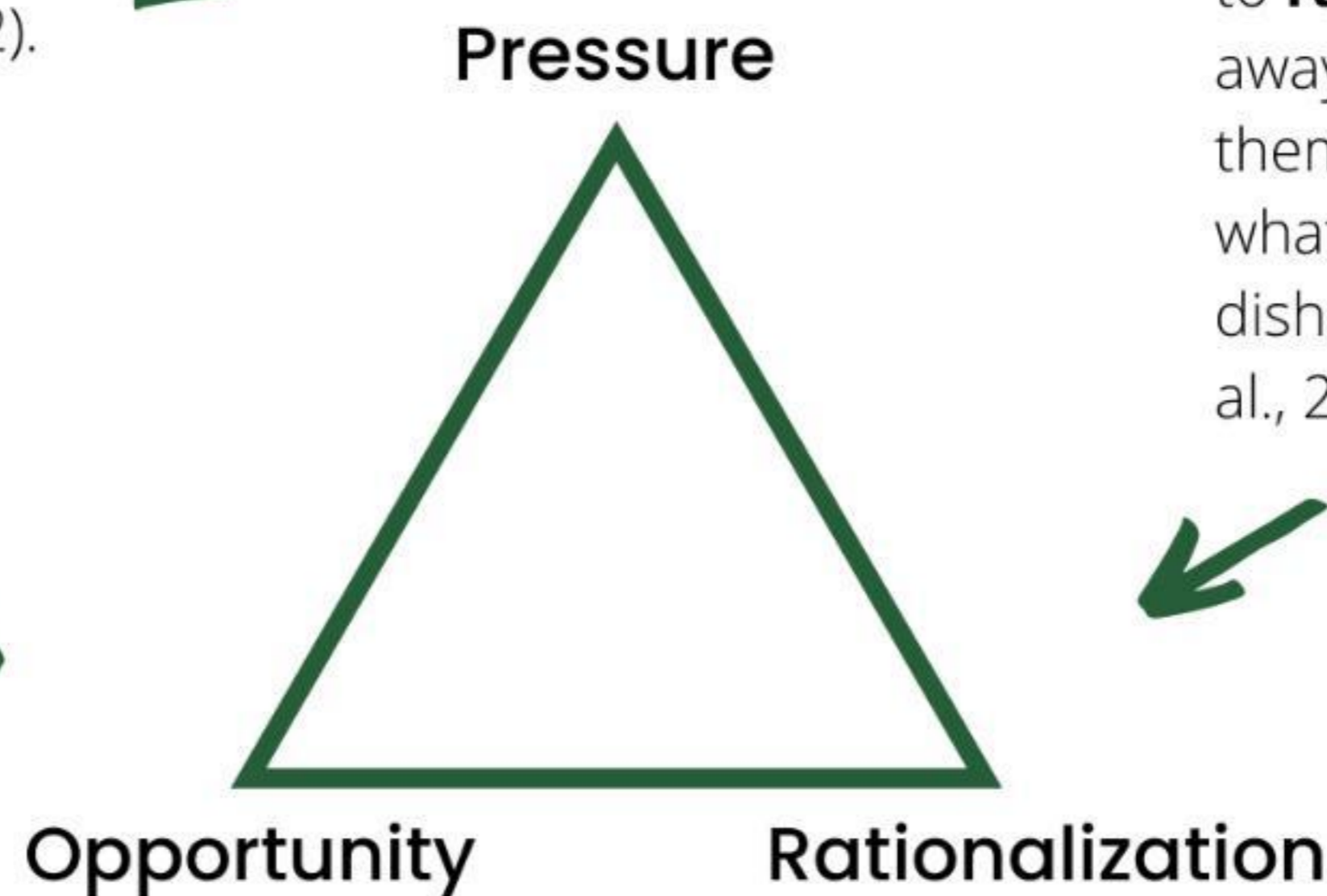
Reduce the **pressure** students feel to cheat by using frequent low-stakes assessments when possible (Whisenhunt et al., 2022).



Reduce the **opportunities** students have to cheat by making your test proctored when appropriate (Whisenhunt et al., 2022). Draw from a large question bank, randomize the order, and change the questions between semesters as students may post past quiz questions online (Xu et al., 2016).



Reduce the student's ability to **rationalize** cheating away by explicitly reminding them of the honor code & what is considered academic dishonesty (Whisenhunt et al., 2022).




Consider drafting your own formal honor code with specific consequences which has shown to be more effective than informal, short ones (Gurung et al., 2012).

The Fraud Triangle


3. Reduce Cheating & Guessing

Reduce Guessing

- Avoid complex alternatives & absolutes which enable students to use the process of elimination to guess correctly based on partial knowledge (Butler, 2018; Haladyna et al., 2002).

 Avoid Alternatives Like:

None of the Above
All of the Above
Both A and B

 Avoid Words Like:

Always
Never
Completely

- Use plausible distractors related to common misconceptions & errors. Studies have shown that plausible distractors reduce guessing and increase student learning (Gierl et al., 2017). Ensure alternatives share similar structure & content with the correct answer (Haladyna et al., 2002).

 Avoid: What is $2 + 3 \times 6 - 2$?

A. 18
B. twenty
C. 300

 Aim For: What is $2 + 3 \times 6 - 2$?

A. 18
B. 20
C. 28

Answers are listed numerically, in the same format, and based on common procedural errors.

References

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Read through [Haladyna's Table 1](#) for a more complete literature review of how to write multiple choice assessments.