

DESIGNING MULTIPLE CHOICE QUESTIONS

Testing Reading Comprehension

- You can test reading comprehension through seen text and unseen text
- One can use a variety of questions for testing reading comprehension
- Long answer questions, short answer questions
- True/false, yes/no questions, fill in the blanks
- Complete the sentence questions
- **Multiple choice questions**

Strengths And Weaknesses Of MCQs

- **Objective marking**
- **Low writing demand on student**
- **Easy to mark**
- **Easy to analyse results**

- **Hard to write good items**
- **More reading demand on student**
- **Not suitable to test writing skills**
- **25% guessing**

WHAT ARE THE ADVANTAGES OF USING MCQS

Multiple choice test items :Potential Advantages:

- ❖ **Versatility:** MCQs can be written to assess various **levels of learning** outcomes, from basic recall to application, analysis, and evaluation.
- ❖ **Reliability:** is the degree to which a test consistently measures a learning outcome. MCQs-- less susceptible to guessing than true/false questions--- **are a more reliable means of assessment.**
 - **reliability --- enhanced** when the number of MC items focused on a single learning objective is increased.
 - **objective scoring** associated with multiple choice test items frees them from problems with scorer inconsistency that can plague scoring of essay questions.

Advantages--Continued

- **Validity:** is the degree to which a test measures the learning outcomes it purports to measure.
- Since students can typically answer a multiple choice item much more quickly than an essay question, tests based on MCQs can typically **focus on a relatively broad representation of course material, thus increasing the validity of the assessment.**

MCQs

- while evaluating MCQs, One doesn't penalise students for faulty expression
- They only read and exhibit their comprehension ability and not their writing ability
- There are obvious limits on what can be tested with multiple choice items
- They are not an effective way to test students' ability to organize thoughts or articulate explanations or creative ideas.

Designing Multiple Choice Questions

A multiple-choice question (MCQ) is composed of two parts:

- A stem that identifies the question or problem**
- A set of four alternatives or possible answers that contain a key that is the best answer to the question.**
- The alternatives have three distractors that are plausible but incorrect answers to the question**
- Students respond to MCQs by indicating the alternative that they believe best answers or completes the stem.**

STRUCTURE OF AN MCQ

- ☐ **Stem – poses a problem or sets the task. It may be in question form or an incomplete statement form**
- ☐ **Alternatives– 4 in number given as answers. Out of these only one is correct and is called the Key. The rest are DISTRACTORS. The student has to select the correct answer.**

EXAMPLE

❑ I watched an interesting on TV last night.
stem

options	{	A	article	{	distractors
		B	guide		
		C	news		
		D	programme		

key

Strategies

The suggestions for designing MCQs are organized into three sections:

- 1) General Strategies,**
- 2) Designing Stems**
- 3) Designing Alternatives.**

General Strategies

- . Design questions throughout the year. MCQs are challenging and time-consuming to create. Draft a few questions each week. (on articles from newspapers/journals etc)
- . Instruct students to select the “best answer” rather than the “correct answer”. The distractors may have an element of truth to them. Discourage arguments from students who may argue that their answer is correct as well.
- Use familiar language, simple sentence structure and precise wording -- use the same terminology that was used while transacting the curriculum Students are likely to dismiss distractors with unfamiliar terms as incorrect. Try to be as accurate as possible in your word choices.

General Strategies

- **Test comprehension and critical thinking, not just recall--**
Multiple choice questions are criticized for testing the superficial recall of knowledge. You can go beyond this by asking learners to interpret facts, evaluate situations, explain cause and effect, make inferences, and predict results
- **Avoid giving verbal association clues from the stem in the key. If the key uses words that are very similar to words found in the stem, students are more likely to pick it as the correct answer.**

General Strategies

- **Avoid trick questions.** Questions should be designed so that students who know the material can find the correct answer. Questions designed to lead students to an incorrect answer, through misleading phrasing, violate this principle. Never use questions or answer options that could trick a learner.
- **Avoid negative wording.** Students often fail to observe negative wording and it can confuse them. As a result, students who are familiar with the material often make mistakes on negatively worded questions. Avoid having any negatives in the stem or the options.

Designing Stems-Strategies

- The stem should be meaningful by itself --should be a question or a partial sentence. The cognitive load is increased when the stem is constructed with an initial or interior blank, so this construction should be avoided.
- should present a definite problem----doing so allows a focus on the learning outcome.
- When creating the item, ask yourself if the students would be able to answer the question without looking at the options. This makes the purpose of the question clear.
- Put all relevant material in the stem. Do not repeat in each of the alternatives information that can be included in the stem.
- Eliminate excessive wording and irrelevant information from the stem as it confuses students and leads them to waste time

SPECIFIC CRITERIA RELATED TO STEM

GENERAL CRITERIA

Each item should

- ☐ measure a significant concept
- ☐ be of an appropriate difficulty level
- ☐ fairly discriminate amongst high and low ability students

The Stem Should Present A Definite Problem. It Should Be Meaningful Without The Alternatives.

Poor:

- ☐ **Nigel's mother**
 - A. didn't like him to read books at all.**
 - B. liked him to read what she chose.**
 - C. let him read any books he liked.**
 - D. always liked the books he chose for himself.**

Better:

- ☐ **What did Nigel's mother do about the books to be read by him?**
 - A. Told him what to read.**
 - B. Did not let him read at all.**
 - C. Let him read what he liked.**
 - D. Did not care what he read.**

Common Elements at One Place To Minimize Reading Load

Poor:

- ❑ A 'pioneer' is
 - A. one who carries a message.
 - B. one who is mindful of his duties.
 - C. one who fights for his country.
 - D. one who starts something new.

Better:

- ❑ A 'pioneer' is one who
 - A. carries a message.
 - B. is mindful of his duties.
 - C. fights for his country.
 - D. starts something new.

NO VERBAL CLUES IN THE STEM

- ☐ A person who travels in a space ship is called an _____
 - A. pilot
 - B. astronaut
 - C. navigator
 - D. mariner
-
- The item may be re-worded by putting the article with the alternatives.

Designing Alternatives

- Limit the number of alternatives. Use between three and four alternatives per question.
- Make the distractors appealing . If farfetched, students will too easily locate the correct answer, even if they have little knowledge.
- When testing for recognition of key terms and ideas keep the distractors similar in length and type of language as the correct solution.
- When testing conceptual understanding, distractors should represent common mistakes made by students. Avoid throwing in those give-away distractors as it detracts from the test's validity.
- Make the choices grammatically consistent with the stem.

Designing Alternatives

- Randomly distribute the correct response. The exam should have roughly the same number of correct answers that are a's, b's, c's, and d's (assuming there are four choices per question).
- Alternatives should be free from clues about which response is correct.--- Sophisticated test-takers are alert to inadvertent clues to the correct answer, such as differences in grammar, length, formatting, and language choice in the alternatives. Alternatives should :
 - have grammar consistent with the stem.
 - be parallel in form.
 - be similar in length.
 - use similar language

Designing Alternatives

- **Avoid using “all of the above”.** If “all of the above” is an option and students know two of the options are correct, the answer must be “all of the above”. Partial knowledge can help them arrive at the answer.
- **Avoid using “none of the above”.** The option “none of the above” does not test whether the student knows the correct answer, but only that he/she knows the distractors aren’t correct. Test-takers who can eliminate a single option can thereby eliminate a second option. Partial knowledge can help them arrive at the answer.
- **Refrain from using words such as always, never, all, or none.** Most students know that few things are universally true or false, so distractors with these words in them can often be easily dismissed.
- **Avoid overlapping choices.** Make the alternatives mutually exclusive. It should never be the case that if one of the distractors is true, another distractor must be true as well. .

Criteria Related To Distractors

- ☐ Plausible
- ☐ Homogenous in content and structure
- ☐ Grammatical Consistency
- ☐ Avoid any clues
- ☐ Avoid use Of “None Of The Above” and “All Of The Above”

Grammatically consistent with the stem

☐ During the Monsoon the current in River Tista is very swift but in winter it is_____.

- A. smooth
- B. slow
- C. silent
- D. sleeping

▪ Sleeping may be changed into sleepy.

Make the alternatives similar in content and length

Poor:

- ☐ Deep sorrow is
 - A. plum
 - B. grief felt in the heart
 - C. wits
 - D. Couch

Better:

- ☐ Deep sorrow is
 - A. worry
 - B. grief
 - C. suffering
 - D. shock

**All the alternatives should be plausible, attractive
enough to appear correct**

- ☐ Egyptians made pyramids to_____
- A. show their skill in architecture.
 - B. preserve the bodies of their kings.
 - C. worship the sun god.
 - D. make fun of others.

It can be improved by changing the last alternative to
D. protect the common people.

SPECIFIC CRITERIA RELATED TO THE KEY

- ☐ **Correctness**
- ☐ **Avoid similar wording both in the stem and the key**
- ☐ **Placement of the key**