INTERESTED IN USING AN AUDIENCE RESPONSE SYSTEM?

WANT TO LEARN HOW WRITE EFFECTIVE MCQ'S?

READ ON…

Writing for Audience Response Systems (ARS)

To increase engagement, collect valuable data and to satisfy the Royal College requirement for 25% interactive learning, the CAS is asking speakers at the Annual Meeting to create subject-specific questions that can be answered during sessions by an audience poll. Through ARS, a presenter can quickly poll audience opinions, administer quizzes and conduct debates. These are often MCQs.

Two common ways that these questions are developed are:

1) Standard questions are asked at the beginning of a session and are repeated at the end of the session via a poll. Such a strategy tests (and shows the audience) the participants' knowledge before the session, also allows them to evaluate the knowledge gained from each presentation. This is useful for identifying "unknown" knowledge gaps and for gauging the efficacy of your teaching – and learning.

2) Poll questions can be asked at various times throughout a session, timed to elicit immediate audience response. Doing this allows the speaker to adjust the session content or style, if the poll's answers make it obvious that a certain topic or style of presentation would benefit the audience. The data collected can also inform the participants about the strengths and learning needs of their peers in the audience.

The CAS Annual Meeting generally uses the second option.

In addition to providing you with feedback on whether the "message sent was message received", using an audience response system effectively significantly enhances the learning experience by:

- *Keeping participants' attention during a lecture.*
- *Promoting active engagement from a larger number of participants.*
- *Checking understanding in real-time.*
- *Being able to respond to the immediate learning needs of the audience*.
- *Grow rapport with an audience and allow them to give you anonymous feedback*.

There are effective ways to design ARS questions. When used well, studies have shown that ARS participants retain information better (Horowitz 1998; Gagnon and Thivierge 1997) and

report that they are able to pay better attention during sessions (Freeman et all 2005, Miller et al 2003).

Please keep the following tips in mind:

1) Decide <u>why</u> you want to use an ARS. Is it to evaluate knowledge, understanding of concepts, opinions, poll audience on practice patterns, or something else?
2) Please <u>explain</u> to the audience that you are using ARS, and why.
3) Questions should be brief, easy to understand, and <u>relevant</u>.
4) Questions should not be true/false or have a never/always construction unless you are polling for habits; it is engaging when a presenter uses ARS to illustrate the <u>diversity</u> of the audience's opinion! Once you are aware of them, you can effectively speak to the varied opinions and experiences in the room – this might increase audience discussion, as well!
5) <u>Anticipate</u> the possible responses to your questions, and make sure to address the audience's responses.

TECHNICAL CONSIDERATIONS – CAS ANNUAL MEETING

A technician will assist you at the Annual Meeting and the questions and answers will be projected up on the screen. They are also available in the Annual Meeting app.

Writing Effective Multiple-Choice Questions

This guide is meant as a tool to help you create multiple choice questions (MCQ) that are appropriately challenging and meaningful to the audience.

Multiple choice questions are sometimes criticized for testing the superficial recall of knowledge. Below are hints and examples of MCQ's that go beyond simple recall by asking learners to interpret facts, evaluate situations, explain cause and effect, make inferences, and predict results.

There are many ways to write meaningful MCQs.

Hints on writing the <u>main body of the question</u>:

1) Be clear, direct and be sure of the type and level of audience you are addressing.
2) Use positive language – avoid double negatives and awkward sentences.
3) Knowing what learning outcome or goal you are seeking to reach will help – what outcome do you want to achieve? For example:

a. Are you looking to test a piece of **knowledge**? Focus on one and your question will be clear!
b. Do you want to focus on common areas of **misconception**? Develop a question around these misunderstandings to allow for a "teaching moment". Avoid the temptation to "trick" your learners; relevant questions work best.
c. Do you want to test the **application** of knowledge? You'll need to write a scenario that sets up your question. Remember to include all of the context that the learner will need to answer the question (i.e. patient demographics, location, special considerations, etc.).

Hints of writing the <u>possible answers</u>:

1) Write the correct answer first!
2) Try to anticipate the incorrect answers that might be given. The response options that are incorrect are called *distractors*. These distractors should be plausible and incorrect, but not trickily worded. A hint is to include answers that a weaker learner might consider.
3) Please consider providing feedback along with the correct answer, for example, by giving your learner some references or a bit of an explanation.

EXAMPLES

Polling the audience on ideas or practice patterns:

1) *In my practice, I use EEG monitoring, or processed EEG (BIS or Entropy or equivalent):*

a. never
b. sometimes
c. for selected higher risk patients
d. always or almost always

Examples of simple knowledge recall

1. *Which of the following best characterizes an antiplatelet agent?*
    a. Heparin
    b. Warfarin
    c. Rivaroxaban
    d. Ticagrelor

2. *Sally's outdated medication list included, warfarin, heparin, rivaroxaban, and ticagrelor. What anti-platelet agent has Sally been exposed to?*
    a. Heparin
    b. Warfarin
    c. Rivaroxaban
    d. Ticagrelor

Higher level thinking questions that encourage participants to recall principles, rules or facts within a real context. Place the concept in a life situation or context that requires the learner to first recall the facts and then apply or transfer the application of those facts into a situation.

Memory plus application example:

3. *Which of the following best illustrates the function of a line isolation monitor?*
    a. electricity is isolated from the main power source by line transformers
    b. originally developed to detect leakage currents in the operating room
    c. an electrically conductive catheter filled with saline is safer than a nonconductive catheter
    d. static electricity transmitted from a fingertip to the external end of a right ventricular pacemaker can initiate pre-ventricular contractions

More complicated questions are often better suited to <u>written</u> MCQ:

Ability to justify methods and procedures:

4. *Why is it necessary to utilize train-of-four monitoring during use of non-depolarizing neuromuscular blockade?*

    a. amplitude of the train-of-four ratio >0.7 is indistinguishable to the naked eye
    b. normal tidal volume and airway reflexes return simultaneously at a train-of-four ratio of 0.7
    c. to better distinguish between phase 1 and phase 2 block
    d. the head lift test is not a sensitive clinical test of non-depolarizing neuromuscular function.

Ability to interpret cause-and-effect relationships:

5. *Why is inhalational induction with low-flow anaesthesia difficult?*

    a. excretion of nitrogen will dilute the gases in the system and maximal uptake of the volatile agent during this period makes it difficult to predict dosage and could result in inadequate concentrations
    b. the vapourizer cannot deliver a sufficiently high concentration of anaesthetic gas
    c. as the absorptive ability is related to granule side, as the size decreases, resistance to airflow increases
    d. patients cannot maintain sufficient minute ventilation to enable low flow induction

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