

The use of a personal response system in the didactic teaching of clinical dentistry

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The learning objective of presentation:

1. Recognize the drawbacks of lectures and the potential for improving clinical teaching using a audience response system
2. Become acquainted with the "i>clicker" system
3.

The Origins of the Conventional Lecture (Middle Ages)

1. The professor reads the book to the listeners
2. A few days later the professor again reads the book to the listeners, perhaps adding some commentary
3. A few days after that the professor gives the book its “third reading” with added commentary

What if anything has changed since the Middle Ages?

The listeners have the book too!



Problems with Conventional Lectures

Educational research in have shown:

- People, including students, have a 10 – 15 minute concentration span.
- Most students don't learn very effectively when they are expected to passively absorb the “received truth” from the lecturer.
- All students learn more effectively when they are actively engaged with the material.
- Most students learn more effectively in a social environment.

More Problems With Conventional Lectures

- Almost all of the communication is in one direction: from the front of the room to the listeners.
- When somebody in the audience asks a question:
 - How many listeners have the same question?

Getting Answers to In-lecture session Questions

https://portal.utoronto.ca/bbcswebdav/institution/Dentistry/Prosthodontics/DEN477/Slides/SDA%20Nov%209%2006%20lecture.pdf - Microsoft Internet Explorer p

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Address <https://portal.utoronto.ca/bbcswebdav/institution/Dentistry/Prosthodontics/DEN477/Slides/SDA%20Nov%209%2006%20lecture.pdf> Go

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Pages

Attachments

Comments

Oral function is always improved by the insertion of a free-end RPD

A. True
B. False

TDao

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Getting Answers to In-lecture session Questions

➤ Show of hands

- Slow: “How many vote A?” then “How many vote B?” etc.
- Not anonymous to other listeners; anonymous to you.

➤ Flash cards

- Faster.
- Not anonymous to other listeners; anonymous to you.

➤ Personal response system

- Fastest.
- Anonymous to other listeners.
- Optionally, not anonymous to you.

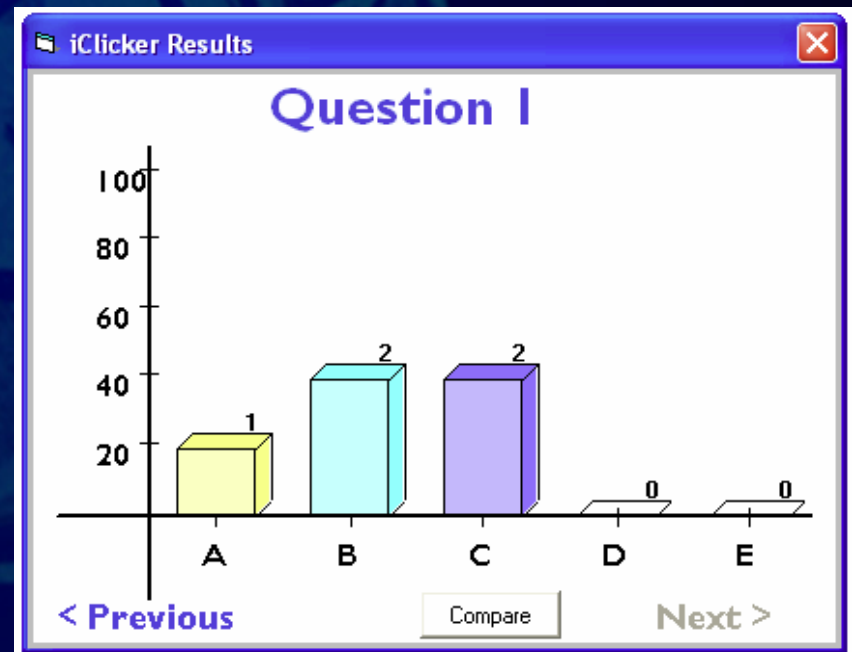
In-lecture session questions

- You ask the listeners a multiple-choice or true-false question.
- All listeners “vote” on the answer.
- You show the lecture session the percentage of listeners who chose each of the possible answers.
- Recall that listeners have a ~10-minute concentration span. If nothing else, such questions can break the lecture session into 10-minute “chunks”.

After The Voting - Display

The lecturer clicks on “DISPLAY” on own computer

A histogram of the votes appears on screen:



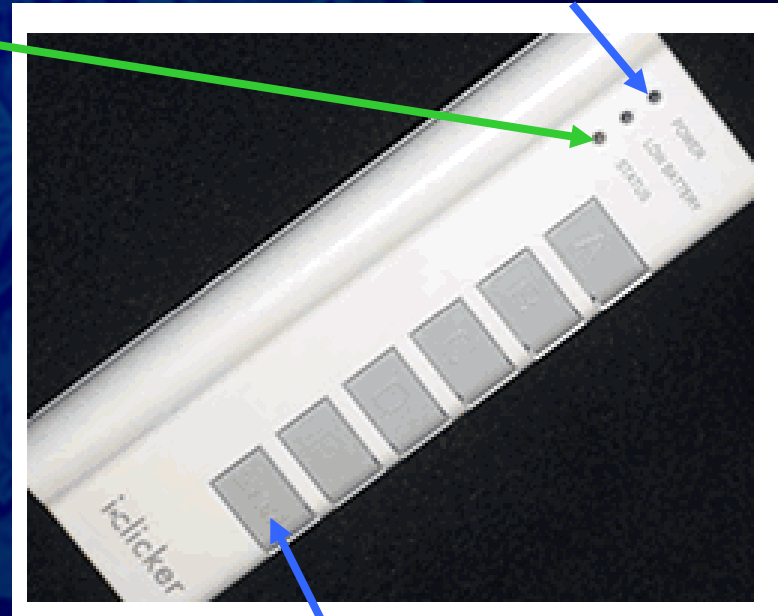
Technology

Status Light

When we start asking you questions:

- Will flash green when your response is registered
- Will flash red if your response is not registered

Power Light



On/Off Switch

**The
“i>clicker”**

Technology - Hardware

The “base unit”:

- Reads the clickers
- Plugs into a USB port on the computer
 - If a laptop, you will probably want to use the AC power to the laptop
- Plug the supplied Flash drive into the back of the base unit



Top

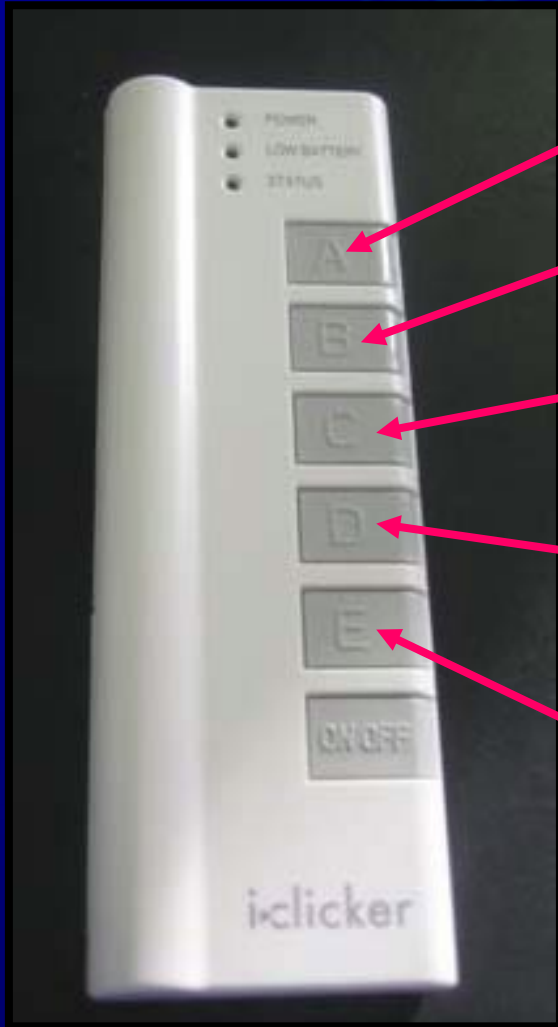


Back

Plug the Flash drive in here

**The
“i>clicker”**

Using the Instructor Remote



A: Start/Stop polling

B: Show/Hide graph

C: Advance

PowerPoint slide

D: Back-up

PowerPoint slide

E: Cycle through

“correct” answer on
the graph

The background of the slide features a large, semi-transparent seal of the University of Toronto Faculty of Dentistry. The seal is circular and contains a central shield with an open book and a quill. Above the shield is a crest with a figure holding a staff. The Latin motto "INTEGRA SANITAS" is inscribed across the shield. The outer ring of the seal contains the text "UNIVERSITY OF TORONTO" at the top and "FACULTY OF DENTISTRY" at the bottom.

Examples from lectures in prosthodontics



Healthy 84 yr old with controlled diabetes

Advanced root caries

4.4 'thru & thru'

What to do?

- a. Remove root & make 4.4 pontic
- b. Remove bridge, 4.4 P&C, and remake
- c. Restore with composite
- d. Restore with amalgam

Dr Fenton

Epidemiology In Tanzania (2003)

Kanno & Carlsson, J Oral Rehab, 2006

Where is Tanzania?

1. Europe
2. Asia
3. America
4. Antartica
5. Africa

Dr Dao
TDao

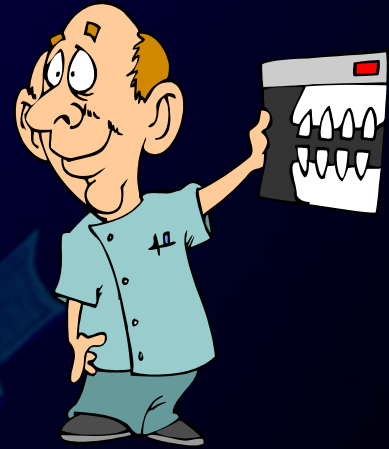
- If you or your loved one had a missing posterior tooth, with adjacent teeth restored with fillings, what would be your #1 choice in replacing that tooth?

1. No treatment
2. RPD
3. Bonded bridge
4. FPD
5. Implant



Dr Avivi

How should we proceed when discussing prosthodontic treatment options with our patients?



Prosthodontic treatment planning

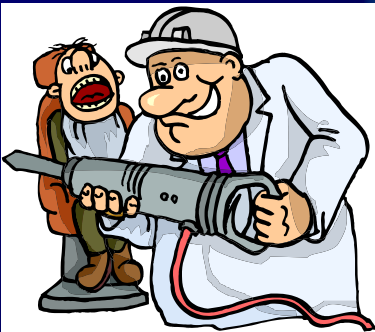
What comes first?

- A. Identify major treatment needs
- B. Remove pathology
- C. Clarify patient financing
- D. Discuss prognoses
- E. Explain the possible treatment alternatives



Dr Jokstad

**Choice of
technical
solution?**





Choice of technical solution ?





Choice of technical solution ?

- A. Conservative only, no prosth
- B. Cast partial denture
- C. Crowns and partial denture
- D. Fixed bridge
- E. implant retained prosthesis





Personal response system : Types of questions during presentation

1. Questions about the listeners in the lecture session.
2. Questions about ethical issues.
3. Predicting the results of a demonstration.
4. Questions about the content of the lecture session.
5. Partition the lecture audience into smaller groups
6. Verifying the level of understanding
7. Questions about specific reading assignments
8. Voting on current or future lecture contents

Re 3. Demonstrations

- Listeners love demonstrations.
- Research indicates that listeners don't actually learn that much if they are just shown the demonstration.
- The same research indicates that having the listeners vote to predict the result *before* doing the demonstration increases their learning.

Re. 4 lecture content

Conceptual questions are usually more effective than ones requiring knowledge of a fact or doing a calculation.

- Almost the entire lecture session gets the question correct.
 - Congratulate them, urge listeners who missed the question to see you after lecture session, and go on.

Re. 4 lecture content

Conceptual questions are usually more effective than ones requiring knowledge of a fact or doing a calculation.

- Almost the entire lecture session gets the question correct: Congratulate them, urge listeners who missed the question to see you after lecture session, and go on.
- Almost the entire lecture session gets the question wrong.
 - Further discussion and review is necessary.
 - “Just In Time Teaching” (JITT)
- About half the lecture session gets the question correct
 - This is often the perfect result.
 - Peer Instruction leads to huge engagement by the listeners..

About Peer Instruction

- For maximum effectiveness, listeners should have read the relevant textbook sections *before* the lecture session.
- A Pre-lecture session Quiz can insure that listeners have done this.
 - Typically, these quizzes are very easy if the listeners have actually read the required textbook.
- If asked how confident listeners are in their answer, it too usually goes up dramatically after Peer Instruction.

Some other options

- Typically each listener has their own clicker.
- As an alternative clickers can be shared by 2, 3 or even 4 listeners.
 - The listeners must discuss the answer amongst themselves before voting.
- Alternatively, the listeners can discuss the answer after voting, regardless of the percentage of listeners who got the question correct.

Some Other Options

- Alt. 1 The listener responses are anonymous to you.
- Alt 2. You know which listener has which clicker.
 - Assign a small mark for participation.
 - Assign a small mark for correct answers.
 - Assign a small mark for participation and a small mark for correct answers.

Which of these is most effective rely on individual teaching style and student's enthusiasm

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Which of these is most effective rely on individual teaching style and student's enthusiasm

“Worst Practices” is to use clickers to generate more than a trivial mark in the course.



The learning objective was met regarding:

1. Recognize the drawbacks of lectures and the potential for improving clinical teaching using a audience response system
 - A. Strongly Agree
 - B. Agree
 - C. N/A
 - D. Disagree
 - E. Strongly Disagree

The learning objective was met
regarding:

1. Become acquainted with the i-clicker
 - A. Strongly Agree
 - B. Agree
 - C. N/A
 - D. Disagree
 - E. Strongly Disagree