Improving presentation effectiveness

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Abstract: Presentations using PowerPoint or similar software are probably the most commonly used format that doctors use for teaching in medical school, during residency, at medical meetings and other continuous medical education (CME) activities. However, their effectiveness has been questioned by many. This article intends to provide, in a synthetized way, several recommendations that can help make presentation more effective.

Keywords: Presentations; adult learning; multimedia principles; performance

Introduction

Presentations using PowerPoint or similar software are probably the most commonly used format that doctors use for teaching in medical school, during residency, at medical meetings and other continuous medical education (CME) activities (1).

The main advantage of lectures is that they allow to transmit, in a relatively short time, a large amount of information to a large number of learners. Unfortunately, teaching does not necessarily derive in learning. Teaching through lectures is a process conducted by a teacher, intended generally to transfer or facilitate the acquisition of knowledge, skills or values by the learner. Learning is a process by which learners incorporate, analyze, store, retrieve and apply knowledge, skills or values, to solve real world problems.

Usually, teachers tend to focus mostly on the transference phase, but if lectures are not planned with additions to improve the processing phase, their effectiveness can be very low.

Improving learning

There are several ways in which we can improve learning. I will mention several that may be combined, depending on the context in which we are lecturing.

All of them are aimed to attain 2 main objectives: (I) to facilitate attaining the higher learning objectives of Bloom's taxonomy; (II) to reduce the forgetting curve.

Bloom classified learning objectives from low to high according to the level of competence that a learner should have reached to achieve them (2). These objectives are, from low to high: memorizing content, understanding its meaning, applying it to the real word, analyzing, assessing, and creating. Lower objectives are easier to attain than higher ones (3).

Traditional lectures usually only allow to achieve the objectives of understanding and memorizing (the lower learning objectives).

Also, anything we learn during a presentation tends to be forgotten with time. For this not to happen we need to apply it or review it frequently.

Following is a list of actions that we can take to improve presentation effectiveness. All of them intend to attain one or both of the objectives mentioned above:

(I) Apply adult learning principles;
(II) Apply multimedia principles;
(III) Add interactivity to lectures;
(IV) Provide performance support documents.

Applying adult learning principles

It is important to understand that adults learn differently

than children, they have different needs and require specific teaching strategies to help them develop new skills, values and attitudes (4).

Unlike children in a classroom, who are there because they have to, adults learn because it helps them to achieve a specific goal. As Knowles explains (5) when describing Andragogy as opposed to Pedagogy adults are more inclined to learn something when this will help them to solve problems they find in their daily activities. This means that it is not enough to simply describe what it is that you will be teaching: you must translate the material into tangible and meaningful learning objectives. These have to be developed with the learner's needs as central, not from the teacher's perspective only.

Andragogy also states that adults will be ready to learn when their life situation creates a need to know something. This assumption implies that we have to consider the timing of the learning experiences and make them coincide with the developmental stage learners are in. We will not offer the same learning experiences to medical students, or to residents in different years, because their lives' situations and consequently their learning needs are different. Thus, the more that learning relates directly to relevant work experiences, the more effective it will be for the adult learner.

When learners are not able to see how what they are trying to learn relates to their work or goals, it can be difficult to keep them going.

Finally, the andragogical model proposes that adults need to understand why they need to incorporate new knowledge before taking the time to learn it. They need to know how learning will be conducted, what learning will occur, and why learning is important. Hence, one of our first tasks as teachers will be to help them find out what they need to know, what is missing or needs to be improved.

We should discuss the goals and objectives of what they are about to learn with them, and help them see how this will be of benefit for them in the future.

Applying multimedia principles

Lectures have two distinct components:
- ❖ The content, or the piece of knowledge that we plan to teach to our students;
- ❖ The media elements: text, images, and audio used to present the content and methods of instruction.

Visuals and narration of a lecture enter our working memory and then go into our long-term memory through two different pathways: the visual and the auditory systems. After this, they are stored in the long-term working memory. If correctly encoded with previous knowledge, they then become available for retrieval and application (6).

Below we describe some recommendations by Moreno and Meyer (4) on how to use these components.

Recommendation #1

If possible, it is better to use images instead of bulleted lists, as you can see in *Figure 1*: how easier to understand is the picture on the right, with the words and arrows showing the parts of the ophthalmoscope, compared to the list on the left, that only enumerates the components.

Recommendation #2

Place graphics and words as close as possible (as shown in *Figure 2*) and not under them with reference numbers (many publications do it like this).

Recommendation #3

If you are presenting an image on a slide that needs an explanation, do not put the explanation as text in the slide. Just narrate the explanation. Consider that if you add text to the slide, learners will probably be tempted to read ahead of your speech, and will not pay attention to your narration, that can always be richer.

Recommendation #4

To make presentations more interesting, some people use what is also called the "Las Vegas approach" (*Figure 3*), adding "dramatic" images, animations or sounds. Avoid using this approach, since they act as distractors.
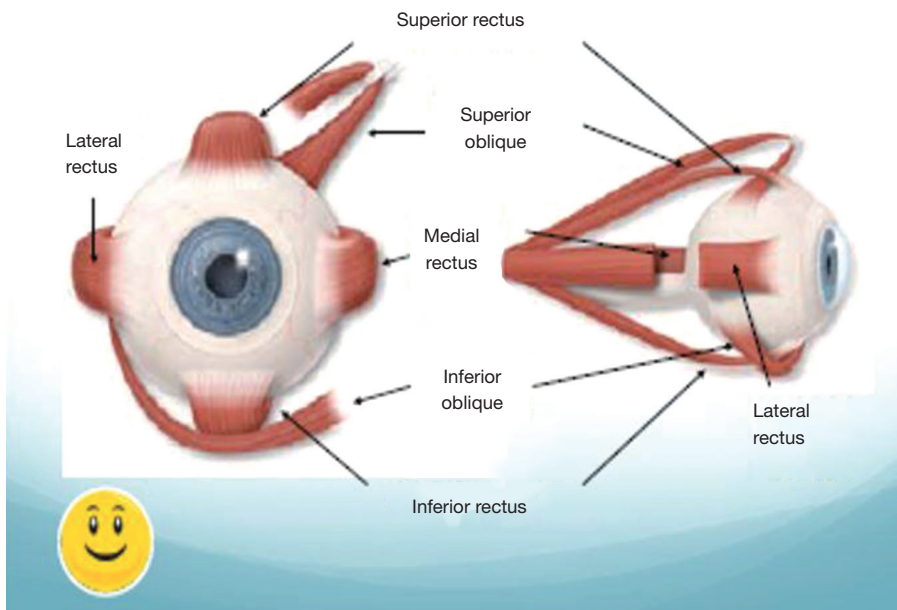
Adding interactivity to lectures

Generating interactivity is another way in which we can improve lecture effectiveness, as recommended by Graham Gibbs (7).

Why is interactivity important? It allows learners to evoke previous knowledge, and teachers to determine learners' knowledge and to adjust their presentations accordingly. Also, when students receive feedback to their answers, they will be able to identify false assumptions. Finally, they will be able to connect new with previous knowledge. This is one of the mechanisms that allows storing of content in long-term memory and later retrieval and application (6).

There are many ways to add interactivity and this must

- Direct ophthalmoscope-parts:
  a) Brow rest
  b) Front surface mirror
  c) Crossed linear polarizing/red-free filter switch
  d) Viewer
  e) Lens selection disc
  f) Lens indicator
  g) Rheostat control

Figure 1 Use images instead of bulleted lists.


Figure 2 Place graphics and words as close as possible.

adapt to the learning context. One way that is often used is through questions that teachers ask, and students respond. When teaching large audiences, this strategy only allows interactivity with a very small portion of the audience.

When working with students in small groups, interactivity can be maintained, but once an open-ended question is formulated and one student answers, it is impossible to know if the rest of the group had the same answer in mind.

Both of these problems can be remediated using electronic answering systems. There are many examples in the market, a very useful one "Socrative", which needs no special hardware since it uses learners' cell phones for responses. Socrative not only allows to build multiple choice but also open-ended questions.

The "Las vegas approach"
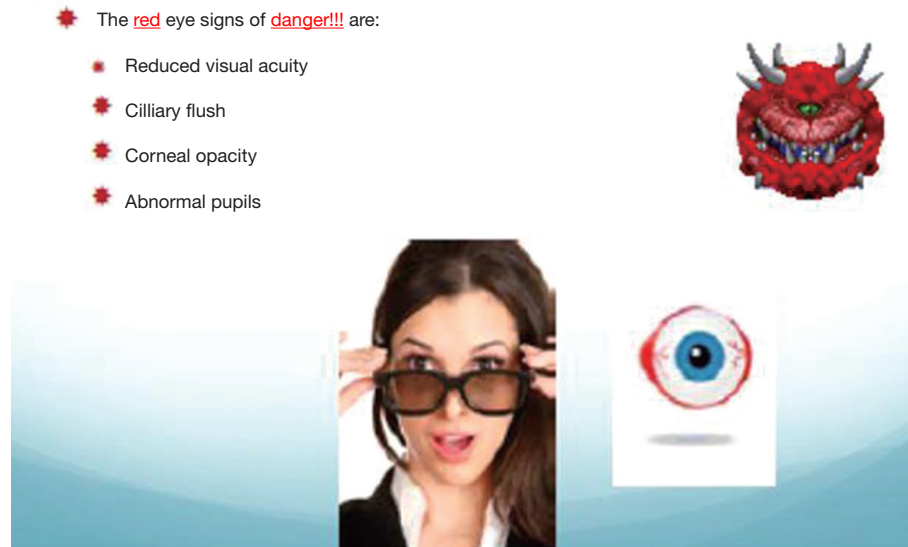
Figure 3 Avoid the "Las Vegas approach".

Providing performance support documents

Usually after any teaching intervention the knowledge and skills of participants start to increase during the training phase. But also, when they go back to work and must transfer what they learned, most of the learned content starts to be forgotten, especially when not put into practice every day. This is what is known as the "forgetting curve".

This is when performance support documents come into play. They are learning aids meant to help learners with on-the-job support at the precise moment of their need. There are many formats they can adopt such as handouts of presentations, mind maps, tables, charts, decision-making flowcharts; they can be provided in paper or digital format to be looked up in a computer, tablet or phone.

When this kind of documents is provided to learners, they avoid having to rely on their memory to bring back data that will fade over time.

Summarizing, there are many ways to improve presentations' effectiveness. Preparing lectures using adult learning principles and multimedia principles as well as adding interactivity and providing performance support documents will greatly impact the understanding, memorization, recalling and application to real life by learners of what was transmitted during the presentation.

patients.

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