Contents lists available at ScienceDirect

Currents in Pharmacy Teaching and Learning

Commentary

Making a lecture memorable

Paul McEnhill

Cardiff University School of Medicine, Centre for Medical Education, College of Biomedical and Life Sciences, Cochrane Building, Heath Park, Cardiff CF14 4YU, United Kingdom

ARTICLE INFO

ABSTRACT

Introduction: The key elements of a lecture that promote retention and understanding of material have been extensively described, although both the understanding and use of these principles by lecturers is a significant time and resource investment. Lecturers in healthcare are a broad group of people, many of which have other commitments and may lack prior formal teaching experience.

Perspective: This commentary describes an essential version of the cognitive theories of learning and presents an assimilated and reduced version of these theories in the form of the acronym 'MAKE' (make it memorable, add value, keep audience interest, entertain) to enable the more rapid development of memorable lectures and reduce the time required to improve them.

Implications: There is a fine line between a lecture that engages and inspires the audience and one that is unimaginative and poorly planned. All lecturers should be encouraged to use simple evidence-based methods to improve engagement, retention and student satisfaction. The easy to understand and share nature of the "MAKE" acronym could help achieve these aims.

Introduction

Recently, Pate and Posey[1] described elegantly the challenge of delivering memorable lectures. By employing a set of validated educational psychological principles from Mayer,[2] it is possible to adjust the design of multimedia aids (such as *PowerPoint* slides) to optimize learning. The need to avoid "death by *PowerPoint*" is evident; however, educating teachers (especially those with other professional commitments) in cognitive theories of learning to optimize teaching, would be a challenging and time-consuming endeavour. This unique problem of "parachute teachers" in healthcare can often be compounded by their insufficient time or inclination to discover what has gone before their lecture or what is to follow. This challenge is especially difficult in disciplines where the expected level of knowledge is large and expanding, and is subject to requirements from regulatory bodies such as state and national licensing boards. Therefore, methods of simplifying these principles to enable rapid dissemination and improvement should be welcomed.

Perspective

Multimedia design principles were proposed by Mayer[2] based on findings from research into attention and learning, specifically the factors that can influence understanding as opposed to simple retention. This research has elucidated overarching principles whereby audio and visual information is handled separately as the "dual channel principle"; demanding too much of one channel, either through complex text-heavy slides or continuous talking without pause, promotes fatigue and inattention due to the "limited capacity principle" of each channel. Mayer's work built on these findings to derive a set of real-world principles. These can be

immediately applied to a presentation to produce a significant increase in understanding, such as the coherence principle that argues for the removal of extraneous irrelevant detail on a slide. Similarly, the redundancy principle states that a listener will learn better from purely graphic and narration, as compared to graphic, narration and accompanying text. Whilst prescriptive, these principles can be difficult to understand and time consuming to put into practice. Pate and Posey[1] estimated that the redesign of slides using Mayer's principles took 14 hours and resulted in an increased number of slides. This raises the challenge, firstly of good time-keeping with large numbers of slides, and secondly of sourcing images with copyright approval. In an attempt to reduce the prior learning and time investment needed to make a lecture memorable, we propose an acronym "MAKE" which integrates Mayer's principles (in brackets) in a way that can be rapidly understood.

Make it memorable

Minimizing extraneous text, graphs or pictures on a slide that have the potential of overloading or confusing listeners. Using metaphors, well-designed graphics and linking material to clinical practice can dramatically improve recall after the lecture (coherence and redundancy principles).

Add value

Add value to the lecture by including an element that a student cannot easily find, such as a relevant clinical case report, a graphic that you found useful at explaining a concept, or elaborate on the latest research. Seeing the lecture as an opportunity to inspire the listener to read further rather than meeting a learning objective has been discussed as a way to reframe thoughts when designing a slideshow.[3]

Keep the audience interested

This can be achieved by being enthusiastic and discussing what is described in the *PowerPoint*. Ensuring that, through examples, descriptive slide titles, sign posting (signalling principle) and good slide design, the question "Why do we need to know this?" is answered.

Entertain

The use of anecdote, witty remarks, and carefully placed humour has been shown to increase interest and engagement with the lecture material.[4] The presenter's use of patient narratives can highlight the importance of a concept and resonate with the audience (personalization principle).

Simplifying Mayer's principles using "MAKE"

Mayer's[2] multimedia design principles include extraneous processing, essential processing and generative processing. These principles can be easier to understand and implement through the use of "MAKE" and "quick fixes" (Fig. 1).

Essential processing

A student puts the knowledge into working memory. This process can be overloaded by going too quickly through slides. To make material memorable ('M'), well-designed graphics should be used; metaphors and links to clinical practice should be incorporated to add value ('A'). Lecture content should focus on key points and care taken with the speed of delivery. For example, the quick fixes include moving labels closer to the target and personalizing (Fig. 1), removing unnecessary text (Figs. 2–4), giving greater prominence to definitions, provision of clinical context and improved visual stimuli (Fig. 2), greater linkage of content using graphics (Figs. 3 and 4), and inclusion of up-to-date clinical anecdotes (Fig. 4).

Generative processing

This key stimulus is motivation to make sense of the material by the student. In Fig. 1, this was achieved by asking the students the question 'what happens in your stomach after you eat a meal?' ('K') *Quick fix:* Adjust headings of each slide to accurately describe the content. Consider explaining at the start of the lecture why it is important to know and understand the content in a wider context (e.g., explaining the contraindication of beta-blockers in patients with asthma at the start of a lecture on beta-blocker pharmacology). A lecturer relating the material to his/her own practice or research can also be a key factor to make a lecture interesting and memorable.

Extraneous processing

This is when other factors (e.g., a presenter switching backwards and forwards between slides or too much text on a slide or a graph with accompanying text) interferes with a student learning a particular point. *Quick fix:* Confine a point to one slide and only list the main point. Elaborating on the point is a much more effective way of teaching the material ('E'). Put any extra material in the presenter notes, so students can refer to it later. Try to add a helpful graphic to explain a concept rather than a slide that just contains text. For example, a slide from a lecture discussing the physiology of smooth muscle contraction revealed common problems such as overcrowding, lack of immediate relevance and disconnection between the images and text (Fig. 1). By applying some of the above