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Review Article

Modes of Delivery in Medical Education

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Abstract

The medical education is delivered via different modes which are evolving with passage of time. The medical education is not only knowledge based education but also entails the practical and clinical aspects. We in this article describe different modes with their practical uses and the difficulties while implementing them.

Keywords: Medical Education; Modes of Delivery

Introduction

The Oxford Dictionary defines media as a method of communicating information to large numbers of people. Therefore, educational media is any method of communication used to transmit information to learners, including; presentations, simulations and podcasts. This essay discusses different educational media and analyses their strengths and weaknesses in order to support their use for different learning outcomes in medical education.

Handouts

A handout is "a document given to students that contains information about a particular subject". A focused handout fosters deeper learning as it allows students more time to listen, think, engage and provides a framework on which learners can build their understanding of a subject. Useful handouts also facilitate in-depth learning by including exercises, questions to elaborate the subject further as well as suggesting additional reading or resource materials [1]. But by providing all the notes, students could become passive listeners and not have the opportunity to develop their own strategies for organising information in their own cognitive perspective, an essential part of learning.

Flipcharts

A static or dynamic visual creative tool utilising large texts and illustrations. Flipcharts stimulate higher thinking by connecting visual clues to memory, which facilitates thought synthesis and the recall of new knowledge [2]. In small group and problem-based teaching, flipcharts promote brain storming, group dialogue and active feedback. Furthermore, they help maintain audience-teacher eye contact, thereby enhancing attention and motivation. Flipcharts are inexpensive, easy to create and move. They increase learning outcomes and test scores. Nevertheless, they don't suit large audience and cause anxiety with poor handwriting and spelling. Interactive digital flipcharts can import and export contents through net connections thus, more appealing to newer generations.

Podcasts

Podcasting refers to the distribution of media content, which can be downloaded or streamed by the listeners at their own convenience. It is an inexpensive and easily available modality. Its benefits include being able to address a larger target audience of different disciplines, remotely and at any time and can be replayed countless times for the listener to take full advantage of it.

It is a 'one-sided conversation', which has been proven as effective as live lectures, especially for more basic theoretic discussions/concepts [3]. The major disadvantage however is the lack of physical/real-time interaction, which deems it unable to address complex interaction with the learners, with delayed feedback and

cross-questioning. This also results in an inability to properly engage the audience, as in possible in a live lecture.

Educational Videos

The use of educational video in teaching and learning process is well established and bears many advantages [4]. Using video in the teaching process facilitates thinking and problem-solving abilities among students. Addition of visual clues with sound also helps to keep students more motivated, engaged and helps improve understanding of the concept. Despite having all the above advantages, use of videos in education is not without limitations. The internet is flooded with countless educational videos with varying levels of reliability and validity, the correct choice of video to be used is most important factor. The educator must select appropriate material, be able to incorporate this video into the educational process effectively, refine the message, be able to overcome technological barriers and adhere to copyright regulations.

Power point

Power point is a Microsoft Office program, which originated in business world but is widely used in education. It allows content delivery in a stimulating and engaging manner and can be supported with graphics designs, audios and videos. Pre-designed formats allow easy creation, editing and printing. Presentation can be shared and distributed with free a read only format that makes it accessible without downloading Microsoft. Footnotes allows presenter to write personal notes. Its feasibility of storage on portable devices allows access on demand [5]. If it is used just to deliver course content or textbook passages without interactive exchange, it can become boring and a useless exercise.

Social media

Social media refers to the social networking websites, such as Facebook and Twitter. There is an increasing use of social media in public [6]. It has been suggested that the use of social media in medical education improves learner's satisfaction. Social media works well in medical education as it allows the learner to receive feedback, promote collaboration and professional development. Social media is prone to technical issues. Learner's engagement and concerns over privacy and security are other limitations of social media.

Mobile learning

Mobile Learning (M-Learning) refers to learning and teaching with mobile technologies, when the learner uses some form of mobile handheld devices e. g smart phone, tablet or other portable device. Benefits include [7]:

- Education can reach more people
- Allows learners to access learning material anywhere at any time with low cost
- Flexibility for learners to choose device, time and pace.
- Variety of interesting design formats like videos, animated videos, interactive videos etc. can be used which allows better retention and recall
- Promotes social and collaborative learning
- Can Improve learning in those with disabilities using features like text enlargement, voice transcription and voice to speech technologies
- Access up-to-date information.

Databases

Databases are organised collections of data that are generally stored electronically and accessed using computer systems [8]. Using data in medical education has advantages like:

- Determine students' understanding of educational content.
- Identify effective and appropriate teaching methods for each student.
- Encourage student participation in online discussions.
- Analyse student performance and identify each student's strengths and weaknesses.
- However, there are also disadvantages such as:
- The database may be difficult to use until familiar with it.
- Designing databases can be time-consuming.
- Installing and operating the required hardware and software can be costly.
- Users may need to undergo training.

Examples of databases used successfully in medical education and research include CINAHL, ERIC, PsycINFO, Web of Knowledge and Med Ed Portal.

Simulation

Simulation is defined as an approximate imitation of the operation of a process. Discovery of simulation in education finds its roots of understanding human errors. Simulation augmented the traditional approach of medical education of reducing a healthcare task to its simpler components [9]. Main benefits are:

- Control over the sequence of events
- Simulated tasks are reproducible
- Prevents unsafe and dangerous situations.

Application of simulation into certain healthcare learning programs proved complicated due to cost effectiveness. Major research is required to prove its validity and facilitate the general acceptance of simulation into assessment and feedback of medical education programs.

Virtual learning environments (VLEs)

The terms e learning, VLEs and MLEs (Managed Learning Environments) are sometimes used interchangeably. However, the latter two serve as an infrastructure to organise learning materials and aid in the administration and management of e-learning [10]. VLEs can be used to deliver blended learning by serving not only as content repositories but also provide opportunities for formative and summative assessments and can also help in communication between the students themselves and with their teachers. Administrative, managerial and anti plagiarism functions are present. The asynchronous communication adopted by VLEs can be seen by some as hindering spontaneous communication. Homegrown systems need a lot of technical support within the organisation, whereas propriety VLEs can prove costly. Open-source VLEs may have security concerns.

Virtual reality (VR)

Virtual Reality (VR) is the use of computer technology, which helps in creating a simulated environment. It is different from traditional user interfaces, it places the user inside the experience, and users feel to be immersed in the screen and interacting with the 3D world. VR technology simulates the various human senses such as vision, hearing, smell, and sensation.

VR technology is designed for training health care professionals to simulate situations with high acuity events, such as (trauma), for acquiring knowledge and interact within a virtual environment to treat mental health conditions, stress, and treating [11].

Massive on-line open courses (MOOCs)

MOOCS are open access courses developed by prestigious universities and delivered to massive numbers of participants globally using online platforms (e.g. Udacity, Coursera) through video sessions, lectures, online assessments and discussion forums. They attract enormous participation, but also suffer large attrition due to their highly simplified nature, peer interaction-based learning and lack of accreditation. Knowledge or micro-credentials gained from MOOCS are valuable for those who wish excellence in their fields, career progression or advancement to higher courses. Careful integration of good quality MOOCS into courses helps "blended learning" which makes traditional classroom teaching more appealing though at the cost of some infrastructural and intellectual investments [12].

Conclusion

As society evolves so do the methods used in medical education. People involved in medical education, including both teachers and students, can be involved and immersed in learning, teaching and collaboration throughout the day by using the different educational modalities discussed here. This opens a whole new avenue for unlimited opportunities for education.

Bibliography

1. Cantillon P. "Teaching large groups. (ABC of learning and teaching in medicine)". *British Medical Journal* 326.7386 (2003): 437-441.

2. Graves C. Implementing team based learning in postgraduate medical education (Doctoral dissertation) (2019).

3. De Villiers M and Walsh S. "How podcasts influence medical students' learning–a descriptive qualitative study". *African Journal of Health Professions Education* 7.1 (2015): 130-133.

4. Dong C and Goh PS. "Twelve tips for the effective use of videos in medical education". *Medical Teacher* 37.2 (2015): 140-145.

5. Hopkins L., *et al*. "To the point: medical education, technology, and the millennial learner". *American Journal of Obstetrics and Gynecology* 218.2 (2018): 188-192.

6. Roy D., *et al*. "Social media: portrait of an emerging tool in medical education". *Academic Psychiatry* 40.1 (2016): 136-140.

7. Briz-Ponce L., *et al*. "Learning with mobile technologies–Students' behavior". *Computers in Human Behavior* 72 (2017): 612-620.

8. Hsing AW and Ioannidis JP. "Nationwide population science: lessons from the Taiwan national health insurance research database". *JAMA Internal Medicine* 175.9 (2015): 1527-1529.

9. Jones F., *et al*. "Simulation in Medical Education: Brief history and methodology". *Principles and Practice of Clinical Research* 2 (2015).

10. Elledge R., *et al*. "Use of a virtual learning environment for training in maxillofacial emergencies: impact on the knowledge and attitudes of staff in accident and emergency departments". *British Journal of Oral and Maxillofacial Surgery* 54.2 (2016): 166-169.

11. McGrath JL., *et al*. "Using virtual reality simulation environments to assess competence for emergency medicine learners". *Academic Emergency Medicine* 25.2 (2018): 186-195.

12. Robinson R. "Delivering a medical school elective with massive open online course (MOOC) technology". *Peer Jouranl* 4 (2016): e2343.