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IMPROVING THE EFFECTIVENESS OF TEACHING THROUGH INNOVATIVE METHODS OF TEACHING ENGLISH AND 3D INTERACTIVE MATERIALS IN THE PROCESS OF MEDICAL EDUCATION

Annotation: In this article highlighted the different methods of teaching English and 3D interactive materials in the process of medical education. The aim of this paper is to show the use of innovative techniques for teaching English communication skill to learners. In addition, this article will analyze the use of 3D printed anatomical models, including their benefits.

Keywords: Innovation, methods, digital platforms, online corpora, communicating with online people, video conferencing, blended learning, technology in assessment, virtual reality, medical education, 3D printed anatomical models.

In the present time, English becomes the most important and vivid means of global communication which prevents our isolation from the world, and a window to the rapid progress and development in all spheres of life. It is the most spread and commonly used language among different nations and individuals worldwide for cultural and educational exchange. In addition, the use of English language becomes now a must not only at the level of local but global education as well.

Nowadays, development of foreign language teaching technologies is important issue. Information civilization dictates new standards; any new knowledge becomes outdated quickly. In general, innovative teaching of language means creativity and novelty of the

teacher which changes the style and method of teaching. All over the world, educational institutions implementing new ideas, methods, and technology based innovations to enhance the students' knowledge in the sphere of English. Basically, teaching must include two major components sending and receiving information. Ultimately, a teacher tries his best to impart knowledge as the way he understood it. The use of innovative methods in educational institutions has the potential not only to improve education, but also to empower people, strengthen governance. The biggest challenge any teacher faces is capturing the students' attention, and putting across ideas in such a way that it stays with them long after they have left the classroom. For this to happen, classroom experience should be redefined and innovative ideas that make teaching learning methods more effective should be implemented. There are different types of methods to attract the student's attention:

1. Digital platforms.

- ✓ Facebook
- ✓ Edmodo
- ✓ Moodle Cloud
- ✓ Schoology
- ✓ Google Classroom

Digital Platforms help teachers and students to create a space in which teachers and learners can connect, ask questions to enhance learning, host your classes on the cloud and create different types of assessments.

2. Online corpora.

A corpus is a collection of texts. Corpora, plural term of a 'corpus' refers to electronic authentic language databases that can be available via internet or as software installed in desktops.

3. Communicating with People Online.

There are numerous ways to communicate online with people outside the classroom, these are some of the most used tools to communicate.

Skype is for doing things together, whenever you're apart. Skype's text, voice and video make it simple to share experiences with the people that matter to you, wherever they are.

Zoom offers you HD video, HD Voice with dynamic voice detection, full screen and gallery view, dual stream for dual screen and feature-rich mobile apps for iOS and Android.

4. Video conferencing.

Video conferencing (VC) continues to be a highly efficient way of inviting visitors into classrooms and for Video Conference helps to:

- a) Expose learners to native English speakers and for facilitating cultural exchanges.
- b) Bring specialist English teachers into classrooms for direct teaching.
- c) There are many free solutions available, such as Skype, ooVoo, iChat and FaceTime or Flash Meeting which are free from advertising and free of charge.

5. Blended learning.

Blended learning is an education program (formal or non-formal) that combines online digital media with traditional classroom methods. It requires the physical presence of both teacher and student, with some elements of student control over time, place, path, or pace.

6. Technology in Assessment.

The range of skills that modern assessments attempt to evaluate is quite broad and reflects our current views on teaching and learning. It might for example include assessing the students' ability:

- to participate in a pair work oral activity.
- to skim a text and quickly look for key information.
- to tell a story.
- to follow instructions.
- to plan and organize an article.
- to write for a specific group or genre.

As well as, the Internet has become a social platform where millions of health consumers access and share health information. One such medium, eHealth, has brought about improvements in public health and the health care system. Medical information technology has influenced the medical profession during the last decade and will continue to make advances. For example, 3-dimensional (3D) presentation of information is being increasingly used in medical education and health care.

For many years, traditional teaching methods such as didactic lectures, anatomical models, and cadaveric learning have been used to teach students. Students who learn anatomy through cadaveric dissection are limited with short-term knowledge acquisition, and they could not recall what they learned after a 2-week follow up. In addition, there are many ethical, financial, and logistical issues which resulted in a declining use of cadaveric dissection. Animal models are also a great resource for cadaver lab teaching. However, although they have lifelike soft tissue texture and can accurately reflect pathology, they still have anatomical variations and face ethical, cultural, and financial concerns.

Therefore, to improve anatomy learning experience and memory retention, different approaches have been applied in addition to cadaveric models. These include plastic idealistic models, plastinated specimens, body painting, atlas books, and 3D printed models. Hoyek et al. showed that students who studied anatomy using 3D models outperformed those who used 2D drawings from slide-based presentation in terms of spatial arrangement. Li et al. reported that those who used 3D modalities scored higher on post-exposure test and had greater memory retention. 3D printed model is more advantageous because the subjects can grasp, rotate, and actually feel the texture of the objects, while 3D virtual modality still lacks the physical experience of a cadaver.

The addition of 3D printing into anatomy classrooms shows a promising future. 3D printer has the capability to produce models that are flexible and have a soft texture comparable to real organs at the expense of cost and production time. These models serve as great resources for both students and teachers. Li et al. showed an increase in students' satisfaction while learning anatomy as students preferred 3D printed models over 2D images. In a study published by the National Association of Biology Teachers, students reported that they often felt less creative and designed less impressive visual aid products

with traditional learning methods. However, when using 3D printing, students become more engaged and creative in their projects because they invested more time to create their final products.

In clinical training, 3D printed models have helped in demonstrating complex anatomical structures. White et al. reported that pediatric and pediatric/emergency medicine residents greatly benefited from studying cardiac anatomy of tetralogy of fallot (TOF) using 3D printed models. In their study, the residents studied two different heart defects: ventricular septal defect (VSD) and TOF using either a lecture with 2D images or 3D printed model. Their research showed that residents scored significantly higher on identification of anatomical structures on TOF 3D printed model. There was no difference found between 2D lecture and 3D printed model on VSD because the heart pathology can be easily understood without using 2D images or 3D models. This further proves that 3D printed models can be crucial in demonstrating complex spatial relationship in congenital heart defects (CHD). White et al. also emphasized the advantages of 3D printed model in the training of various educational levels such as undergraduate, medical students, residents, nurses, and surgeons.

Besides its use in the teaching of anatomy, 3D printed model also greatly facilitates students' understanding of pathology. Students have been relying on 2D pictures from the textbook or slide-based presentation to study pathology. With 3D printing, students are able to feel pathological changes like a tumor or tissue texture changes. However, materials used in 3D printing are limited and currently unable to replicate the exact tissue texture that is present in real-life organs.

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