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Letter to Editor

Physical 3D Anatomy Models Versus Digital Anatomy Models / Museum

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The use of physical Anatomy models preserved in the anatomy museum for teaching, has been an integral part of the anatomy curriculum. However, the increasing advancements in digitalization has led to the rapid adoption of digital environments to enhance learning in Anatomy education. These include the 3D models, virtual dissections, virtual reality (VR) and augmented reality (AR) models.

The 3D anatomy models and digital anatomy museums have transformed the way we learn about the human body, although, they serve different purposes. The anatomy learning preferences vary from individual to individual. Some medical students experience illness by the smell of a cadaver and prefer hands-on exploration of the anatomy models while others opt for digital convenience.

The physical 3D Anatomy Models (like those made of plastic or Plaster of Paris) are often touchable representations of anatomical structures but cannot be manipulated much. They are durable and can be used by students, year after year. They also describe the structures in detail making them useful tools for hands-on learning but they have their own limitations which includes the costs, storage requirements, security, and maintenance.[1]

The digital models like 3D-rendered models in various web applications are interactive, engaging, increase comprehension and can be manipulated temporally to depict changes in a structure or specimen with regard to age or developmental stage and functional mechanics by rotating and viewing. These can depict morphogenesis of important structures such as the heart and inner ear in anatomy education. These tools offer immersive experiences and interactive tools supporting knowledge retention and active learning.

The Digital Anatomy Museums are virtual collections of anatomical specimens, often including historical artifacts, cadaver dissections, and rare medical illustrations. They provide context and history, offering a broader perspective on anatomy education. They are excellent for reference and research, but they lack the tactile experience of physical 3D models.[2]

A virtual anatomy museum helps in digital preservation and providing online access to information resources. It can make the museum antiquities accessible online for the benefit of all by providing metadata description, linking of digital contents, online access to information resources and access through mobile devices and kiosks. The virtual museums are a wealth of knowledge accessible from anywhere and anytime, for students, teachers, researchers and general public.[3]

However, the best approach is a combination of both physical and digital. Digital tools are helpful, but nothing beats the experience of learning with physical models that bring anatomy to life. Many medical institutions use 3D models for active learning and digital

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museums for historical and theoretical knowledge.

When surveyed, students reported that they felt hands-on learning could not be replaced and digital education was best utilized as a supplement. Although, mobile technology and cloud computing have increased the accessibility to flexible and self-paced learning, there are many challenges like educator resistance and institutional barriers for the continued innovation and integration of digital technology for Anatomy education.

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