The art of anatomy and physiology showcasing student creativity

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Why was the idea necessary

The study of art and creativity is closely linked to the history of Anatomy and Physiology as a science, and vice versa.[1] Creativity addresses two key elements: first, a set of traits such as novelty, originality, rarity, or uniqueness; and second, qualities that ensure practical value, including usefulness, effectiveness, adaptability, and appropriateness.[2] Creativity and learning are interdependent, as creative activities (creativity-in-learning) promote deep learning (learning-in-creativity).[3] Creative learning is associated with the development of critical thinking, problem-solving, active student engagement, higher-order learning and thinking (Bloom's level 6), and both extrinsic and intrinsic motivation, among other benefits.[1,2,3] Educators should provide students with opportunities to express creativity in order to foster personal understanding and meaningful learning of subjects such as Anatomy and Physiology, as well as in their application in their future careers as healthcare professionals.

What was tried

In commemoration of World Anatomy Day and the World Physiology Week, as celebrated by Anatomy and Physiology societies, an authentic assessment was designed to stimulate higher-order thinking objectives and creativity. Undergraduate first- and second-year nursing students from the Department of Basic Medical Sciences (DoBMS), University of the Free State (UFS), submitted a creative assignment (e.g., sketches, sculptures, or digital media), produced independently, without the use of artificial intelligence. Students provided a one-paragraph motivation explaining their choice of a specific anatomical or physiological structure or system. The assignment contributed 5% towards the formative assessment mark for an integrated Anatomy and Physiology module. A panel of judges from the DoBMS, together with an external assessor, evaluated the artwork using a rubric on a scale of 1 to 5. The rubric included the following criteria: accuracy of anatomy or physiology, creativity, attention to detail, effort and perseverance, presentation, and personal meaning and value of the assessment. During World Anatomy and World Physiology Week, the projects were displayed in the Anatomy Museum and the foyer of the Faculty of Health Sciences. Students provided permission for their projects to be displayed and used for teaching purposes.

What were the lessons learnt

The students produced projects that exceeded the educators' imagination and expectations. The projects demonstrated elements of creativity such as uniqueness, originality, and value. Examples included an anatomically correct mould of a skull illustrating the various skull bones, a crocheted vertebral column, artwork with beads showcasing blood circulation, and an edible cake modelled on a skull. Fig.1. presents a collage of selected artefacts.

Through this assessment, students became partners in learning and co-constructors of knowledge and learning materials. Their personal development, beyond learning outcomes, was fostered through the attainment of graduate attributes (e.g., academic competence, critical thinking, entrepreneurial mindset), higher-order learning objectives (e.g., creativity), and both academic and life skills (e.g., baking and crocheting). Educators of the future should encourage out-of-the-box, innovative thinking and creative learning experiences that guide students to a deeper understanding of a topic's significance and subject-matter knowledge, and to skills development that extends beyond the boundaries of traditional teaching and learning.

Fig. 1. Picture collage of the artefacts.

Disclosure. Microsoft Copilot was used for the paraphrasing of selected sentences.
Declaration. None.
Author contributions. None.
Acknowledgements. The author would like to acknowledge the Bachelor of Nursing students for their creative contributions.
Conflict of interest. None.
Funding. None.

Afr J Health Professions Educ 2026;18(2b):e4463. https://doi.org/10.7196/AJHPE.2026.v18i2b.4463

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Submitted 11 November 2025. Accepted 8 May 2026.