Empowering Future Healthcare Leaders: A Design-centric course enhanced by an innovation-learning environment

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Abstract:

Today's healthcare system is faced with unprecedented challenges in providing high-quality care, mainly due to rapid advancements in medical technology, increasing demands for patient-centered care, and the need for interdisciplinary collaboration. However, medical faculties often adhere to traditional educational methods. While beneficial and forward-thinking, these approaches may limit students' exposure to real-world scenarios by prioritizing foundational knowledge in pre-clinical years and emphasizing clinical reasoning thereafter. Which might limit their ability to innovate and adapt to emerging care challenges. This calls for a new kind of leaders, equipped not only with medical knowledge but also with a comprehensive set of problem-solving, adaptive, and creative thinking skills necessary for developing adapted solutions and products.

To fill this gap, this work integrates a Design-Based learning approach into the medical curriculum. Our team has developed a new design course targeting first-year medical students at a Moroccan medical faculty. This course is currently implemented, with a curriculum that includes lectures, project management, and coaching sessions aimed at fostering innovation and entrepreneurial competencies. The course is supported by an innovation-learning environment, enabling students to reinforce and apply their acquired knowledge and skills. This environment incorporates workshops introducing the participants to cutting-edge technologies such as 3D printing, robotics, and generative Artificial Intelligence; alongside a maker space designed to encourage them to create, invent, and learn through hands-on experiences in a collaborative workspace.

With the new course and the facilities provided by the environment, students were engaged in designing creative solutions related to healthcare, medical education and personal as well as societal challenges. These solutions delve into service redesign, the generation of innovative products, and the development of digital health technologies. In conclusion, this work represents a shift in medical

education, preparing future doctors to address healthcare challenges innovatively and ethically, underscoring the vital intersection of innovation and patient-centered care.