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Application of Innovative Information Technology in Dental Education

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Abstract

The characteristics of dental education lie in a strong foundation of theoretical knowledge, with significant emphasis on technical training and clinical practice. The training process underscores the integration of practical skills and cognitive abilities, achieved through continuous practice to familiarize oneself with various clinical proficiencies. This article aims to introduce various common information technologies applied in the context of dental education. Among these, digital learning platforms and remote teaching provide user-friendly learning environments; interactive software renders medical humanities courses more dynamic and engaging; mixed reality technology enables simulation of clinical skill training; the integration of digital scanning and artificial intelligence offers objective assessment capabilities; non-invasive optical techniques provide in-depth tissue information, applicable to both chair-side teaching and diagnostics; and 3D printing technology allows for the creation of customized educational materials aligned with instructional objectives. Looking towards the future, the innovative integration of information technology into digital dentistry could establish digital twin models, furnishing a high-quality environment for pre-clinical dental training. This approach would cultivate exceptional dental professionals possessing both professional skills and competencies.

Keywords: information technology, dental education, digital learning, clinical skill, pre-clinical training

創新資訊科技在牙醫學教育的運用

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摘要

牙醫教育的特點是在知識理論的基石上，非常注重技術訓練和臨床實踐。訓練過程強調手腦並用，藉由不斷的演練來熟悉各種臨床技能。本文旨在介紹各種常見的資訊科技，運用於牙醫醫學教育的情境。其中數位學習平台與遠程教學，提供友善的學習環境；互動式軟體讓醫學人文課程變得活潑生動；混合實境技術可進行模擬臨床技能訓練；而採用數位掃描比對技術結合人工智慧，可提供客觀的評分；非侵入性光學技術可取得組織深度資訊，適用於診間教學與診斷；而三維列印技術則可依教學目標來設計客製化教材。展望未來，創新資訊科技整合數位牙醫，可建構數位學生模型，提供牙醫臨床前訓練優質的環境，藉以培養具有專業技能和素養的優秀牙醫專業人才。

關鍵詞：資訊科技、牙醫教育、數位學習、臨床技能、臨床前訓練