







USE OF TECHNOLOGY & INNOVATION IN STRENGTHENING GOVERNANCE AND REGULATION

HOW DO WE BECOME SMART REGULATORS

USE OF TECHNOLOGY IN MEDICAL EDUCATION AND TRAINING





INTRODUCTION

- In today's generation, technology has contributed more than anything to help human beings live convenient life.
- In recent years, advancements in technology have revolutionised the way medical knowledge is acquired, disseminated, and applied. From virtual reality simulations to online learning platforms, the integration of technology in medical education has opened new possibilities for students, educators, and healthcare professionals.
- This presentation touches on how technology can be used for medical education and training in the areas of assessment and accreditation, curriculum development and harmonisation, training reforms, and medical internships.



ASSESSMENT AND ACCREDITATION OF TRAINING FACILITIES

•Assessment and accreditation of medical/dental training institutions are critical processes that ensure the quality of medical/dental education and training programmes.

- Current state of **assessment and accreditation**:
 - Develop
 - Minimum Standards & Assessment Checklist [Facility & Panel]
 - Train Assessors
 - Deploy Assessors
 - Receive reports for decision-making
 - Feedback to institutions and matters arising





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CHALLENGES

- **Resource constraints** (*time, human resource, funding*)
- Standardisation and Consistency: variations in criteria interpretation, assessment methodologies, and accreditation processes may lead to inconsistencies/biases in evaluation outcomes.
- Evolving Educational Landscape: The constantly evolving and advances in technology, changes in healthcare delivery models, and emerging areas of specialisation make keeping accreditation standards and assessment criteria up-to-date very challenging due to the time and resources required for frequent revisions.



CHALLENGES

- Data Management and Technology Integration: Accreditation processes often involve collecting and analysing large volumes of data from multiple sources, including student assessments, faculty qualifications, and institutional resources. Managing and integrating this data efficiently while ensuring data accuracy, security, and privacy present challenges for accreditation bodies and institutions.
- Globalisation and Harmonisation: With the increasing globalisation of medical education and healthcare workforce mobility, there is a growing need for harmonisation of accreditation standards and mutual recognition of qualifications across borders.



CHALLENGES

However, achieving consensus on international accreditation standards and facilitating cross-border accreditation processes pose significant challenges due to differences in healthcare systems, cultural contexts, and regulatory frameworks



❑ Resource Constraints: Provision of cost-effective solutions for accreditation preparation and compliance. Cloud-based accreditation platforms offer scalable and affordable solutions for data management, documentation, and reporting, reducing the burden on institutions with limited financial resources.

Technology can provide standardised assessment tools and platforms that ensure consistency in evaluation criteria and methodologies across medical training institutions. Digital assessment platforms can offer standardised rubrics, scoring guidelines, and assessment protocols, reducing variability in assessment outcomes.



□ Evolving Educational Landscape: Technology enables dynamic and flexible accreditation processes that can adapt to changes in the medical field in time. Online accreditation management systems can facilitate real-time updates to accreditation standards, ensuring that they remain relevant and reflective of current educational best practices and industry advancements.

□ Data Management and Technology Integration: Technology streamlines data management processes and facilitates integration of disparate data sources for accreditation purposes. Accreditation management systems centralise data collection, storage, and analysis, enabling accreditation bodies and institutions to access comprehensive and real-time data for decision-making and reporting.



□ Globalisation and Harmonisation: Technology fosters collaboration and knowledge-sharing among accreditation bodies and medical & dental training institutions worldwide. Online collaboration platforms, international accreditation networks, and digital credentialing systems facilitate communication, cooperation, and harmonisation of accreditation standards across borders, promoting mutual recognition of qualifications and global mobility of healthcare professionals.

Compliance Monitoring and Regulation: Technology enables automated compliance monitoring systems that track adherence to regulatory standards, policies, and guidelines in educational settings.



These systems can

- monitor various aspects of compliance, such as accreditation requirements, student attendance, faculty qualifications, and program outcomes, helping institutions maintain accountability and quality assurance.
- provide automated workflows, reporting dashboards, and audit trails, facilitating accreditation processes and ensuring alignment with regulatory requirements.

Learning Management Systems (LMS) like **Canvas, Blackboard, Turnitin and Moodle** offer features for tracking compliance with various educational standards and regulations.



GHANA'S EXAMPLE

ACCREDITATION AND COMPLIANCE PLATFORM

•Enforcement of accreditation decisions:

- Entry Grades (Science background and minimum qualification) for both local and foreign trained practitioners
- Capping of Admission
- Indexing of admitted students (De-accredited institutions cannot upload list of students)

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CURRICULUM DEVELOPMENT AND HARMONISATION

 Developing competency-based, harmonised medical/dental curricula can be a very daunting and time-consuming process. It is also costly bringing stakeholders and content experts together at workshops for the process. Sometimes, local experts are lacking.

• Using technology to develop and harmonise curriculum for medical education can streamline processes, enhance collaboration among stakeholders, and ensure alignment with educational standards and best practices.



- Virtual Curriculum Development Workshops: Technology enables educators, curriculum developers, healthcare professionals, and other stakeholders to collaborate virtually through online platforms and tools.
- These platforms facilitate real-time communication, document sharing, and collaborative editing, allowing stakeholders from different institutions and locations to contribute to curriculum development and harmonisation efforts.
- Virtual workshops can include interactive presentations, breakout sessions, and group discussions, fostering engagement and collaboration among participants.



Curriculum Management Systems (CMS): CMS platforms

provide centralised repositories for organising, managing, and sharing curriculum content, learning objectives, assessments, and resources.

streamline curriculum development processes, ensure version control, support alignment with accreditation standards and educational guidelines, and ensures that curricula remain current and relevant.



Integration of Multidisciplinary Content: Medical & dental education requires the integration of content from multiple disciplines, including basic & applied sciences, clinical practice, ethics, and research.

Technology

- facilitates the integration of multidisciplinary content by providing digital repositories, virtual libraries, and online resources that offer comprehensive access to diverse educational materials.
- enables educators to curate and customise curriculum content from various sources, fostering interdisciplinary learning and collaboration.



Assessment of Competencies and Outcomes: Assessing student competencies and outcomes is essential for evaluating the effectiveness of medical & dental curricula.

Technology

- offers assessment management systems and digital portfolios that streamline the assessment process, allowing educators to track student progress, monitor competency attainment, and provide timely feedback.
- enables the use of objective structured clinical examinations (OSCEs), virtual simulations, and standardised patient encounters for assessing clinical skills and competencies in a standardised and scalable manner.



•Open Educational Resources (OER): Technology facilitates the sharing and dissemination of open educational resources (OER) that are freely accessible and customisable.

•OER repositories

offer a wealth of educational materials, textbooks, case studies, and multimedia resources that can be adapted to local contexts, languages, and cultural preferences, promoting standardisation and inclusivity in medical & dental education.



•Online Faculty Development: Technology facilitates online faculty development programmes and virtual training workshops, enabling educators to enhance their teaching skills, learn about competency-based education approaches, and share best practices with colleagues.

•Online professional development courses can be delivered asynchronously, allowing faculty to participate at their own pace and convenience.



TRAINING REFORMS

Teachers using old traditional methods have been found to be **boring** and ineffective; know the times!



Clarey (2009)

Educational and Ability Levels



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Enhanced Accessibility: Technology enables the delivery of medical education content to a wider audience, including remote and underserved areas.

Online learning platforms (interactive modules, discussion boards, resources for self-directed learning, problem-based learning, small group learning, webinars, mobile applications, etc) make educational resources accessible anytime, anywhere, allowing learners to participate in training programmes without geographical limitations.



- Personalised Learning: Technology enables personalised learning experiences tailored to individual learner needs and preferences. Adaptive learning platforms use algorithms to analyse learner data and deliver customised educational content, resources, and assessments, optimising learning outcomes and engagement.
- Active Learning and Simulation: Technology facilitates active learning methodologies and simulation-based training in medical education.
 - □ Virtual Simulations, Augmented Reality (AR), and Virtual Reality (VR) environments provide immersive learning experiences, allowing learners to practice clinical skills, decision-making, and teamwork in realistic scenarios, enhancing retention and competency development.



- Real-Time Feedback and Assessment: Technology enables real-time feedback and assessment mechanisms in medical & dental education. Digital assessment tools, online quizzes, and simulation-based assessments provide immediate feedback to learners, allowing them to track their progress, identify areas for improvement, and receive personalised guidance from educators.
- Integration of Competency-Based Education: Technology supports the integration of Competency-based Education (CBE) approaches into medical & dental training reforms. Digital competency frameworks, assessment tools, and competency tracking systems enable educators to define learning objectives, assess learner competencies, and provide targeted feedback, aligning medical education with competency-based standards and objectives.



- Evidence-Based Teaching and Learning: Technology facilitates evidencebased teaching and learning practices in medical & dental education. Digital repositories, online databases, and academic search engines offer access to peer-reviewed research articles, evidence-based guidelines, and educational resources, empowering educators and learners to integrate current evidence into teaching and clinical practice.
- Continuous Professional Development (CPD): Technology supports lifelong learning and professional development for healthcare professionals.
 - Online CPD courses, webinars, and virtual conferences offer opportunities for ongoing skill development, knowledge acquisition, and professional networking, enabling healthcare professionals to stay updated on advances in medical practice, research, and technology.



GHANA'S EXAMPLE

CONTINUING PROFESSIONAL DEVELOPMENT

- □ In 2015 CPD policy reviewed to include recognition for online programmes. Another Policy review due this year to focus on advances in technology and experience from COVID-19 (online programmes, Webinars, AI- Chatbots, etc), ???monitoring and tracking performance and compliance.
 - The Council in August 2021 entered into partnership with the World Medical Association in collaboration with the World Continuing Education Alliance to provide free online CPD programmes for medical and dental practitioners and Physician Assistants in Ghana.
 - Another MOU was entered into in February 2024 between the Council and the World Continuing Education Alliance to provide subscriptionbased accredited CPD resources for Doctors and Dentists in the Diaspora.



MEDICAL INTERNSHIPS/HOUSEMANSHIP (A REGULATORY PERSPECTIVE)

- □ Internship/housemanship is a period where a medical & dental student after successfully passing the requisite examinations undergoes training to consolidate and improve his/her knowledge and skills in medical/dental care under supervision in accredited health facilities.
 - At the end of the internship, the trainee is expected to have achieved a **minimum level of competence** (*knowledge & clinical skills, professional approach to care, interest in health research and specialties*) in the delivery of health care.
 - The intern rotates through different disciplines (e.g. Internal Medicine, Surgery, Paediatrics/Child Health, Obs&Gynae,) with hands-on clinical experience.



GHANA'S EXAMPLE HOW TECHNOLOGY HELPS

- Technology streamlines administrative tasks Posting/Placement of House Officers/interns:
 - Automated scheduling systems for managing rotations and shifts. Accredited training facilities and interns are both managed using this system.
 - □ For instance, which **specialties** and in **what approved combinations** are available at **which facility** and in **which regions** and which **service agencies** (*GHS, CHAG, Quasi-Gov't, THs, etc*) in the country.
 - □ It provides the opportunity for interns, right from the onset, to **partly decide** where they want to have their internship.
 - □ It helps to monitor & track the performance of interns (checks & balances).



GHANA'S EXAMPLE HOW TECHNOLOGY HELPS



Technology streamlines administrative tasks - Quality Assurance

•Internship is a critical stage for the young doctor or dentist and the regulator is responsible for ensuring that the practitioners have acquired the requisite competencies for safe healthcare delivery for the public good.

•Android-based Quality Assurance Tool has been developed to conduct a 360-degree evaluation of interns and their supervisors.



Monitoring of Training through e-logbooks: Real-time monitoring of skills acquisition of interns as they log their training experiences and procedures online and supervisors validate the information and comment on performance. It helps to intervene in the training early, rather than wait till the end of the rotation.

❑ Assessment and Feedback Tools: Online assessment platforms, digital portfolios, and video-based feedback tools enable supervisors to evaluate interns' performance, provide constructive feedback, and track progress toward learning objectives, promoting continuous improvement and competency development.



- Digital Communication and Collaboration: Technology facilitates digital communication and collaboration among interns, clinical teams, and supervising faculty.
 - Messaging apps, video conferencing tools, and online collaboration platforms enable interns to communicate with colleagues, discuss patient cases, and collaborate on team-based projects, fostering a sense of community and teamwork in virtual and distributed learning environments.



CONCLUSION

- If appropriately deployed in Medical Education and Training, Technology may contribute to...
 - **Standardisation of instruction, assessment, and administrative tasks**
 - Controlled learning environments with zero risk to human patients or participants
 - Realistic visualisation
 - **Flexibility and Learner control of the educational experience**
 - Embedding repetition, repeatability, and practice
 - Learner behaviour documentation and feedback through computer assisted learning and quality assessments
 - □ Instruction tailored to individual or group needs
 - **Enhanced perceptual variation and improved skill coordination**
 - □ Improvements in overall training, learning, & practice experience.

Improved regulatory control and compliance- and ultimately quality and safe care







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