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AN INTERNATIONAL ASSOCIATION FOR MEDICAL EDUCATION
Blended learning - Open Labyrinth, a sustainable open access platform for interactive digital learning

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ABSTRACT

Employing innovative e-learning methods to deliver veterinary education in the undergraduate curriculum is essential to maintain and improve high quality education which centres on the individual student experience. Open labyrinth (OL) is an open source software package to develop virtual cases for distance learning. OL provides an easy-access interactive group work environment which encourages students to have in-depth discussions around clinical cases. Using a student centred approach, we collaborated with undergraduate students to develop existing clinical cases into an interactive OL format which were integrated in the 1st, 2nd and 4th year of the veterinary undergraduate curriculum. Clinical case scenarios were used to encourage students in groups (with and without facilitators) to engage in a decision making process. Using learner analytics, academic staff responsible for the case reviewed progress of groups during and after the session and could therefore target feedback specifically to the areas of concern derived from the collected learner analytics. The e-poster will present examples of cases and associated learner analytics, student and staff feedback and discuss how this method of e-learning aligns with the development of digital learning within the university. The ability for the student to access the material at any time enhances the student experience. OL provides a safe and transparent environment to evaluate approaches, understand processes and develop clinical reasoning.
Comparing face-to-face versus distance education on health promotion volunteers’ knowledge about colorectal cancer screening

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ABSTRACT

Background: Colorectal cancer is one of the leading causes of cancer deaths, which can be significantly reduced by screening and diagnosing, early. This can be done by educating the individuals, and health promotion volunteers have an important role on this process. However, the lack of resources and time is always a challenge for implementing such educational programs. Due to improvement of individuals information literacy in recent years and affordability of necessary infrastructures, the use of distance education may be one of the solutions. The purpose of this study was to compare the face-to-face education with distance education (Using a multi-media CD) on health promotion volunteers’ knowledge about the self-care and colorectal cancer screening in Mashhad (Iran).

Summary of work: Fifty six health promotion volunteers from an urban area (aged 20-40 yrs.) participated in this study and randomly allocated to face-to-face (A) or distance education (B) groups. A pretest was done for both groups and then volunteers in group A attended in a 6 hour educational program about self-care principles, prevention from colorectal cancer and screening procedures in next two weeks. For the group B an educational multi-media CD package containing text files, videos and illustrations on screening tests was provided. After two weeks, a post-test was done for both groups. Data were analyzed using SPSS16 software.

Summary of results: The pretest and post-test mean scores for the group A were as 14.07±3.377 and 17.75±1.974, and for the group B were as 14.71±2.760 and 18.04±1.835, respectively. Also, the difference between pretest and post-test mean scores for the groups A and B were as 3.68±3.507 and 3.32±2.510 (P≥0.05).

Discussion and Conclusions: The findings of this study showed that both methods improved the awareness of health promotion volunteers on principles of self-care and screening for colorectal cancer. Although, many studies support that face-to-face education has some benefits for the learners, other studies stress on the advantages of distance learning for example convenience of the learners and specially, control on learning process.

Take-home Messages: A low cost multi-media CD package may have the same results as traditional methods to transmit health messages.
Educational concern of surgical technology students in the operating room: A grounded theory study

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ABSTRACT

Introduction: Bachelors program in surgical technology is a major of medical science, in Iran. Learning and adapting to different skills and roles in the operation room environment is a daunting work. The complexity of this environment and devices needs to bring together researchers in this field to work on different aspects.

Objectives: This qualitative study was conducted with the aim of comprehensively understanding of main concern and of clinical teaching process in surgical technology.

Design: The present study was conducted based on the qualitative research design of the Grounded theory approach Corbin & Strauss 2008. Settings: This study was conducted at schools of nursing and paramedical in academic settings in Iran.

Participants: Study participants in the present study include 14 students, seven educational instructors, six staff of operation room, one dean of faculty, three surgeon assistants, one instructor and four head nurses of operation room.

Method: semi-structured in-depth interviews and memo, were conducted using theoretical and purposive sampling. Constant comparative analysis was used for data analysis.

Results: Findings show that the non-acceptance of student by surgical team was identified as the main concern of the students. The gaining clinical competence and approval was found the central process (strategy) in response to main concern of clinical education and the interactive and dynamic nature of the operation room environment was defined as the context for this major concern. Strategies that students used to address this concern included individual efforts to overcome distrust, learning in the shadow of surgical team members, and seeking help and support of the instructor.

Conclusion: Accepting the students of Surgical Technology as a member of surgical team creates opportunities for students to learn, gain experience, enhance their professional qualifications, and abilities

Keywords: surgical Technology students; Clinical education process; Grounded theory; Operation room.
Gamification for Continuing Medical Education

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ABSTRACT

Introduction: Continuing Medical Education (CME) includes all educational activities that help health care providers maintain or develop their knowledge and skills to deliver care to patients. CME courses are usually in the form of in-service education workshops, seminars and conferences, and often have a short-term impact; however, their effectiveness is widely acknowledged. Recently, we have witnessed the emergence of gamification as a novel educational method to increase the effectiveness of CME challenges. Gamification is attractive to the new generation of learners who have ubiquitous access to information technology. Therefore, integration of educational games into existing field of CME is attractive for instructors, learners and clinical experts and is a response to the existing challenges. Methods: In this study, English and Persian articles published from 1990 to 2017 were retrieved from Web of Science, Pubmed, Scopus, Embase, Cochrane Library, Google Scholar, ERIC, EBSCO, CINAHL, SID, IranMedex, and MAGIRAN. Finally, three studies that met the inclusion criteria were selected. Two independent researchers appraised study design and focus, intended audience, outcome measures, and methodological quality of the retrieved papers. Results: Evidence suggests that game-based approach is more effective than traditional teaching methods in delivery of CME courses. In this regard, gamification as an interactive space to deliver knowledge, skills, and attitudes significantly improved knowledge of learners. Moreover, studies showed that on-line games by motivating participants will increase their participation and would be an effective tool for active learning conditions. Conclusion: Nowadays, considering the increased popularity of virtual spaces in everyday life encounters and easy access to technologies, a broader range of medical graduates can take part in gamified CME courses. Given individual characteristics of learners with different learning styles, educational games, will provide a special learning environment compatible with educational needs of learners on the basis of principles of adult learning providing an opportunity for everyone to learn at anytime and anywhere. Key words: Continuing Medical Education, CME, Gamification, On-line game
How the study use of the mobile devices varies along daily hours

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ABSTRACT

Background: The Faculty of Medicine at the University of Helsinki has integrated mobile learning into medical studies from 2013, by providing tablet computers and versatile digital learning materials for medical and dental students. Mobile learning forms an important part of students’ daily lives. With mobile devices, they have an instant access to study materials everywhere and any time. This study aimed at exploring how the mobile learners’ study use varied along a study day.

Summary of work: The data of this study were collected with an online questionnaire for the 1st year* (N=104) and 6th year** dental and medical students (N=87) in the autumn of 2018. The chosen student cohorts represent the first and the final year students. The sixth year graduating students were the first ones to use iPads in their studies in the Faculty’s mobile learning project. In the questionnaire, the student’s time allocation of tablet computer usage was surveyed. Students were presented moments of day from dawn to dusk and asked to mark when they used iPads for studying.

Summary of results: Tablet computers were used for studying throughout the day. Students used the tablet computer in the morning before leaving home (*37,5/**45%) and when travelling to school or hospital (*30,8/**32,1%). Through the day, the usage was higher, especially during breaks between classes and patients (*80,8/**66,2%). After the organised studies, over half of the students used a tablet computer in the campus library (*85,6/**52%). The usage decreased during the trip home (*18,3/**25,6%) but increased at home again, reaching the peak after the classes at home (*82,8/**83,2%) before settling for the evening (*62,5/**66,45%)

Discussion and Conclusions: Students’ mobile study adapts flexibly. Especially the first-year students studied with the tablet device in the library and during waiting periods between classes. Sixth-year students have integrated mobile devices into clinical work successfully, although, not all carry the tablet computer with them, reporting having challenges to store the device during patient meets.

Take-home Messages: Mobile study hours extend from the morning to late evening. It is important to foster mobile learning by providing opportunities to use mobile devices securely and proficiently.
Patient as an Educator

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ABSTRACT

Menopause transition is a new medical term for Asia women, besides to keep a good health in the stage of reproduction and fertility of a women, menopausal stage health is also very important for a women. Usually, Asia women pay lesser health care for herself after she had children because she would pay more attention to her children than herself. She will neglect the health care till she suffer real illness. The climacteric symptoms are complex and a lot of private issues, even a medical visiting staff cannot approach well enough for a peri-menopausal women in short period. It was easy for a pgy/resident to use a well-organized questionnaire, which contains 21 items about climacteric symptoms and review body health systemically, and let the suffered menopausal women fill-in those items step by step and describe the severity for those items in the same time and then count the score in total for ranking severity of climacteric symptoms. It is a good experience that patient can use the interactive climacteric questionnaire to help herself to express herself in detail and the junior clinical practitioner can use the ranking score to define severity of climacteric syndrome and then to follow international consensus’ guideline to handle/treatment patient’s complaints effectively. Both learner and teacher gain from patient’ willing to be an educator and help the patient resolve suffering. We would like to share our experience through an e-poster how to let patient to be an educator for Pgy/resident for a suffered climacteric Asia women.
Technology and the transformation of medical education
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Teaching and learning using technology - Enhanced and mismatched

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ABSTRACT

Background: Mobile technologies can enhance both clinical work-place learning and patient care by providing learners with easy access to information and educational resources. Studies have reported negative attitudes of staff and patients in the clinical context. Since 2013, the Faculty of Medicine has given 1st year medical students and staff iPads. A research project following the mobile device usage started simultaneously. In 2016, the first medical iPad-cohort commenced clinical studies, with a drop in their iPad use. Aims of this study were to examine students' views of clinical teachers' ability to use mobile devices in teaching, and their own ability to use them in learning.

Summary of work: We studied two questions in the online questionnaires collected among three student cohorts entering clinical studies from 2016 through 2018: ‘Assess how well the clinical teachers are able to use iPads in teaching’ and ‘At present, how well are you able to use the iPad in your studies?’

Summary of results: Response rates were 90.8% for the first, and 71.7% and 67.5% for the following cohorts. 75.2% of the 2016 cohort students assessed their ability to use iPads in studies as good or excellent. The corresponding figures in the subsequent cohorts were 89.5% and 82.5%. The first cohort deemed only 7.3% of teachers to use iPads for teaching in a good or excellent fashion, and 43.1% to do so inadequately or not be able to use them at all. Corresponding figures for the second cohort were 20.0% (good or excellent) and 10.5% (inadequate or not at all), and for the third 26.9% (good or excellent) and 11.4% (inadequate or not at all).

Discussion: There's a mismatch in teachers’ and students’ ability to use mobile devices for teaching and learning in the clinical context. Students report improvement of teachers' abilities to use the device, indicating an initial adjustment period. This could be accelerated through dialogue between students and faculty, making use of students' insight in mobile device usage.

Take-home message: Students possess insight in clinical learning with mobile devices and should be used to develop mobile device–enhanced teaching in the clinical setting.
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Technological trends that shape the future of medical education

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ABSTRACT

The word is constantly changing and the pace of change is increasing too. The internet changed many things in medicine and in medical education and would allow medical practice and training from anywhere, any time and from any device. Also, some latest technologies are changing Medical education and the way medicine would be practiced in the future. Considering the speed of technologies evolution in medicine we, therefore, need to accept that we will not be able to deliver medical education within the current system. A number of interrelated trends and emerging issues for the future of medical education discussed in this article. Virtual medical university, mobile learning, social medical and E-patients( enabled, electronic, empowered, equipped, engaged), Gamification Health, Augmented Reality, Simulation, Telepresence, Telemedicine, Google Glass, Surgical Robotics Biological Teleportation Devices, DNA Analyzers, Smart Embedded Devices, Portable Labs, Digital Health Metrics, Regenerative Medicine, 3d Printing And Artificial Organs, Artificial Super Intelligence That would change how diseases are diagnosed and treated, Nano-Robots, Big Data, Future Hospitals are the identified trends. These interrelated trends will affect medical education and require responses in the curriculum development, changes in the delivery of educational content and fundamental systemic changes in medical universities and educational institute. Emerging medical devices and technologies are changing the face of 21st Century medical practice and therefore the medical education. We should create a system and educational leaders who can work with multidisciplinary teams to shape the preferred future.
The Case for a New & Digital Approach to Introducing Doctors into an Obstetrics & Gynaecology Department

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ABSTRACT

Background: There are challenges to workplace-based (WPB) learning in medicine. UK trainees in Obstetrics and Gynaecology have to contend with short training-blocks, rota gaps, high attrition rates and working-time-directives. National efforts are in place to redress these concerns which recognise the importance of maintaining quality training for better patient-care. Induction/handovers are pivotal WPB affordances for new doctors joining any unit; we hypothesise that the quality of induction correlates with how confident juniors feel to train/work.

Method: A prospective survey on the quality of the induction programme for trainees joining the O&G department at Chelsea and Westminster Hospital, London was conducted. Quantitative and qualitative data were collected. Trainees were invited to complete an on-line questionnaire, anonymously. The questionnaire was designed to assess the robustness of our induction. Quantitative questions covered the number of weeks elapsed before a trainee understood: their elective and on-call responsibilities; how to complete administrative tasks; location and timings of different O&G handovers; key clinical areas; and the subspecialties of each consultant. Qualitative questions asked for feedback to improve induction. To avoid bias, invitations to complete the survey were made after completing an 8 or 10-week rolling rota, so trainees who started with night-shifts were not disadvantaged.

Results: Complete datasets were collected from 80% (n=21) of trainees. More than 4-weeks after induction: 67% of trainees were not confident how to make internal referrals within our department/across specialties; 57% were not sure how to refer acute gynaecology patients from A&E for follow-up; 52% were unaware of the subspecialties of O&G consultants. However, 57-76% of new starters within 2-weeks of induction were familiar with requesting leave, timings and location of O&G handovers, on-call responsibilities and updating electronic acute-take lists. A common theme which emerged was unfamiliarity with guidelines.

Conclusions: Our survey showed areas of good practice in our induction-programme and areas for improvement where clinical knowledge was lacking. Knowledge is also complemented by social engagement, developing “a community of practice”. However, getting all this knowledge quickly is vital to enhance training and patient-care. We now plan to create a tailor-made mobile-phone app (accessible 24-hours a day) to help our new-starters.
The University’s YouTube channel as an effective teaching resource for 21st century students

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ABSTRACT

There is a lot of demand from students and staff to use video in a blended learning environment to demonstrate practical skills. The School of Veterinary Medicine and Sciences has gained experience in developing practical skills videos, using the ‘Teaching veterinary medicine’ playlist hosted on the University of Nottingham’s official YouTube channel. The use of YouTube delivers advantages; it supports teaching, learning and assessment and promotes teaching carried out at the university by having these videos accessible to prospective students, parents, industry collaborators and other stakeholders. Having video material available within arms’ reach enhances the student experience to review practical skills before, during and after a practical class. The resource is open access, and provides a lifelong learning opportunity for alumni and other interested in developing practical skills. The e-poster will demonstrate videos, the framework of playlists and evaluate how the videos can be used as feedback to help students with their learning and assessment. Quantitative and qualitative feedback from YouTube viewers, students and staff will be shared to discuss opportunities and threats experienced using this teaching resource. One of the key messages will focus on the collaboration between students and the University’s academic, digital development and marketing departments, as this was crucial to its success.
Triple modality 3D printed phantom of the lumbar spine for teaching interventional radiologists

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ABSTRACT

Organ models are used for planning and simulation of operations, developing new surgical instruments, and medical teaching training purposes [1]. There is a demand for in vitro organ phantoms, especially in interventional radiology where often ionizing radiation is present. Animal models and existing simulator systems poorly mimic the detailed morphology and the physical properties of human organs under radiological examinations.

We report a cheap fabrication process to make a human lumbar phantom with realistic anatomical structures and physical properties visible under radiological modalities. The anatomical structure was directly acquired from conventional human CT data set of human lumbosacral spine. Segmentation of individual structures was done in 3D Slicer [2] which is an open source software platform for image processing, segmentation and 3D visualization. The solid structures such as the vertebrae were divided into two parts in software Autodesk Meshmixer [3]. This step created cavities inside the bodies which were later filled by contrast media. Finally the solid structures were 3D printed [4]. Soft tissues, like spinal cord and muscles were created by an indirect method, i.e. they were molded in 3D printed forms created in CAD software Autodesk Fusion 360 [5]. To provide the corresponding signal of the individual structures agar-based gelatin gel doped with various concentrations of iodine and gadolinium contrast media were used.

Anatomical details and material properties of the phantoms were validated in detail by CT and MRI scans. Radiologic examinations showed that the designed phantom mimics a real detailed lumbar spine anatomy and correctly corresponds to the targeted human data. We demonstrate a cheap method of constructing 3D organ models from medical imaging data using an emerging 3D printing technology process. This method is cost-effective means for obtaining a reproducible and robust anatomical models suitable for training purposes under radiological equipment.