

# SELF-DIRECTED OBSERVATION OF PROCEDURAL SKILLS (S-DOPS): A PEDAGOGICAL TOOL TO FOSTER STUDENTS' SIMULATION SKILLS VIA CUMULATIVE LEARNING

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**Introduction:** Pedagogical innovation is a process that reinvents teaching practises, it drives the curriculum design and delivery in an educational programme. Designing an innovative pedagogy integrated with conceptual mapping provides an opportunity to foster students' competencies and skills. Pharmacy students need to be equipped with Computer-Aided Drug Design (CADD) simulation skills as a future-proof attribute.

**Method:** We, as a team, designed S-DOPS as a pedagogical tool for CADD simulation skills self-assessment, it's a structured checklist prepared with a set of CADD simulation skills-based CAL practical activities with pre-defined criteria for the fulfilment of activity completion. Students were trained hands-on with CADD simulation software at e-labs in a face-to-face setting in a series of five CAL workshops (15 hrs), divided into three phases, Phase 1: CAL1 (3 hrs) & CAL2 (3 hrs), Phase 2: CAL3 (3 hrs) and CAL4 (3 hrs), and Phase 3: CAL5 (3 hrs), respectively. Students self-assessed their procedural skills using S-DOPS1 first after Phase 1 training and S-DOPS2 after Phase 2 training sessions, respectively. We aimed to study the impact of S-DOPS on the students' learning effectiveness.

**Results:** More than 80% of the students expressed positive perception for all ten domains that includes perceived ease of use, perceived usefulness, perceived engagement, perceived credibility, perceived learning effectiveness, perceived satisfaction, perceived self-efficacy, perceived enjoyment, perceived beliefs, and behavioural intention.

**Conclusions:** Study outcomes revealed that the students' performance was enhanced in demonstrating CADD simulation skills and procedural recall through a cumulative learning approach using the S-DOPS self-assessment tool.

# USE OF 3-D VIRTUAL MOLECULES FOR TEACHING AND LEARNING OF STEREOCHEMISTRY IN UNDERGRADUATE PROGRAMMES

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**Introduction:** Stereochemistry involves the study of different spatial arrangements of atoms in organic molecules. To comprehend stereochemistry, students apply visuospatial skills to switch between the 2-D and 3-D chemical structures. The most common method to strengthen the 3-D visuospatial skills is by using physical molecular models to visualise a molecule in 3-D manner. To find out if the alternative 3-D virtual molecules are effective tools for teaching and learning of stereochemistry, this project aims to develop 3-D virtual molecules for such purpose and to explore the perception of students on the use of 3-D virtual molecules.

**Method:** Upon construction of 3-D virtual molecules, they were uploaded to Organic Chemistry module page (under stereochemistry topics) on IMU e-learn portal. During the online or physical classes, prior guidance was provided on how to use the 3-D virtual models for visualisation of spatial arrangement of atoms in the molecules. Pertinent quiz was prepared, which were to be answered by students to gauge their understanding of the topics.

**Results:** A survey had been conducted on Semester 1 undergraduate students who learnt stereochemistry in the Organic Chemistry module. Based on the responses gathered (n = 47), rating scores of 4.6 to 4.8 over 5 were attained on how the virtual 3-D models aid in visualising atom spatial arrangement in molecules and help relate between 3-D and 2-D representations of molecules. From the feedback collected, majority of them had commented that they enjoyed using the 3-D models, which were helpful in having a clear understanding of the theories learnt during lectures.

**Conclusions:** The initiative allows the students to better visualise and comprehend the 3-D atom spatial arrangement in the molecules. Majority of students have indicated that the virtual 3-D models have improved their understanding of stereochemistry and stimulated their interest in the topic.

# DISASTER PREPAREDNESS TOWARDS COMMUNITY RESILIENCE – THE CURRICULUM DEVELOPMENT OF THE FLOOD DISASTER PREPAREDNESS TRAINING MODULE FOR COMMUNITY

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**Introduction:** Rapid human population growth and the development of modern civilisations have significantly contributed to climate change, further exacerbating natural disasters. The primary challenge in disaster preparedness today is effectively delivering information to the target population. In response to a resilience study that highlighted the inadequate preparedness among the at-risk population in Kelantan, a curriculum for the Flood Disaster Preparedness Training Module was developed.

**Method:** Two brainstorming workshops were conducted with the participation of volunteers from various non-governmental organisations and governmental organisations to develop curriculum content for the module. The six crucial clusters comprised Health, Food Safety, WASH, Shelter, Communication, and Logistics. The initial group of participants consisted of 20 volunteers from multiple NGOs actively engaged in flood relief activities. Training assessment and evaluation were conducted after the workshop to gather insights into the content of the overall programme.

**Results:** 100% of the participants strongly agreed or agreed that the module is very useful, increases their knowledge, fulfils the objectives, and meets their expectations. Participants also recommended this training to others and were willing to disseminate the knowledge to the community whenever possible. The curriculum was adequate as an introduction to community preparedness and was recommended to be extended to intermediate and advanced levels in the future.

**Conclusions:** The Flood Disaster Preparedness Training Module proved to be a crucial tool in raising awareness and preparedness among communities affected by floods. Training supported using this module could potentially enhance preparedness and foster community resilience in the face of flood disasters.

# MEDICAL ENTREPRENEURSHIP: IMPACT OF ENTREPRENEURIAL PASSION ON NASCENT ENTREPRENEURIAL BEHAVIOUR AMONG MALAYSIAN MEDICAL STUDENTS

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**Introduction:** In recent years, healthcare is on the cusp of modernisation and change. The Covid-19 pandemic has brought health, wellness, and medicine into the main focus. To contribute effectively to this changing healthcare scenario, medical students need additional competencies. The entrepreneurial behaviour of Malaysian medical students has not yet been explored. Based on the theory of planned behaviour, intentions lead to behaviour. Hence, this study aimed to assess the perception of medical students on their passion for entrepreneurship, intention to be an entrepreneur and investigate its relationship with their nascent entrepreneurial behaviour.

**Method:** A cross-sectional study was conducted on medical students at a private Malaysian medical school using an adapted, validated questionnaire. The sample was selected by disproportionate stratified random sampling. Structural equation modelling using Smart PLS 3.0 was performed.

**Results:** 318 medical students voluntarily participated in this study. The mean scores revealed moderate level of entrepreneurial passion (mean=3.41±0.54SD), moderate level of entrepreneurial intention (mean=3.39±0.67SD), and moderately low level of nascent entrepreneurial behaviour (mean=2.66±0.91SD) among the study population. Further, entrepreneurial passion had a significant positive impact on entrepreneurial intention ( $\beta=0.601$ ,  $t=9.689$ ,  $p<0.01$ ) with large effect size ( $f=0.403$ ). However, its impact on nascent entrepreneurial behaviour was insignificant ( $\beta=0.02$ ,  $t=0.377$ ,  $p>0.05$ ). Mediation analysis showed a significant mediating role of entrepreneurial intention (specific indirect effect=0.343,  $t=6.151$ ,  $p<0.01$ ).

**Conclusions:** The study results posit that medical students demonstrate poor nascent entrepreneurial behaviour despite having passion for entrepreneurship emphasising that passion alone cannot lead to behaviour without prior intention. Entrepreneurial education could tap the entrepreneurial passion among medical students by enhancing their self-efficacy to convert market opportunities into relevant health-oriented products, technologies, and services.

# USE OF MICRO-VIDEO TO ENGAGE, ENABLE AND EMPOWER NUTRITION AND DIETETICS STUDENTS IN DEVELOPING ANTHROPOMETRY SKILLS

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**Introduction:** Anthropometry skills are entry-level competency for nutritionists and dietitians, which is necessary to assess healthy and diseased populations. The objective is to use an instructional approach to engage nutrition and dietetics students through demonstrations of correct anthropometry measurements using international standards to enable and empower these students in developing anthropometry skills.

**Method:** A total of nineteen instructional micro-learning videos on measuring different parts of the human body was developed in small bite-size chunks. These measurements were conducted using calibrated equipment and performed by academics with the International Society for the Advancement of Kinanthropometry (ISAK) Level 1 certification. The videos were available on the university's Moodle platform and self-directed learning unit. A survey using a 4-point Likert scale and open-ended questions was conducted to collect responses on user experience and impact on learning.

**Results:** Two cohorts of nutrition and dietetics students completed the questionnaire (n=40). On user experience, all students responded they either "strongly agree" (42.5%) or "agree" (57.5%) that the videos helped them identify the correct use of equipment and techniques for anthropometry measurements. Similarly, all students (37.5% "strongly agree", 62.5% "agree") that the videos and commentaries were sufficient to understand the step-by-step technique for identifying measurement sites, landmarking and measurement. For the impact on students' learning, more than 30% strongly agreed that the videos had increased their overall skills and confidence in undertaking anthropometry measurements. Three themes of improvement were identified, namely enhancement of user experience, refining the video design, and incorporating advanced levels according to Miller's pyramid.

**Conclusion:** The step-by-step procedural visual guides engaged the students in their learning, enabled them to be independent and peer learners, and enhanced their self-confidence in developing anthropometry skills. Such approaches strengthen nutrition and dietetics students' competency and empower them with anthropometry skills in the field.

## DO MEDICAL STUDENTS' PERSONALITY TYPES DIFFER ACCORDING TO GENDER, AGE, AND ACADEMIC LEVEL?

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**Introduction:** Understanding the recent medical student generation is important to medical educators. This study aimed to identify the personality type of medical students. The specific research questions are 1) what is the distribution of psychological personality types among medical students? and 2) are there differences in personality types according to gender, age, and academic level?

**Method:** The 40-items Korean Geometric Psychological Assessment tool (GEOPIA) was administered to 1,173 students from five medical schools in Korea. Frequency analysis and  $\chi^2$  test were conducted to answer the research questions. GEOPIA can be classified into four simple geometrical types: the characteristics of the "Round" type is sociable and relationship-oriented, the "Triangle" is challenging and task-oriented, the "Box" is prudent and stability-seeking, and the "Curve" is the creative and sensitive type.

**Results:** Out of 1,016 respondents, 981(86.61%) were included in the final analysis. The majority of medical students' primary preference type was the "Round" type (40.3%), followed by "Triangle" (15.2%), "Box" (31.7%), and "Curve" (12.8%) types. Among the 12 combination types, the most common type was the Round-Box (21.85%), followed by the Box-Round (18.97%), the Round-Triangle (9.74%), Round-Curve (8.92%), and Box-Triangle (7.90%) type. No statistical differences were found in preference type according to gender ( $\chi^2=6.360$ ,  $p=0.095$ ), age ( $\chi^2=8.314$ ,  $p=0.091$ ), or academic levels ( $\chi^2=18.044$ ,  $p=0.260$ ).

**Conclusion:** The study findings can be used in the areas of instructional design tailored to the characteristics of learners, such as in forming group activities or giving assignments or projects. It can also be used to support medical students' school life through individual counselling.

## SIMULATION-BASED NURSING EDUCATION: BRIDGING THEORY AND PRACTICE

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**Introduction:** Nursing students often have difficulty transferring knowledge into clinical practice. In traditional teaching, students practice and perform procedures on mannequins and peers. However, these cannot substitute the realism of a human experience. Simulation learning can bridge theory and practice. This project evaluated students' perception of a high-fidelity simulation-based learning (HFSBL).

**Method:** HFSBL involving hypoglycaemic attack and stroke cases was offered to Year 2 Nursing students. Online survey was administered post-activity.

**Results:** Twelve out of 18 students responded to the survey. Students perceived debriefing sessions to be helpful for them to critically reflect upon their performance. HFSBL improved their communication skills and allowed application of theory to practice. The clinical simulation was perceived to be a valuable tool that enables them to be safe nurses.

**Conclusion:** The HFSBL sessions create realism on the need to act or make quick decisions in an emergency environment in the clinical area. Additionally, HFSBL sessions were able to reinforce patient safety issues when mistakes occurred in a controlled environment. Simulation-based learning has huge advantages for nursing education, especially in enhancing students' experience which will not be able to be done through lectures, tutorials, or practical classes.

# TECHNOLOGY-ENHANCED PEER ROLE-PLAY: AN EFFECTIVE TEACHING METHOD EMPOWERING STUDENTS FOR ACTIVE LEARNING

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**Introduction:** Peer role-play (PRP) is a simulation-based teaching method that actively engages students in scenarios by assigning specific roles. When combined with technology, PRP becomes a powerful educational tool that enables students for active clinical learning. The learning experiences can be supported by the Kolb's Experiential Learning Cycle; experience, reflect, think, and act. The objective of this study was to evaluate the effectiveness of the virtual PRP simulation-based teaching method as an adjunct for clinical learning among medical students.

**Method:** A PRP video was produced through a simulated motor vehicle accident scenario in which students played different roles as emergency room doctors and simulated patient. Quiz was incorporated alongside with video for students' learning. The virtual PRP simulation video was offered to fourth-year medical students. Questionnaire was administered post activity.

**Results:** A total of 141 fourth-year medical undergraduates participated in the survey. The questionnaire showed good internal consistency (Cronbach's alpha = 0.932). Students rated highest on that interactive quizzes to deepen their understanding of the case (M = 4.81, SD = 0.472). The students also expressed a preference for revisiting the case at their convenience to enhance their clinical skills, which was the third most popular response (M = 4.78; SD = 0.587).

**Conclusion:** PRP is a novel modality of virtual teaching that engages students and provides them insight into case-based learning. It empowers students by allowing them to actively participate in the learning process, develop confidence in their ability to handle difficult clinical situations, make decisions, and communicate with patients and their families.



# LECTURERS' PERCEPTION OF PROBLEM-BASED LEARNING IMPLEMENTATION IN A PRIVATE SCHOOL OF PHARMACY IN YOGYAKARTA, INDONESIA

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**Introduction:** Problem-based learning (PBL) is well-known for stimulating students to learn actively and think critically, as well as learning to solve problems. A private school of pharmacy in Yogyakarta, Indonesia, has implemented PBL since it was first established, with tutorial as the main PBL session. This study aims to analyse the perception of pharmacy lecturers towards the PBL implementation in the School of Pharmacy.

**Method:** This study was conducted with a mixed-method design. Twenty-two lecturers who have participated in PBL tutorial sessions were recruited from a private School of Pharmacy in Yogyakarta, Indonesia. Quantitative data was collected through a questionnaire, while qualitative data was collected through in-depth interviews with five representatives from each department. Data analysis was conducted descriptively for quantitative data and thematic analysis for qualitative data.

**Results:** The result of the study revealed that the mean level of perception toward PBL was  $88.07\% \pm 7.99$ . Lecturers strongly agreed on several aspects, such as PBL's effect on critical thinking skills (77.30%), students' considerable effort in preparing each session (72.70%), and communication skill development (90.90%). Based on the qualitative data, lecturers acknowledged the strength of PBL as a suitable learning method and effective in improving students' critical thinking, communication, and collaborative skills. Limitations and challenges faced by lecturers included inflexible time, difficulty constructing scenarios, and unequal distribution of students in each group.

**Conclusion:** Lecturers at the School of Pharmacy positively perceive PBL implementation. Several limitations and challenges should be taken into consideration to improve the method.

## STUDENT ENGAGEMENT IN CURRICULUM DEVELOPMENT: INTEGRATING STUDENT VOICES INTO CURRICULUM CHANGES

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**Introduction:** Student engagement is a fundamental educational strategy at Chulalongkorn Medical School. During the development of the 2024 undergraduate curriculum, 26 students actively participated in curriculum committees and working groups. Given the importance of student input in the curriculum development process, surveys were co-designed and conducted by students to identify their current concerns and gather their perspectives.

**Method:** The modified Delphi method was employed. The findings of the open-ended survey conducted in the first round led to the creation of the 51-item closed-ended questionnaires. The items were subsequently tailored to capture the distinct viewpoints of students in different educational phases.

**Results:** 1,280 respondents participated in the study. Four significant curriculum changes were directly implemented in response to student feedback. Firstly, credit reduction and integration of basic science content into body system courses were implemented. Secondly, based on respondents' preference, curriculum was revised to include four weeks of inter-semester breaks and ten weeks of inter-academic year breaks. Thirdly, 87% of students supported increased integration of symptomatology in pre-clerkship years, and the new curriculum incorporates "approaches to core clinical presentations" in all body system courses. Lastly, 84% of respondents advocated for clinical rotations outside the main teaching hospital for Year 4-5 students to expose them to patients with common diseases. The new curriculum designates eight weeks in Year 5 for this purpose.

**Conclusion:** This study highlights the value of incorporating student voices in designing the new curriculum and demonstrates the ongoing efforts to foster student engagement in medical education.

## “RESIDENTS-AS-TEACHERS”: SURVEY ON PERCEPTION AND EXPERIENCE OF SURGICAL AND ORTHOPAEDIC RESIDENTS IN UNDERGRADUATE MEDICAL EDUCATION

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**Introduction:** Surgical and orthopaedic residents are tasked with teaching undergraduate medical students, which can be difficult given their clinical workloads and lack of training. While student feedback is shown to be positive in literature, there is a lack of understanding about how residents view their teaching duties. This study aims to investigate the perceptions and experiences of surgical and orthopaedic residents regarding undergraduate medical teaching.

**Method:** A cross-sectional online survey was conducted among resident and resident specialist grade doctors in the surgical and orthopaedic departments of a single university teaching hospital. Subjects were asked to fill in an online survey after obtaining informed consent. Background characteristics (including sex, training grade, primary medical qualification, experience in medical student teaching and teaching hours) and their opinion towards various statements regarding medical student teaching (experience, perception and belief) were recorded using a Likert scale.

**Results:** Twenty-two (22) residents across all training grades were included in this study. All participants had been taught by residents during medical school, and 68.2% rated their previous learning experience as good or very good. However, only 31.8% received formal training in teaching, and 18.2% had protected time off from clinical duty for teaching. They also did not receive adequate feedback about quality of teaching (27.3%), nor have a sense of being valued by the hospital or university for their engagement in teaching (18.2%).

**Conclusion:** Surgical and orthopaedic residents reported positive feedback from their experience in undergraduate clinical teaching but received inadequate support and training.

## ENGAGING STUDENTS LEARNING THROUGH VIRTUAL NURSING CASE: THE IMPACT

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**Introduction:** The real clinical setting and timing may not be enough for students to learn the many intricate tasks demanded as course outcomes and expected competencies. The Virtual Nursing Case (VNC): Anaemia and blood transfusion was created because of the lack of blood transfusion procedures encountered during clinical attachments.

**Method:** VNC provides a virtual learning platform to nursing, medical, and pharmacy students who are involved in patient care. This platform uses multimedia case study courseware in facilitating learning among students, in a safe learning environment. The Anaemia and blood transfusion virtual case was created under Haematology Module for Year 2 Nursing students. It aims to enhance students' basic knowledge which includes history taking, signs and symptoms of the disease or condition, interpretation of investigations, medications, formulation of nursing diagnoses, and formulation of nursing care plans.

**Results:** A total of 18 students responded to the online feedback and 16 respondents (87.5%) of them rated this innovation as excellent. The students reported that VNC is very comprehensive which includes the explanation of diseases or conditions from the assessment up to the management phase. In addition, the students found the VNC was fun and interesting and can attract their interest and attention in learning. It relates theory to real-life situations which enhances the student's understanding and critical thinking skills.

**Conclusion:** Students can use VNC for self-directed learning as it is accessible anywhere and anytime. VNC also can be used by lecturers as an alternative for tutorial activities.

## CLINICAL SKILLS PEER TUTORS: A TRAINING PROGRAMME FOR FORMATIVE, PEER ASSESSMENT OF CLINICAL SKILLS

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**Introduction:** Peer-assisted learning (PAL) has been recognised as an effective approach to promoting a safe and inclusive learning environment that enhances students' confidence and supports success in parallel to faculty-based teaching and assessment. In this study, we implemented a pilot programme to prepare senior medical students (MS) to utilise PAL for formative assessment of learners' clinical skills using a multi-stage training.

**Method:** We invited 52 senior MS to serve as formative assessors, 14 (27%) expressed interest, and 8 (15%) have completed the training programme to date. Through this programme, senior MS learned and demonstrated the necessary skills to serve as peer facilitators for formative assessment. Initially, senior MS observed faculty assessing learners prior to themselves serving as the assessors under faculty supervision. The MS were evaluated on their professionalism, aptitude, and ability to motivate learners through iterative performance feedback until deemed competent to function independently.

**Results:** Our preliminary evaluation data indicates this programme was well-received as 95% of the senior MS expressed confidence to function independently. On average, the training required six hours of dedicated faculty and MS time with variability depending on the amount of iterative practice and feedback sessions needed to achieve independence. Faculty were satisfied with the provision of consistent quality formative assessment to learners.

**Conclusions:** This training provides high-quality PAL for assessment of clinical skills in a positive and standardised environment. The success warrants an opportunity for future research on utilising PAL for clinical skills and MS as assessors.

## THE TREND OF CERVICAL CANCER IN CAMBODIA: RISK FACTORS AND MANAGEMENT STRATEGIES

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**Introduction:** Cervical cancer has been identified as a serious disease globally. Cambodia has high-risk of cervical cancer, with an estimated 1,135 incidences and 634 deaths in 2020, and they are expected to increase by 40% in 2040 if cervical cancer prevention makes no progress. This review aims to demonstrate the risk factors and management strategies of cervical cancer in Cambodia and provide suggestions to prevent this disease effectively.

**Methods:** Review and interpretation of existing data from peer-reviewed publications. Existing data from different studies were analyzed and compared to determine the overall risk factors and management strategies of cervical cancer disease in Cambodia.

**Results:** It was found that the prevalence of cervical cancer (HPV-DNA) was up to 41.1% of women who engaged in sex work in Phnom Penh. There were 22.4% of patients tested positive for high-risk HPV at Sihanouk Center of Hope in Phnom Penh, Cambodia. However, cervical cancer cases account for an estimated 11.4% and 10.4% of women's cancer and deaths in 2020, respectively. These results demonstrated that there is limited information regarding knowledge and practice concerning cervical cancer among women in Cambodia.

**Conclusion:** Overall, to improve the prevention and detection of cervical cancer in Cambodia, we suggest (1) implementing a nationwide screening program for cervical cancer in health facilities, (2) disseminating knowledge to promote cervical cancer prevention by providing the right knowledge through the local healthcare providers, and (3) integrating such information into school curricula to promote cancer awareness and healthy lifestyles.

# ENGAGING STUDENTS AS PARTNERS TO DESIGNING A NEW CARDIOVASCULAR PHYSIOLOGY PRACTICAL – INNOVATIVE REPURPOSING OF AN OPEN-SOURCE SIMULATION

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**Introduction:** Computer simulations of physiological experiments have long been available and are often delivered in computer labs. However, monitoring, and sustaining students' engagement in such setting remain challenging. It is imperative to ensure that physiology practicals are fit for purpose for health professionals' students.

**Methods:** In 2022, I (the teacher), partnered with three first-year medical students to design the practical class. Key concepts to cover, drafted the practical manual, and recruited additional students for a test run. Feedback was collected from the student testers to refine the design. The three-hour practical adopted an open-source rat cardiovascular system (RatCVS) simulation. The simulation was deployed on several 50-inch touchscreen computers, each shared by 10 to 11 students. The practical conduct also involved activities such as pre-set experiments with a step-to-step protocol and creation of experiments. Students submitted their findings online, and the teacher gave feedback accordingly.

**Results:** First-year medical students attended the practical in February 2023. Validated instruments were used to elicit students' perception post-practical. Out of 317 surveys disseminated, 57 responses were received. For situational motivation (7-point Likert scale), the mean scores ( $\pm$  SD) for intrinsic motivation (IM), identified regulation (IR), external regulation (ER) and amotivation (AM) were 5.1 ( $\pm$ 1.1), 5.5 ( $\pm$ 0.9), 4.5 ( $\pm$ 1.1) and 2.8 ( $\pm$ 1.1), respectively.

**Conclusion:** The evaluation results show good self-motivation amongst the survey respondents, indicated by high mean scores in IM and IR and low mean scores in AM. No additional cost was involved in repurposing an open-source simulation package already owned by the faculty. Student-teacher partnership has great potential for learning enhancement.

# ENSURING STUDENT COMPETENCE IN ESSENTIAL DENTAL CONSULTATION COMMUNICATION SKILLS FOR PATIENT CARE: DEVELOPING, VALIDATING AND PILOTING A COMPREHENSIVE CHECKLIST

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**Introduction:** Ability to communicate effectively as a core competency for dental practitioners is deemed important for a patient-centred practice. This study aims to pilot the process of developing and using a comprehensive checklist for ensuring student competence in essential dental consultation communication for patient care.

**Method:** A total of 87 third-year dental undergraduate students' videotaped patient interviews were independently rated by six raters to evaluate the psychometric properties of the developed Dental Consultation Communication Assessment Checklist (DCCAC). Students were given training in basic consultation communication skills and patient interview techniques according to the developed DCCAC. Improvement in communication was assessed in pre-intervention and post-intervention using the checklist for giving feedback on performance of real patient examination.

**Results:** The majority of faculty (84%) and patients (93%) gave positive feedback (satisfaction) on the process and 87% of the students' feedback indicated they would use their learning regarding communication skills in the future (transfer to practice). This comprehensive tool was found to be highly reliable with internal consistency (Cronbach's alpha) of 0.987. Construct validity of the tool was examined through principal components analysis with varimax rotation. Based on the principal component analysis, new extracted domains demonstrated very high internal consistency (Cronbach's alpha range = 0.975–1.00).

**Conclusions:** The developed tool has the potential as a valid tool to assess clinical competence during a patient interview and provide specific and formative feedback/self-reflection for consciously improving performance during the next patient encounters. Self-reflection during formative years will promote the development of reflective practitioners.



## CASE REPORT OF STUDENT COLLABORATION IN MEDICAL EDUCATION BY NATIONAL MEDICAL STUDENT SOCIETY

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**Introduction:** During the COVID-19 disruption, medical schools in Thailand required modifications to the changing landscape of medical education. Acknowledging this need, the Society of Medical Students of Thailand (SMST) took a leading role in supporting student engagement in medical education development, collaborating with student representatives from all medical schools. Given these circumstances, we conducted an analysis of the SMST contribution to the development efforts of medical education.

**Method:** This study involved a review of the available data resources provided by the SMST. We assessed the level of support offered to student representatives from each medical school in terms of curriculum development. To achieve this, we analysed the questionnaires utilised and categorised the questions based on their specific features. Additionally, we sought clarification from reliable sources associated with the SMST from the Vice-President of Quality Development.

**Results:** Throughout the year, the SMST conducted a comprehensive survey across all 25 medical schools to collect valuable information on curriculum, unique features, and initiatives in medical education. Additionally, the SMST organised academic network conferences and exchange camps to foster idea-sharing and student engagement in medical education. Furthermore, SMST representatives attended national conferences held by the Consortium of Thai Medical Schools and the Medical Council of Thailand.

**Conclusion:** The SMST plays a role in collecting insights from every school, contributing to the advancement of medical education across the country. The gathered information provides valuable perspectives for faculty members to understand students' experiences in medical education better. This study confirms the significant contributions that the national medical student society can make to medical education.

## CAREER NAVIGATION, THE ESSENTIAL TOOLS FOR STUDENT GUIDANCE

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**Introduction:** Thailand requires six years of medical school, with the final year as an externship. The externship is divided into three rotations, each with specific benefits in terms of residency applications. Our objective is to conduct a career navigation session for fifth-year students in selecting the externship rotation. Pre- and post-activity surveys were conducted to assess the effectiveness of the activity in providing students with insights into their career paths.

**Method:** We organised a 3.5-hour session, moderated by KL and UT, where one resident from major wards and seven from minor wards discussed the pros and cons of various rotations for residency programme applications in Thailand. Before the session, we conducted a survey to gauge fifth-year students' knowledge of residency programmes and their connection to externship rotations. After the session, the students completed a self-assessment questionnaire to assess their post-activity perspectives and satisfaction.

**Results:** Eighty-six students out of 196 (43.9%) responded to our pre-activity questionnaire. For the post-activity questionnaire, 18 students responded. The statement "How well do you know your career path", scoring from 0 to 4 on the pre-activity questionnaire received a mean score of  $1.31 \pm 1.01$  (mean $\pm$ SD). On the post-activity questionnaire, it received  $2.72 \pm 0.89$  (mean $\pm$ SD). The mean satisfaction score is 8.27 out of 10.

**Conclusion:** The knowledge of fifth-year students regarding their career path is relatively low. Implementing student-initiated career navigation can greatly benefit these students, providing them with valuable guidance for selecting rotations. We recommend students to continue organising similar activities in the future in every institution.

## CURRENT TRENDS IN PEER-TUTORING: A LITERATURE REVIEW

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**Introduction:** Recent findings discovered that 3 out of 23 Thai medical schools mentioned having a peer-tutoring programme. This suggests that peer tutoring is not well-established and may be an area for improvement in medical education. This study aims to explore the key elements of successful peer-tutoring programmes worldwide and identify important factors to consider in designing programme frameworks.

**Method:** A narrative review was undertaken to examine the topic of peer tutoring. The review included papers published after 2000 in PUBMED with keywords of “peer tutoring” and “peer teaching” and their MESH. The review focused on identifying key features of peer-tutoring that were considered to contribute to successful outcomes. These features were carefully collected and analysed to identify common themes, which could be used to develop recommendations for constructing programme frameworks when implementing peer-tutoring initiatives.

**Results:** The review included 11 literature pieces on peer-tutoring, categorised into organisers, formats, and evaluations. Both student-led and institution-centralised programmes were identified, with near-peer tutoring (NPT) and reciprocal-peer tutoring (RPT) showing their respective benefits. Evaluation measures like observation, interviews, and self-reporting were recommended to assess peer-tutoring effectiveness.

**Conclusion:** When designing peer-tutoring programmes, the decision of whether they should be student-led or institution-led depends on comparing the various advantages and contextual factors specific to each institution. Both near peer-tutoring (NPT) and reciprocal peer-tutoring (RPT) have distinct benefits for the tutees, although NPT tends to provide more valuable feedback and boost tutees’ confidence. Careful consideration should be given to the selection of appropriate evaluation methods for ongoing improvements in peer-tutoring programmes.

## CURRENT TRENDS IN CURRICULUM FEATURES: NATIONAL VIEW AMONGST THAI MEDICAL SCHOOLS

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**Introduction:** Medical students in Thailand collaborate in curriculum development through a national student society, the Society of Medical Students of Thailand (SMST). This study seeks to systematically identify and analyse the prevalence of specific features within the medical curricula of all medical schools in Thailand and explore the current trends shaping the field.

**Method:** This study was conducted on behalf of SMST. Student delegates who are key informants from all 25 medical schools in Thailand were given a nine-items open-ended questionnaire surveying key strengths, features, and student involvement within their curriculum development process.

**Results:** Twenty-three out of twenty-five (92%) student delegates responded to the questionnaire. Among the 23 medical curricula, 39.1% identified the use of course evaluation surveys, allowing students to provide feedback and recommendations. Regarding student engagement, 39.1% encouraged student participation in curriculum design meetings. Additionally, 17.4% organised research conferences or had research incubation programmes for students. Early clinical exposure for pre-clinical students was adopted by 13.0%. Two institutions (8.7%) incorporated supplementary components on emerging medical technologies and 4.3% offered assistance for USMLE preparation.

**Conclusions:** The prevalence of common educational features among medical schools in Thailand is relatively low, with common features being shared among clusters of the top five to seven oldest schools. These findings suggest the need for further investigation into the root causes, exploring the roles and impact of low inter-institutional collaboration and knowledge sharing on curriculum design in Thailand or concerns about the effectiveness of these features that deter some institutions from adopting them.

## PHENOMENOLOGY OF STUDENT'S PUBLIC HEARING ON DEVELOPING NEW CURRICULUM

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**Introduction:** The Faculty of Medicine, Chulalongkorn University is developing a new curriculum for 2024. To engage and empower students in the process, the Student Union of the Faculty of Medicine, Chulalongkorn University (SMCU), initiate a public hearing conference with the faculty authorities. The objective is to actively involve students in sharing their perspectives and insights regarding the current curriculum, ensuring their valuable input in designing our new curriculum.

**Methods:** SMCU's Education Affairs along with faculties co-construct the new curriculum draft which allows every current student to be involved. During the conference, SMCU representatives and faculty authorities moderated discussions and provided students with a platform to seek clarification and propose improvements. The 12 items questionnaire was distributed after the conference to evaluate demographic data, satisfaction, key features, and recommendations. An analysis was conducted to assess the level of student empowerment achieved through this process.

**Results:** Students enjoyed the session and appreciated the faculty's commitment to maintain an up-to-date curriculum. A total of eighteen responses were gathered, mostly reflecting the students' enthusiasm and satisfaction with their participation in the curriculum development and conference along with the faculty's recognition and value placed on their opinions. Over-crowded curriculum was thought to be solved by twelve students, the common case-based learning will be applied in fourteen students' opinions and semester break time is proper in sixteen students' opinion.

**Conclusion:** Conducting public hearings, student empowerment and engagement can effectively capture valuable insights from the youth's perspective for curriculum development. Given the positive evaluations regarding student empowerment, it is crucial to create additional opportunities for students as it ensures a curriculum that caters to the needs of both students and teachers.

## EFFECTIVENESS OF STUDENT-LED VIRTUAL PEER ROLE-PLAYING IN IMPROVING MEDICAL STUDENT COMMUNICATION SKILLS

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**Introduction:** Fourth-year medical students from NUMed Malaysia are assessed through Modified Objective Structured Long Examination Review (MOSLER), which includes communication skills assessment domain. Due to the learning disruptions during COVID-19 pandemic, a student-led initiative to improve communication skills through virtual peer role-play was developed. The objective of this study was to evaluate the effectiveness of the intervention in improving communication skills and explore student perceptions of the intervention.

**Method:** Seventy-three fourth-year students voluntarily enrolled into fourteen weekly peer role-play sessions through the video-conferencing platform Zoom. Students worked in groups of three to work through three cases. Each participant rotated between the roles of peer doctor, examiner, and patient. Participants were required to complete a 28-item (yes-no) questionnaire before, and upon completion of, the intervention. Focus group interviews took place upon completion of the study, led by a trained interviewer. Qualitative data from focus groups (n = 10) underwent inductive thematic analysis.

**Results:** Quantitative analysis showed 20 of 28 items demonstrated statistically significant improvement post-intervention ( $p < 0.05$ ). Students also reported a significant improvement in the total number of communication skill steps routinely performed post-intervention compared to pre-intervention ( $p < 0.001$ ). Qualitative analysis of student perception yielded six themes: "peer-to-peer collaborative learning", "motivation in learning", "convenience and limitations of online platforms", "clinical skill development", "regular practice and confidence", and "exam-oriented practice".

**Conclusion:** Virtual peer role-playing is effective in developing communication skills among medical students. The additional benefits and limitations pertain to its virtual nature and its role in shaping an independent and proactive clinician.

## MEDICAL STUDENTS' PREFERENCES ABOUT EDUCATIONAL MATERIALS TO FACILITATE THEIR LEARNING – FROM PATIENT PARTICIPATION IN IN-PERSON LECTURES TO SOCIAL MEDIA

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**Introduction:** Lectures remain a widespread teaching method. However, in recent years their predominance as the main tool in the learning process has been challenged by the increasing use of technology. They have changed from the transmission of information to large passive audiences to modified lectures with the inclusion of the active participation of the students or to flipped classrooms. The study aims to assess students' perception of the most effective tools to support lectures.

**Method:** During the 2022-2023 regular course of medical-surgical pathology of the locomotor system (MSPLS) – fifth-year medical school – we complemented regular lectures with different educational tools including face-to-face tools and online tools. At the end of the course, we asked the students which tools they prefer.

**Results:** Eighty percent of the students participated in the survey (130 out of 163). The students scored the following five educational tools (out of 5): Patients coming to the classroom as a part of a lecture  $4.7 \pm 0.6$  (mean  $\pm$  SD); Infographic clinical vignettes  $4.5 \pm 0.7$ ; Lectures  $4.4 \pm 0.8$ ; Live pools and quizzes during lectures  $4.3 \pm 0.9$  and Twitter threads  $3.7 \pm 1.2$ . Greater use of infographics was associated with a better performance in the final exam of the subject ( $p=0.030$ ). Follow the Twitter threads was not associated with changes in exam scores ( $p=0.528$ ).

**Conclusion:** Our study shows that the most valued teaching resource by our students was active listening to real patient testimonials. Also, visual illness scripts were highly valued. On the opposite side, Twitter threads were the less-valued tool.

## A TRIAL OF THE PATIENT PROBLEM-BASED INTERPROFESSIONAL INTERACTION MODEL AS AN INTERPROFESSIONAL LEARNING METHOD IN THE COMMUNITY

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**Introduction:** The purpose of this study is to evaluate the model of “patient problem-based interprofessional interaction” as an interprofessional learning strategy for situations requiring profession-specific competencies to address patient and community problems.

**Methods:** This is a mixed-methods investigation into the model’s application. In September 2022, 240 students at the Palu Health Polytechnic were divided into four profession-specific small groups: midwifery, nursing, nutrition, and environmental sanitation. The model of “patient problem-based interprofessional interaction” has five types of interaction models where the interaction model results from each group member’s reflections on a given case and is then linked to the professional skills possessed by each professional student during the interaction: (1) All group members stated the case was consistent with their professional competence; (2) the case was unrelated to all group members’ competence; (3) only one profession stated a case was inconsistent with his or her competence; (4) at least two group members stated a case was related to their profession; and (5) only one member stated a case was related to professional authority.

**Results:** There was a statistically significant difference between the mean scores before and after two weeks of community practise ( $t = -3.98$ ,  $df = 237$ ,  $p = 0.001$ ) for the 238 students who were able to fully participate in the activities ( $df = 237$ ,  $p = 0.001$ ). This model’s qualitative evaluation yielded favourable results.

**Conclusion:** The learning strategy to comprehend interprofessional collaboration by building the model of “patient problem-based interprofessional interaction” is effective, easy to comprehend, and facilitates problem-solving when interacting with individuals from different professions.



## THE PERCEPTION OF MEDICAL STUDENTS ON THE MENTORING RELATIONSHIP IN FACULTY OF MEDICINE, UNIVERSITI TEKNOLOGI MARA (UITM)

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**Introduction:** Benefits of mentoring described in the literature include improvement in clinical training or knowledge, academic performance, and professional and personal development. In addition, mentees are also able to obtain better career guidance, as well as increase their social or career networking by participating in a mentoring programme. This study aims to assess the perception of medical students on the mentoring relationship.

**Method:** A validated Perceptions of Mentoring Relationships Survey (PMRS) questionnaire was distributed among year 3 to Year 5 undergraduate medical students through an online survey form using Google Forms. The questionnaire contains 16 items which determine level of satisfaction with the mentoring relationship and role of the mentor using Likert scale from one (strongly disagree) to five (strongly agree).

**Results:** A total of 198 students responded to the questionnaire. The mean score for all the 16-item in the questionnaire was 3.63 +0.10. Among all the items, the item with highest mean score (3.87 +1.00) was for the item that assess the role of the mentor as a good teacher. Whereas the item with lowest mean score (3.44 +1.06) was for the item that assess whether the mentoring relationship provide psychological support when they needed it.

**Conclusion:** Undergraduate medical students, who are the mentees, have good perception on the mentoring relationship and role of the mentor. Further research is needed to assess the perception from the point-of-view of the mentors. Factors that contribute to effective mentoring relationship should also be explored.

## A PHENOMENOLOGICAL STUDY ON IDENTITY CHALLENGES OF MEDICAL STUDENTS WITH PHYSICAL DISABILITIES

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**Introduction:** In recent years, medical universities have recognised the need to accommodate medical students with physical disabilities. However, they are experiencing difficulties in meeting students' individual needs. While 'professional identities' has received significant attention, this study explored the identity challenges faced by medical students with physical disabilities using the figured worlds theory.

**Method:** Face-to-face, semi-structured phenomenological interviews of six medical students with physical disabilities were conducted at a private medical university in Japan to clarify their perspectives on their identity challenges. Data was analysed using thematic analysis from a social constructivism paradigm.

**Results:** The following three themes were found regarding the identity challenges of medical students with physical disabilities: "difficulty in transition process for clinical clerkship", "reluctance to disclose their condition", and "expectations of a student-centred approach". The participants were concerned that health professionals would be prejudiced towards their physical disabilities during the clinical clerkship, and about personal information spreading to other health professionals and its impact on their future careers. Nevertheless, they felt that their physical disabilities would be useful for future patient care, and they wanted their faculty members to fully understand these characteristics.

**Conclusion:** The findings suggest that medical students with physical disabilities face difficulties through experiences, transitions, and future career plans more than faculty members assume. Therefore, building a good relationship between medical students and faculty members would encourage self-disclosure through a foundation of trust. Additionally, an environment that allows the faculty members to take advantage of such students' characteristics should be created.

# COMMUNITY-INFORMED CULTURAL COMPETENCY FOR MEDICAL STUDENTS IN THE NORTH-WEST OF NORTHERN IRELAND

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**Introduction:** Overwhelming evidence suggests that those from marginalised groups in Northern Ireland suffer poorer health outcomes and reduced life expectancy. Educating medical practitioners in cultural differences and health inequity is an established approach to enhancing professional attitudes and behaviours. However, this cultural curriculum needs to be responsive to the needs of the local population. To address this differential in the healthcare experience, we needed to establish the health priorities and concerns of marginalised groups in our communities. In this research project, we ask our local community what a culturally competent doctor would look like to them.

**Method:** This is an observational study using qualitative methods. Snowball sampling was used to recruit community organisations representing marginalised groups to the research study. Representatives from organisations were asked to join semi-structured focus groups. Reflective thematic analysis was used to analyse focus group data.

**Results:** Increasing cultural education is a priority of the governing bodies in medical education in the UK (The General Medical Council, The Medical School Council). However, the design of a sustainable and effective cultural competency programme requires input from key stakeholders and should be tailored to individual and organisational contexts.

**Conclusions:** In this research study, we identified themes of equality, diversity and inclusion that are priorities to our local population, including communication, access to healthcare and discrimination. The results from this study provide evidence upon which learning objectives for a cultural curriculum for our new medical school in Northern Ireland.

## EMPOWERING HEALTH PROFESSIONS STUDENTS: UNVEILING THE BENEFITS OF A PEER MENTORSHIP PROGRAMME

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**Introduction:** One way to promote student empowerment is through implementing peer mentorship programmes. Newcastle University Medicine Malaysia has implemented a peer mentorship programme since 2017, with Year 2 students volunteering as a mentor for Year 1 student for one academic year. This study aims to explore the benefits of a peer mentorship programme for both mentors and mentees within the context of health professions education.

**Method:** The study employed a qualitative approach, using semi-structured focus group discussions to collect data from mentors and mentees who participated in the peer mentorship programme for the past three years, from 2021 to 2023. Interviews were analysed using thematic analysis with Nvivo.

**Results:** Five focus groups were conducted with a total of 23 students, with 9 mentees and 14 mentors. Mentees emphasises the importance of a mentor in providing them with academic and non-academic support, including assistance with assignments and exam preparation, easing the transition to university life, and overcoming struggles in personal and social life. Mentors reported that the programme was a rewarding experience, and the main benefit gained was the development of transferrable skills such as time management, leadership, problem-solving, and responsibility.

**Conclusion:** This study highlights the benefits of implementing peer mentorship programmes within the context of health professions education. The programme promotes student empowerment, as mentees receive academic and non-academic support and mentors develop valuable skills. The findings of this study also emphasise the importance of creating a supportive community for students in health professions education, ultimately promoting student empowerment and improving outcomes in this critical field.

## EMPOWERING FUTURE CLINICAL ACADEMICS: FOSTERING MEDICAL STUDENTS' RESEARCH SKILLS VIA A NATIONAL RESEARCH TALK SERIES

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**Introduction:** Medical students often face significant barriers to getting involved in research. Newcastle University Medicine Malaysia Medical Education Society (NUMed MedEd) developed a series of talks designed to provide medical students across Malaysia with the guidance and support to get involved in research. This innovative approach aims to inspire the next generation of medical researchers and empower them with the skills and knowledge to drive research innovation.

**Method:** Five talks were organised, with early career researchers active in research across the UK as speakers and were live streamed to Malaysia with Zoom from September 2022 to February 2023. Invitation to participate is sent to all medical students in Malaysia. In total, 127 students participated in the talk. A post-talk questionnaire was distributed to evaluate the effectiveness of the talk.

**Results:** The post-talk questionnaire revealed that 95% of the students realise research is more critical than before. Furthermore, 98% reported increased research interest and are more likely to participate in research. The level of confidence in research demonstrated a statistically significant increase ( $p=0.001$ ) from little confidence – 2 to confident – 4 after the session. Thematic analysis of open responses revealed that students described the session as informative and the speaker as passionate, genuine and helpful.

**Conclusion:** The research teaching series had a profound impact on students' perception of research, increasing their interest and confidence significantly. The talks also demonstrate the importance of providing guidance to medical students and empowering them to actively participate in advancing healthcare through research endeavours.

# USING VIRTUAL ESCAPE ROOMS AND CROSSWORD PUZZLES AS TECHNOLOGY-ENHANCED GAME-BASED LEARNING TOOLS TO BOOST PATHOLOGY TEACHING AND LEARNING

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**Introduction:** Although Pathology is the science of diseases, most of its curriculum is conducted in the preclinical phase of undergraduate medical programmes. This results in a curriculum with many theoretical concepts perceived by students as boring and difficult. We aimed to design interactive engaging instruction by using technology-based learning tools and explore students' perceptions of it.

**Method:** This qualitative study investigates two digital game-based learning tools selected for Foundations of Pathology learning. The Virtual Escape Room (VER), and Digital crossword Puzzles (CWP) were used in lectures in a blended learning context for 300 first-year medical students. The VER was designed by the instructor using Google Slides. The room scene was a clinic. Some room objects were hyperlinked to online questions formatively assessing students' knowledge. Correctly answering the questions provides a password to open the room door. Students filled in the crosswords with the pathological terms corresponding to the game clues. Thirty students' perceptions were collected through interviews and qualitatively analysed.

**Results:** Most students described the learning as more fun, and engaging, compared to traditional pathology learning. Most students enjoyed the games and were challenged by them. Some students faced difficulty knowing the "spelling" of the terms needed to answer the CWPs and opened books to answer them. Most reported that these games made them assess their learning, discover gaps, and relearn them.

**Conclusion:** The VERs and CWPs are applicable Technology-enhanced Game-based Learning tools that create engaging interactive pathology learning.

## EXPLORING THE EXPERIENCES OF YEAR 3 UNDERGRADUATE MEDICAL STUDENTS AND MEDICAL COLLEGE FACULTY REGARDING THE BENCH TO BEDSIDE MODULE: MIXED METHOD STUDY AT PRIVATE MEDICAL COLLEGE IN PAKISTAN

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**Introduction:** Bench to bedside module was first implemented in year 2021 for Year 3 medical students. After completion of the module in 2022 and subsequently in 2023, a need for formal evaluation was identified. This study aims to explore the experiences of Year 3 undergraduate medical students and faculty of the newly introduced bench to bedside module.

**Methods:** Online questionnaire was circulated via email to all the year 3 students. Faculty members who taught in the module were identified and contacted for their participation in the study. Two, one hour focus group discussion (FGD) sessions were conducted with medical college faculty.

**Results:** Quantitative: A higher proportion of participants (60.4%) taught through hybrid methods (group 1) agreed that virtual learning environment was conducive for learning versus 45% of the participants taught through physical sessions (group 2). However the difference was not statistically significant at p value of  $<0.05$ . Similarly, 71.70% of the students in group 1 believed that the face-to-face sessions helped in gaining new knowledge versus 60.40% of the students in group 2 ( $p >0.05$ ). Qualitative: The focus group discussion sessions revealed that the students were engaged during the physical sessions as compared to the online sessions. Different technological tools were used to engage students. Resources such as space allocated for the session should be appropriate to get maximum engagement.

**Conclusion:** There was no major difference in both the groups taught through hybrid versus in person sessions.

# TRANSFORMING EDUCATION: UNLEASHING THE POWER OF AI FOR POSITIVE STUDENT OUTCOMES IN ONLINE LEARNING ENVIRONMENTS

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**Introduction:** In today's digital era, online learning has become increasingly prevalent, and the potential of artificial intelligence (AI) to revolutionise education is undeniable. This review aimed to explore the ways in which AI can influence online learning environments to enhance student outcomes and foster a positive and engaging educational experience.

**Method:** A scoping review was conducted using modified Arksey and O'Malley's framework as a methodological design and TELEMEd framework as a conceptual framework.

**Results:** Based on thematic analysis, artificial intelligence can influence the nine components of online learning environments, ie. cognitive enhancement, content curation, learner characteristics, cybergogical practices, digital capability, platform utility, learning facilitation, social representation and institutional support.

**Conclusion:** Artificial intelligence promises a positive influence on the online learning environment in its different domains.



## STUDENTS' VOICES TO IMPROVE THE DEVELOPMENT OF VIRTUAL MEDICAL NUTRITION THERAPY CLINICS

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**Introduction:** Virtual Medical Nutrition Therapy Clinics (VMNTCs) were first developed in 2021 to support dietetics students' self-directed learning as preparation for clinical training. To date, the IMU Nutrition and Dietetics division has developed five VMNTCs (obesity, cardiovascular disease, neurological issues, chronic kidney disease, pressure ulcer and malnutrition). Each VMNTC was attempted approximately 180 times by 171 students. Initial overall average evaluation score was good at 3.7 over 4.0. The objective of this study is to explore the students' views and engage the students' opinions to improve future VMNTCs development.

**Method:** We adopted the qualitative approach and purposive sampling method to select 10 final year dietetics students. We conducted structured interviews to obtain students' opinions on layout, design, and user-friendliness of the VMNTCs. Suggestions to improve the technical features were gathered.

**Results:** All students revealed that the VMNTCs layouts are well-organised, the platform is easy to navigate and user-friendly. The case scenarios resembled real-life situations which made them "involved" in the case management. Students commended that the inclusion of various resources- knowledge self-test, answer commentaries and multiple attempts feature supported their learning. The main feedback for improvement was on the AI generated robotic and monotonous conversation, more details are needed in the pictures showing nutrition assessment, inclusion of a video progress bar for navigation at their own learning pace.

**Conclusion:** Overall, the VMNTCs are well-perceived and useful to support students' learning. It is an impactful project as we adopt students' voices, we engage them in education development emphasising educators-learners working together to produce quality education tool that benefit learners.

## EFFECT OF A CASE-BASED WORKSHOP ON ATTITUDE TOWARDS PROFESSIONALISM IN PATHOLOGY RESIDENTS

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**Introduction:** Professionalism is the most fundamental yet challenging competency for teaching learning and assessment in undergraduate and post-graduate education. The objective of this study was to determine the effectiveness of a case-based workshop on professionalism for pathology residents by assessing any change in their perception and attitude towards professionalism through pre- and post-test.

**Method:** It was a quasi-experimental study with a universal sample of all pathology residents from year 1-5 at AKU Karachi, included through convenience sampling. Data was collected using a validated and reliable tool of Penn State College of Medicine (PSCOM) professionalism questionnaire for residents, as a pre- and post-test before and after the case-based workshop, respectively. The participants were required to mark their responses according to level of importance on a five-point Likert scale (1=never, 2=little, 3=some, 4=much, 5=great deal). Data was analysed on SPSS using paired T-test to compare the pre-post assessment scores of the participants. Ethical approval as exemption was granted for the study.

**Results:** A total of 30 residents were included in the study while those with incomplete responses were excluded. The mean score of PSCOM questionnaire as pre-test was  $148.53 \pm 18.11$  SD while as post-test was  $155.10 \pm 17.72$ . The comparison of the mean pre-test and post-test scores revealed a statistically significance difference with a p-value of  $\leq 0.05$ .

**Conclusion:** The case-based workshop with interactive discussion significantly improved perception and attitude of residents towards professionalism, hence, was found to be effective for teaching professionalism in pathology residents.

## CAN EARLY EXPOSURE INCREASE THE LEVEL OF KNOWLEDGE OF PHARMACY STUDENTS?

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**Introduction:** School of Pharmacy Universitas Muhammadiyah Yogyakarta has implemented Early Pharmaceutical Exposure (EPhe) as one of the learning methods for undergraduate students. The EPhe is a learning method that exposes students to actual clinical situations. The EPhe concept provides an introduction to the clinical setting for students, educating students on the fundamentals of clinical practice and encouraging critical thinking. The aim of this research is to determine the effect implementing EPhe in hospital inpatient pharmacy has on the level of knowledge of pharmacy students.

**Method:** This study used an observational descriptive method with a cross-sectional approach. The sampling method used was purposive sampling. The participants in this study are 26 pharmacy students who completed EPhe in hospital inpatient pharmacy. A questionnaire was distributed to pharmacy students to assess their implementation and level of knowledge. The collected data were tested with the Wilcoxon test.

**Results:** The results showed that prior to implementing EPhe, student knowledge was 38.5% good and 61.5% sufficient. After implementing EPhe, student knowledge increased to 100% good with a p-value of 0.000. It means that there is a significant difference in the knowledge level of students.

**Conclusion:** The implementation of EPhe can increase the level of knowledge of School of Pharmacy Universitas Muhammadiyah Yogyakarta students.

## WHAT DO MEDICAL STUDENTS IN FACULTY OF MEDICINE, UITM, THINK OF THEIR EDUCATIONAL ENVIRONMENT?

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**Introduction:** Optimal educational environment in medical school influences and shapes medical students' outlook and aspiration to become a holistic and competent doctor. To provide this environment, the faculty needs input from various stakeholders including the medical students. The objectives of this study are to ascertain the current educational environment and to identify the areas of concern that need to be addressed for the betterment of the students.

**Method:** A cross-sectional study using Dundee Ready Education Environment Measure (DREEM) questionnaire was conducted among medical students in UiTM to measure their perception on educational environment. DREEM consisted of five subscales: students' perception of learning (SPoL), teachers (SPoT), atmosphere (SPoA), academic self-perception (SASP) and social self-perception (SSSP).

**Results:** A total of 894 students completed the questionnaire. The overall mean score of DREEM was 131.81/200, described as more positive than negative. The mean score for SPoL was 33.06/48, SPoT was 30.11/44, SASP was 20.75/32, SPoA was 30.72/48 and SSSP was 17.17/28. These mean scores showed that the students perceived their education environment positively for each subscale. Students perceived that there was an over emphasis on factual learning, and they were unable to memorise. They also perceived teachers as strict and authoritarian and showed their anger in class. Students were also tired and stressed and had no enjoyment in studying medicine.

**Conclusion:** Overall, medical students in UiTM perceived their educational environment in all subscales positively, with some items needing more attention. The faculty needs to address these items to increase the positive students' perception on their educational environment.

## COPING MECHANISMS FOR WORK-RELATED STRESS FOR HOUSE OFFICERS POSTED TO THE INTERNAL MEDICINE POSTING AT A TERTIARY HOSPITAL IN MALAYSIA

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**Introduction:** Traditional medical curricula focus mostly on basic science and clinical skills. As a result, students may lack skills on how to cope with the transition to a clinical workplace. Therefore, this study aimed to explore coping mechanisms for House Officers in dealing with work-related stress in the internal medicine posting.

**Methods:** Qualitative semi-structured interviews were conducted with n=15 house officers using a topic guide to explore coping mechanisms used to handle work-related stress. Interviews were audio-recorded, transcribed verbatim and analysed thematically.

**Results:** A total of 15 house officers participated (female=12, age range 24-26 years old). Their coping mechanisms consisted of: 1) Seeking professional and interpersonal help (asking specialists; cooperation with colleagues/ peers at work; support from partners, family or friends), 2) Growing, Personal Improvement, and Learning: Learning From Experience, Not bring Problems Home, learning from senior house officers, autodidact (teaching oneself), learning the job requirement, willingness to learn, 3) Positive personal care (day off, exercise/ hobbies, journaling, positive thinking, sleep, gratefulness and gratitude, personal responsibility, positive self-motivation, self-reflection. 4) Escapism (alcohol, avoidance, sing happy songs, just doing the minimum required).

**Conclusion:** While most students employed positive coping skills, some had worrying self-destructive strategies. Medical education providers should formally expose students to positive coping strategies to help them avoid adoption of self-destructive coping strategies which may retard career progression.

## FACTORS LEADING TO BURNOUT AMONG HOUSE OFFICERS AT A TERTIARY HOSPITAL IN MALAYSIA

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**Aims:** To explore factors leading to burnout among house officers at a tertiary hospital in Malaysia.

**Method:** To fulfil our aim, we performed qualitative, semi-structured interviews with n=15 house officers. It was performed privately with full confidentiality and anonymisation by a research assistant using a topic guide to explore the factors and reasons for burnout. Interviews were audio-recorded, transcribed verbatim, and analysed thematically.

**Results:** A total of 15 house officers participated (female=12, age range 24-26 years old). The stated causes of burnout can be put into two major domains. The domains are organisational challenges and personal responses to those challenges. One of the themes was the feeling of the lack of manpower. This leads to the perception of heavy workload and unfair distribution of workload. The increase in the workload lead to longer working hours, less time for sleep, less time for the upkeep of personal well-being. A second theme is the inadequate preparation for the work expected of them either from the lack of guidance from senior doctors and senior colleagues, and the lack of familiarity of the working environment, as well as the systems that are used in the hospital. A third theme is the fear of scolding in a rigidly hierarchical system.

**Conclusion:** Burnout is a common problem and one in which a solution is urgently needed. By identifying the major themes that is common in our local setting, we can set about finding solutions that are compatible with our multiethnic, multi-lingual, and multi-cultural country.