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Theme:
**AUTHENTIC LEARNING ENVIRONMENT -
BRIDGING THE THEORY PRACTICE GAP**



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Authentic Learning Environment: Bridging the Theory Practice Gap

**Dr. V.N. Mahalakshmi, Programme Lead iCON 2021 and Dean Health Professions' Education,
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"Tell me and I forget. Teach me and I remember. Involve me and I learn." - Benjamin Franklin

The gap between education and the clinical practice has always been challenge for educational experts in the field. The theory practice gap is the difference between idealised and common practice taught general principles and the difficulty in interpreting them for application to a specific situation; the gap between our individual mental representations of knowledge and the established scientific facts. Varying levels of the TPG exist in various settings based on the degree of mal-alignment between learning outcomes, learning activities and the learning environment (consisting of the community of learning).

Studies have shown that perceived issues in students', instructors, environment, culture and the organisational processes have shown to be responsible for the theory-practice gap. Strong intention and active participation of all stakeholders are needed to bridge the gap between theory and practice. Creating an appropriate context for learning along with the use of pedagogic strategies can help decreasing this gap. By designing learning experiences with relevance and authenticity, the teachers can plan occasions for all our goals to be realised, allowing us to become 'coaches of understanding, not mere purveyors of content or activity' (Wiggins and McTighe, 2011).

Educational theory and research support this claim. The daunting thing is, how do we as educators, plan for this? How do we design learning so that it is a meaningful experience? How do we ensure that students are active and engaged participants in their learning? Every day, in both our professional and personal lives, we come up against unfamiliar situations in which we have to solve problems, adapt own behaviours and make decisions. We do this by utilising and manipulating the knowledge which we already have, drawing upon our experience and skills to guide our choices and help us to determine our next steps within the content of the situation we find ourselves in. Authentic learning experiences are designed to connect what students are taught in classes to real- world issues, problems, and applications; learning experiences that mirror the complexities and ambiguities of real life. Essentially, authentic learning is multi-disciplinary, skills-based learning in a real-life context, demonstrating to students that their learning is connected, relevant, and can an impact upon the world around them, as well as their future selves.

In the face of the COVID-19 pandemic, higher education institutions around the world have closed their physical doors and opened virtual ones in an effort to help students complete their studies. Educators and students alike converted to this new reality at a rapid pace,

and with mixed results. However, we have to provide educational experiences that are engaging, motivating and effective, regardless of how it is delivered. The challenge is to develop instructional design that puts active learning at the very centre of the learning process.

The Competency-based Education model is well thought-out and takes into account the social and educational context. Investments in capacity building of faculty in this area are of key importance, as it not only to help them understand the rationale of the guidelines, but also because they positively affect their awareness and attitude. The outcome of our education system should be to send students into the world prepared for both their personal and professional lives. By giving students the opportunity to learn through authentic, real life, relevant learning experiences, we are giving them the ability to apply their learning, to learn through doing, to see their abilities, to adapt and change, and to form the habits required to do this successfully in their lives beyond college.

OVERVIEW OF THE PROGRAMME

iCON 2021 featured unique keynotes, interactive lectures, a panel-symposium, opportunities for networking, sharing experiences by faculty and students, demonstrations on digital media use and more. It was accredited with 2 TNMC credit points. A National essay contest for students of health professions' education on the 'Need and Relevance of Authentic Learning' was organised; 70 essays received from students all over the country. Top 3 essays were awarded and another six were chosen for publication in the conference proceedings. The authors of the top two essays shared their views during the conference.

An award paper session featuring the best innovations in the field of HPE and a free papers session featuring presentations across a wide range of topics from curriculum design, teaching-learning-assessment strategies, faculty development, student support, etc. gave the participants opportunities to learn from the resource persons and also from each other. Fifty abstracts have been received for presentation and 43 papers were presented; three best paper awards and four consolation prizes were awarded. The demonstration of digital resources available for the CBME curriculum is another unique feature of the programme to keep the participants abreast of technological advancements in the field.

The resource persons chosen for the topics are well recognised in this field and bring-in a lot of practical experience as value addition to the programme. The organisers are pleased to note that over 280 participants across health sciences institutes from India and participants from Malaysia, Saudi Arabia, Singapore and Sri Lanka participated in the programme. Feedback analysis shows excellent learning by the participants showing appreciation for the theme and the organisers' efforts.

Invited Talks: Ole' to ALE (Authentic Learning Environment): The Pathway beyond Relevance

Dr. KR Sethuraman, Dean and Senior Professor of Medicine and Medical Education, AIMST University, Malaysia

Authentic learning environments such as, i) have real world relevance (not simply classroom-based learning of theory); ii) provide complex tasks that take a significant amount of time and effort to complete; iii) have ill-defined real-world problems that require students to define tasks and sub-tasks to be completed through multiple interpretations; iv) allow competing solutions and a diversity of outcomes instead of one single correct answer; v) provide students the opportunity to collaborate and to examine the problem from different perspectives using a variety of resources; vi) require students to reflect on their collective and individual learning experiences; vii) require integration of content from several disciplines and lead to outcomes and

competencies beyond the specific learning objectives; viii) integrate assessment into the activities rather than employing external tests; ix) lead to the creation of polished products or unique solutions with value in their own right (Harrington, Oliver and Reeves, 2000).

ALE contributes to authentic learning that is relevant, coherent, balanced in its scope, proximal to their later day roles and feasible to implement. Sincere adoption of ALE will make it possible to produce IMG (Indian Medical Graduate) who is an effective clinician, communicator, team-leader, ethical professional and a life-long learner of the 21st century skills.

Feedback in the Educational Environment

Dr. P.F. Kotur, Dean and Professor of Anaesthesia, Aarupadai Veedu Medical College, Pondicherry

In the background of medical educational reform that is going on around the world, the environment in the context of medical educational setting has become an important issue for debate amongst the educationists.

Educational environment (EE) applies to a vast range of settings both formal and informal in the institution. The important elements of an educational environment can broadly be classified under four broad headings viz. i) Teacher's skills, Assessment methods ii) Infrastructure, learning resources and Students' support. iii) Social life, personal safety and sense of belonging in the campus. iv) Learning outcome. It is necessary to understand four things about the EE: Firstly, it is never static but always dynamic. Secondly, variables in EE are different in different institutions and may be different during different times in the same institution. Thirdly, EE can be measured and there is always a scope for improving it. Fourthly, EE as perceived by the medical students determines or influences the students' behaviour.

It is needless to mention that the climate in which learning takes place has to be nurtured to optimise or maximise the educational output and the important tool for the improvisation of the educational output is the feedback.

Feedback (FB) can be defined as the information of describing students' performance in any given learning activity that is fed back to the students by the teacher or any other stakeholder, with an intention to improvise their current performance or to guide their

future performance in that same or a related activity. Hence, FB is an essential component of the teaching and learning process.

FB plays a critical role for the learner and the teacher in this educational programme. FB can be either positive or negative and constructive feedback from the teacher always gives the learner an insight into his or her actions and consequences. FB has certain definite advantages to the learner. FB clarifies goals, reinforces good performance, provides basis for correcting mistakes (formative evaluation), serves as a reference of summative evaluation, reduces anxiety and insecurity in performance, demonstrates interest about the student and promotes two-way communication.

Giving an effective FB is an art and requires structured faculty training. Important principles to be followed for an effective FB are: FB should be timely and expected, FB has to be based on the first hand data of the teacher, FB has to be specific, selective, balanced, descriptive, constructive and non-judgmental. FB should always be monitored to the learner's temperament, personality and their responses.

At times, giving a FB might be difficult because of various factors viz., time and venue, knowledge based ability and effective factors in the different perceptions about feedback and the culture of all the stakeholders.

When FB is given skilfully, the teacher and the learner work as allies towards a common goal. FB allows both the student and teacher to successfully accomplish both personal and course objectives.

Reflective Learning in Medical Education

Abstract-4

**Prof. B. Vishnu Bhat, Director Medical Research and Prof of Paediatrics,
Aarupadai Veedu Medical College, Pondicherry**

Reflective learning is the process of looking at one's own experience in order to examine it more closely, give more meaning to it and learn from it. It gives insights into one's self and/or practice through learning experience. It intends to involve the individual in critically evaluating his/her own response to a given situation. Reflection depends on one's ability to recognise and interpret a problem. However, it may take some practice for a student to understand the issue. It is not always easy for a student to know whether his/her response is right.

It is a meta-cognitive process. Metacognition refers to the knowledge and regulation of one's own cognitive process which has been regarded as a critical component of creative thinking. One should be aware of one's learning. It entails the goals of learning process, figuring out the best strategies for learning and assessing whether the learning goals are met. It gives better understanding of the learning process which in turn will help in better action for a similar situation in the future.

As per national medical council, the students should be trained more in self directed and life-long learning. Reflection helps to develop both the understanding and professional expertise. Guided reflection with support from a mentor/facilitator is important. Reflection should follow with adequate and proper feedback.

There are various models of reflective learning:

- i) Kolb's model of experimental learning-the learner should have concrete experience, followed by reflective observation, abstract conceptualisation and active experimentation ending with concrete experience for future. The reflection and conceptualisation leads to improved experience.
- ii) Rolfe's cycle-The cycle will start with questioning 'what' followed by 'so what', 'what next' and complete with 'what'. Always the reflection should be evidence based with critical thinking.

Reasoning → Evaluating → Problem solving → Decision making → Analysing → Back to reasoning

- iii) Gibb's reflection cycle - it is based on six questions a) What happened (description)? b) What were you doing (feeling)? c) What was good and bad about it (Evaluation)? d) What sense can you make out of the incident (Analysis)? e) What else could have been done (Conclusion)? f) What can be done next time if you face similar situation (Action plan)?

Reflection tends to involve individual practitioner in critically evaluating their own response. Medical educators should facilitate active learning so that it does not become a passive process. Facilitator should train the learner in reflecting:

1. Reflection-in-action (thinking while doing)- Learner uses his knowledge, experience and judgment to guide decisions in real-life clinical situation as they happen
2. Reflection-on-action (thinking after the event)- He introspects on what has happened which will help in improving practice.

How to Reflect in Medical Education and Practice

- a. Reflective notebook/portfolio-write notes on what has been done and make note of non-answerable queries and thoughts
- b. Develop a framework for reflection
- c. Have supervisor for the learner to reflect and obtain feedback.

Questions like 'Yes/No' will be less powerful while asking questions like, 'which', 'who', 'when', 'where', 'what', 'how', 'why' and 'what if' will be more powerful. The individual should describe the clinical issue/event/error encountered and the way he reacted with his feelings. He should analyse the incident and draw his conclusion. He should describe the learning experience and how it can be used in future for handling similar situation.

There are several benefits from reflection. It will convert short-term to long-term memory. It will improve performance without loss of resources and time. The trainee will be able to choose the best solution in difficult situations with his own management plans.

The facilitators/teachers should also reflect in order to improve their teaching skill. They should question themselves regarding, whom are they teaching, what and how are they teaching, whether the student could assimilate the knowledge and whether they can improve the quality of teaching.

In order to enhance the learners' reflective skill, the teacher also will require training. Any modification of the existing system will meet with some resistance initially.

In conclusion, it may be said that reflective learning will improve critical thinking and deeper learning. It will also enhance the learner's capacity to handle situations better in future.

Integration of Pedagogy and Learning Spaces

Abstract-5

**Prof. V. N. Mahalakshmi, Dean Health Professions Education and Professor of Paediatric Surgery,
Aarupadai Veedu Medical College, Pondicherry**

In traditional classrooms, learning occurs due to a variety of interactions both overt and covert. The student - teacher Interaction is the most obvious/visible one wherein exchange of ideas and information takes place. We also have interactions between students. The Peer group interactions on both the content and process,

though less obvious on surface, do drive the learning, especially achievement of assessed learning outcomes. The student - content interaction is responsible for the cognitive engagement with the course content and is responsible for the creation of mind maps and development of IQ (Intelligence Quotient). Learner engagement

in all the three forms is vital for application of information in real world context and other higher order thinking skills (HOTS). It also forms the basis of metacognition and creation of future learning plans.

Educators across the globe are exploring how to transform the higher educational learning environment to meet the learning needs of the 'digital generation'. Sadly, in our rush to transform education digitally, health professions' educators across the country have converted the traditional classrooms into tech-enabled/virtual ones without obvious emphasis on the above interactions.

Learning space design takes into consideration the students characteristics, the scope of technology and our understanding of the learning process. Information Technology, teaching methods and learning space form a triad of enablers of learning-the PST framework (Pedagogy - Space - Technology). All three interact with each other. In this talk, we shall explore how to integrate established pedagogic principles into creating learning spaces in the classrooms using technology.

Teachable Moments in Clinical Medicine

Abstract-6

Prof. Sanjiv Lewin, Medical Superintendent and Professor of Paediatrics, St Johns Medical College, Bangalore

Sir William Osler said, "To study the phenomena of disease without books is to sail an uncharted sea, while to study books without patients is not to go to sea at all." This quote is a bleak reminder of the state of clinical teaching after nearly two years of Covid disrupting the implementation of our curriculums across the country given the recent roll out of a Competency-based Curriculum.

We cannot allow the undergraduate course to slip into a distant online mode for fear of losses of competences mandated to perform professional roles as physicians of first contact. The focus of this brief lecture is on Undergraduate Teaching-Learning in Clinical Medicine though post-graduate education is not necessarily exempt from these ideas. It will attempt to suggest possibilities given the existing context of the transformation towards the new Competency-based Curriculum and the facts of faculty-student ratios that challenge us. Assumptions must be stated at the beginning that faculty are not only motivated but also enthusiastic and interested in their task to educate their undergraduates to learn and the vice versa exists especially in dealing with students in their clinical phase of studentship.

If the patient needs to return to the centre of our education, then moving very moment of teaching to the bedside, Outpatient clinic, Emergency and even Operation Theatre are the needs of the hour. Key elements towards achieving competences and outcomes require us to insist on small groups (usually not more than 15-20 per unit) and formative assessments ongoing throughout phases of teaching clinical medicine. To force multiply we need to include Senior Residents and Postgraduates (even the special Intern) into the pool of 'Faculty' and more importantly use every opportunity to provide experiences in the clinical settings mentioned above not restricted to 'nine to five work hours'.

Outpatient (Ambulatory) clinic has great potential to teach small groups of clinical students assigned to shadow faculty and residents/ interns working up patients in regular outpatient clinics even participating actively in the actual care and treatment of patients. Since clinical postings occur usually through three semesters leading up to final examinations, judicious involvement in 'work ups' documented in case notes or logbooks as students under supervision of faculty/residents makes fabulous learning. Initial postings begin with history and anthropometric measurements and growth charting leading to physical examination both General and Systems finally even deciding on differentials with investigation plan and writing then counselling regards prescriptions. All this is after it is present to the faculty/resident in the presence of the parents for confirmation or clarifications. Undergraduates enjoys a single patient work up by every student assigned to a faculty/resident is enjoyed by undergraduates simply because it is realistic. Of course, informing the patient or attender of the patient and appropriate

allocation even of healthy or follow up patients for this exercise makes this a possibility. It is rare that such an informed patient or attender disallows such an exercise. Depending upon outpatient space, the clinical exercise may occur while sitting opposite the faculty/resident in the same consult room or in a nearby room to return to the faculty/resident's room for presentation in front of the parents. One may hasten the process by focusing on a one patient-one key learning system and various models have been described by John Dent and Ronald Harden classified on Student - Faculty ratios. As an example, in the case of Paediatrics, focusing on growth charting, practical immunisation, nutrition counselling, discussing most likely differentials, investigation approaches, form filling, rational therapeutic choices, optimal prescriptions, education and counselling may be chosen as learning points for different students seeing different patients. Initially, case notes of history and examination are allowed onto outpatient charts followed by assisting by investigation requests, discussing results when relevant and finally actually writing prescriptions to be scrutinised and signed off by faculty/residents. The obvious disadvantage is that it does slow down patient clearance but while students work up their patient's one can continue to clear other patients and every patient does not need to be handed over to students to work up. Their involvement in actual patient care makes great inspiration to learn more. Ambulatory settings also allow one to direct students to the immunisation room or pharmacy to observe and under supervision begin to even administer common vaccines while recognising components of the many prescriptions we dispense.

We all know that to do is the best way to strengthen the learning experience. Teaching in the wards at the bedside of patients is also rather fulfilling and motivational for students to understand and want to learn the art and science of medicine. The bedside clinic has been the cornerstone of clinical education only to disintegrate as one 'Bakra' works up and presents the chosen allocated patient to the faculty while the remaining clinical batch of students passively stand by hopefully learning. Allocating patients or beds to individual students or a pair of students, the latter in early postings, with mandatory responsibility of working up and seeing 'their' patients every morning of the clinical posting with details entered in the logbook book is the first step. The faculty assigned for the bedside that day, does not reveal the patient to be discussed but may randomly pick up one of the patients asking the student(s) 'responsible' to present. This mandates that all students posted have to be up to date with history, examination, investigation results and treatment if not daily assessments and care plan. Another successful involving method is to walk up to the batch allocated patients from the parent unit after they have seen their patients for the day and conducting teaching rounds mimicking realistic patient service rounds. Each student or

pair of students presents updates of their patients and discussions occur similar to one has on regular rounds. Differentials are argued, Investigation results analysed and Treatment options even choice of antibiotics with doses and duration justified. This clerkship exercise is an early extension of internship and we all know that most learning occurs during Internship at least in our times. Documentation may occur in student logbooks but one may make provisions that patient progress notes be clearly identified as student learning notes and documented as such. The student-doctor then needs to not only interact with patients, practice examining patients, documenting the same, to chase results and cross consults. Common non-medical issues faced in care and treatment are then experienced by students. It is only in the ward that feeding, introducing intravenous cannula, performing phlebotomy, medications administration, infusions, monitoring transfusions, transportation within hospital, changing diapers and even bed making is experienced. It is in the wards that opportunities to participate in procedures like LPs, biopsies, etc. occur making sure that documentation occurs in logbooks. To enable more excitement in learning, the mandating evening "duties" as observers from 6-8 pm assigned to report to duty residents/postgraduates as they deal with emergencies and regular work documenting what they observe during such duties.

Observation in Operation Theatres or in areas where procedures occur only makes good learning if there is a structured system in place, where the teacher briefs the students preparing them for what they are to witness and observe followed by the actual witnessing of the procedure/intervention ending with debriefing of the steps involved and findings. The continuum of learning must continue into the postoperative period to complete the learning by student participation in post-operative rounds. In later postings, the occasional opportunity to scrub up to 'participate' in the intervention adds to the inspiration to learn.

In all these encounters, students must adhere to norms expected of professional behaviour And patient consent by the primary care provider essential. Patients if informed do understand the need and accept reasonable student interaction during their stay in medical college settings. Involving them in providing feedback of students who interviewed and examined them also makes great learning points right from dress code to demonstrating respect.

This brief lecture shares ideas to recognise and optimise utilisation of possible teachable moments in clinical medicine thus opening up possibilities of many other ideas from participants.

Community-based Experiential Learning

Abstract-7

Prof. Amol Dongree, Head, Department of Extension Programmes, Professor in Community Medicine and Medical Education, Pramukhswami Medical College (PSMC), Bhalka University, Gujarat

The purpose of this session is to discuss about community-based experiential learning and its benefits to students and community. To begin with, community-based experiential learning requires commitment from the medical college and secondly, it requires a context-specific curriculum. In addition, such programmes require space in the existing curriculum. Faculty are the drivers of such

exposure. Hence, they need to be experienced, available and willing to take their students to such exposure. It is important to note that learning in community setting is well supported by various learning theories such as social learning, constructivism and critical theory. This session aims to give quick overview of all the points mentioned above.

Designing Experiential Learning Experiences: Immersive Simulation

Abstract-8

Dr. Ashokka Balakrishnan, Consultant Anaesthesiologist and Simulation Programme Director (Anaesthesia) National University Hospital, Singapore

The past two years 2020-2021 witnessed the largest and longest disruption in medical and health professions education with restrictions to academic small and large group gatherings and limitations to learners' interactions and patient contact. Even outpatients and elective admissions for common and chronic medical ailments were sidelined with enormous resources being channelled towards the pandemic.

Final year graduates in undergraduate health professions education had to face high stake summative examinations with minimum exposure to clinical and real hands-on experiences or faculty support. While simulation was an integral part of health-care training and education for more than two decades. The past two years accelerated the scrutiny and reliance on it as an educational tool, a

comprehensive learning environment and an entrustable surrogate, if not a complement to clinical teaching and learning.

The limitations of technology and the expenditure in setting an all-encompassing multi-storey, fully functional simulation centre might be only a dream for many resource limited settings. Yet the onus is on not finding a technology or gadget or 'insensate plastic' or an 'unrealistic dummy' but on making a clear understanding of the possibilities that simulation can provide as a whole.

The setting up of an authentic learning environment should start with curricular intent, mapping of what components can be complemented or represented through simulation and how this can be layered across the years of training. Simulation is traditionally classified by their technological specification into: part-task training

(airway trainers, venous access trainers, CPR half body manikins), intermediate fidelity simulation (ACLS, trauma code trainers) and full-scale simulations (high technology manikins). But for simulation to be effective and for learners to find it immersive, teachers must clarify confusions with 'what is fidelity' and prevent the use of loose typology such as 'what is virtual' in virtual simulation.

Majority of innovations in simulation tend to consider tech-enabled, virtual worlds, game-based simulations and wearables as the

benchmark of rich learning environment. For a learner, it is the preparation and prelude, the ongoing guidance while engaged in sessions, the options for additional help-on-demand and the continued presence of scaffolding from faculty for clarifying the set and acceptable standards and the ability to enable feedback that is learner adjusted and personalised, is what makes it an authentic learning experience and a nurturing environment.

Authentic Assessment for Post-graduate Residents- Need and Feasibility

Abstract-9

Prof. N. Ananthakrishnan, Emeritus Professor of Surgery and Medical Education, Dean of Faculty, SBV, Pondicherry

To ensure that outgoing postgraduate course in Medicine are able to function independently as specialists in their field, it is necessary that a careful relook is conducted both the teaching learning environment and the contents of the curriculum and also the assessment process to ensure entrust ability.

This presentation will focus on defining authenticity of evaluation.

Authentic assessment will be differentiated from traditional assessment techniques. The pre-requisites and the advantages of authentic assessment in the current scenario will be highlighted.

A process will be described to ensure clear definition of outcomes of post-graduate education and measures to make the outcome

observable and measurable so that there is transparency and objectivity in the system. At the same time, the system should promote reflective learning which serves to convert learning in to higher order thinking skills. In the absence of a strong summative process has necessity to be done formatively.

The list of competencies required for the outgoing graduates will be highlighted and measures for training and measurement of achievement in each of these will be present with examples. The presentation will conclude focusing on feasibility, achievability and educational impact of the intervention.

Low Cost Low Fidelity Dynamic Model to Teach Lung Compliance and Work of Breathing to First Year Medical Students

Abstract-10

Dr. Nalini Y.C., Associate Professor, Dept. of Physiology, MGMCRI, Dr. Shivashakthy M., Deputy Director, CHPE, Dr. Dinker Pai, Director, MSC, SBV

Keywords: Compliance, Work of breathing, Model, Physiology, Obstructive and restrictive lung disorder

Background: Surface tension, compliance and work of breathing are difficult topics to teach first year physiology students via didactic lecture as these concepts involve a dynamic process. It is very important that students understand these topics because these are must to know fundamental topics, which have clinical application in understanding the pathophysiology and management of obstructive and restrictive respiratory disorders like bronchial asthma, scoliosis respectively.

Description: A lung model with two alveolar units, three plastic tubes of the same diameter and length, a plastic piece in Y format (three-way hose connector), two artificial rubber lungs was designed.

Compliance: To explain the concept of compliance the above model was attached to manual mechanical ventilation bag (Ambu bag) with one of the artificial lungs being replaced with hand gloves.

Work of breathing: Straw with gauze encircled was introduced into the tube that feeds one of the artificial lungs simulating the resistance in the airway as seen in obstructive lung disorder. A rubber band was tied around one of the artificial lung to simulate the restriction encountered to chest expansion as seen in restrictive lung disorder.

Outcome: Students were exposed to the above topic via didactic lecture two months before this intervention. Pre-test and post-test were collected consisting of 20 single response type MCQ questions were administered to 19 students before and after the teaching intervention. Student feedback was obtained using a questionnaire.

Conclusion: Usage of models promotes better understanding and comprehension among students especially for topics, which involves a process/mechanism.

Abstract-11

Digital Tools in Histopathology Learning: An Evaluation of Image Game-based Histopathology Learning on Students' Knowledge Acquisition

Dr. M.P. Brundha, Associate Professor, Pathology, MMC and RI, Dr. Deepak Nallaswamy, Director of Academics and Department of Prosthodontics, Saveetha Dental College, Saveetha Institute of Medical and Technical Sciences

Keywords: Histopathology, Learning, Education, Pathology, Practical

Background: Computer-mediated educational games are examples of computer-assisted learning objects, which are gaining in popularity as an educational strategy. Having grown up in a digital world, students in today's generation expect technology to be used in their learning, resulting in a need to change traditional passive learning methods to an active, multisensory experimental learning approach. The study's goal was to compare using an image game-based learning method versus traditional methods for teaching histopathology undergraduate students in terms of knowledge acquisition and retention.

Description: For the image-based learning method, a web-based computer game using histopathology images of different lesions has been developed. Participants in the study, which covered the period from 2019-21 are included 160 students in total. Student participation was randomised into one of the two methods of learning, with the

data analyst blinded to the method of learning the students received. Students' knowledge acquisition was assessed with an objective structured practical examination (OSPE). The performance of students was compared considering the assessment, both for their mean total scores and for their separate mean score in the identification of the salient features and diagnosis of the histopathology lesion.

Outcome: Students that received the image game-based method performed better than traditional methods in the OSPE assessment when considering both the identification of salient points and the diagnosis of the given histopathology lesion.

Conclusion: Learning histopathology lesions using game-based learning is equivalent to and more beneficial than traditional learning methods in every respect.

"Fables in Anatomy"- An Innovative and Novel Teaching-Learning Method

Abstract-12

Dr. Amith Ramos and Dr. Pretty Rathnakar, Dept. of Anatomy, Dr. Anusha Rashmi and Dr. Vineetha K. Ramdas Nayak, Dept. of Community Medicine, K S Hegde Medical Academy, NITTE Deemed to be University, Mangalore, Karnataka, India.

Keywords: Fables in Anatomy, Creative teaching, Storytelling, Anatomical science, Anatomy teaching

Background: Teaching curriculum in medical education are now regularly employing newer teaching learning methods to enhance the learning activity and engage students in advanced levels of learning. Human Anatomy has been perceived by many students as a difficult subject to comprehend and recall. "Fables in Anatomy" (FIA) is one novel innovative narrative pedagogical strategy where anatomical structures are explained in form of short stories. The study was carried out to evaluate the impact of "Fables in Anatomy - Pedagogical Strategy" on student performance and to assess students' attitudes towards the same.

Description: Fables in Anatomy comprises of expressing an anatomical structure in form of a story, which integrates visual art (animations) and learning anatomical concepts. Modules were designed in five different topics of musculoskeletal system and introduced in small group teaching (SGT) sessions. The MCQ scores in post-test of students who attended novel narrative strategy (group 1) were compared with those who attended the traditional

teaching (group 2). Students' experiences with Fables in Anatomy and their attitudes towards inclusion of the same into the course curriculum were analysed using a feedback questionnaire that was given to students who attended the sessions. Three Focus Group discussions were conducted including eight students each and in-depth discussion was performed.

Outcome: Students who underwent FIA sessions performed considerably better than the students who underwent traditional sessions ($p < 0.001$). Analysis of the feedback questionnaire suggests majority of the students find Fables in Anatomy more interesting, fun filled, less stressful and the sessions help them to understand the anatomical concepts in a simplified manner.

Conclusion: Fables in anatomy sessions was well received by the students. Majority of the students have reported merits like better understanding in combination with retaining of the concepts and active engagement.

Quality Chasm in Indian Medical Education and the Possible Solution

Abstract-13

Dr. K.V. Sarala Devi, Professor, Dept. of Anatomy, ESIC Medical College, Kalaburagi

Keywords: Competency-based medical education (CBME), Quality chasm, Authenticity, Health professions education (HPE)

Background: About 100 years ago, a series of studies about the education of health professionals were conducted. In the mid-1970s, the Shrivastav Committee advocated reorientation of medical education by national priorities and needs Till the late 20th century, Most of our medical schools still felt comfortable with the western model of instruction rather than tailoring the curriculum to the local needs. Due to system environment changes, it was evidenced that the curriculum was inappropriate and existed, quality chasm (theory-practice gap) in the health professional education. The present study has aimed to assess the need for educational reformation, and possible solutions to bridge the quality chasm.

Description: This qualitative (pilot) study was conducted among the learners (no: 12) of fellowship in health professions education using the Delphi technique. The learners were the reputed faculty of various cadres from health education institutions and were grouped into three. The task was assigned as three structured questions

analysing the attributes of MCI act1997, Vision 2015, and CBME (GMER2019). The responses were collected and analysed.

Outcome: It was discussed that MCI 1997 was a more generalized approach with more cognitive than skills-based. Vision 2015 aimed to standardise the output as IMG, a skilled and motivated doctor. Whereas CBME, by situation analysis, supported that HPE needs 3rd generation transformation towards authentic curriculum, a system based approach by adopting core competencies to specific contexts which foster Instructional and institutional reforms. All the participants acknowledged that transformation is mandatory and CBME fulfils the attributes of authentic curriculum, authentic learning experiences, and authentic assessment.

Conclusion: Based on the results, it is recommended that competency-based medical education is an effective curriculum that assures attributes of authentic curriculum and promises the 21st-century learning and 21st-century skills of learners.

Perception of Faculty Towards Challenges in Teaching and the Role of Medical Education Workshops in Addressing Them: Mixed Methods Study

Abstract-14

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Keywords: Faculty member, Medical students, Medical education

Background: A medical teacher has a very complex job profile, wherein they are expected to train a cohort of newly joined medical aspirants to competent health-care professionals.

Description: It was a mixed methods study conducted over a period of nine months from January to September 2021 in a tertiary teaching medical college and hospital of Chengalpet District of Tamil Nadu amongst the faculty members of the teaching medical college and hospital. In the first phase, universal sampling method was employed, wherein all faculty members were asked to complete the pilot-tested and validated semi-structured questionnaire. In the second phase, purposive sampling was employed, wherein all teachers who have a minimum teaching experience of three years and have attended any medical education workshop were included and interviewed using a focus group discussion guide. The quantitative data were analysed using descriptive statistics (frequency and percentages), while the qualitative data was analysed using manual content analysis.

Outcome: In the quantitative phase, 149 faculty members filled the online questionnaire, while in the qualitative phase, 45 faculty members were eligible to be part of the study. The manual content analysis of the FGD resulted in the identification of two themes (challenges and utility of workshops) and five categories. The challenges theme consisted of three categories of Faculty, Students, and Administration; while the utility of workshops theme included two categories of refinement of skills and suggestions for future.

Conclusion: In conclusion, lack of teamwork in the department, multiple responsibilities assigned to a single person and shortage of clinical material during COVID-19 were identified as the main challenges in teaching-learning. The medical education workshops play a significant role in improving the knowledge in various domains of teaching and assessment, the introduction of innovations, and ensuring better performance of the faculty members.

Effectiveness of Using the SNAPPS Model for Structured Case Presentation in Medicine in Developing Clinical Reasoning

Abstract-15

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Keywords: SNAPPS, Teaching learning methods, Medical education

Background: The SNAPPS model is a learner-centred model for structured case presentations by residents to the faculty or the preceptor, primarily intended for busy out-patient settings where there are brief but multiple teaching-learning moments. SNAPPS consists of the following six steps: (i) Summarise: Briefly summarise the history and findings; (ii) Narrow: Narrow the differential to two or three relevant possibilities; (iii) Analyse: Analyse the differential by comparing and contrasting the possibilities; (iv) Probe: Probe the preceptor by asking questions about uncertainties, difficulties, or alternative approaches; (v) Plan: Plan management for the patient's medical issues (vi) Select: Select a case-related issue for self-directed learning.

Objectives: To find out the enhancement of clinical reasoning after the introduction of SNAPPS.2. It is to determine the perceptions of interns about the effectiveness of using the SNAPPS model for structured case presentation in Medicine in developing their clinical reasoning.

Description: After obtaining the required ethical clearance, six standardised case scenarios were prepared and validated by the faculty of Department of General Medicine. Thirty interns posted in the department participated after informed consent. Interns were given three case scenarios and assessed with a structured check list. Afterwards they were demonstrated the SNAPPS model by the

faculty members and were requested to practice and implement this method in their routines for two weeks. After two weeks, they were retested. Evaluation of history taking, examination, communication, clinical judgement and counselling skills were assessed using Likert scale and the overall score were calculated in both conventional and SNAPPS method (pre and post SNAPPS).

Outcome: The mean score in pre and post SNAPPS were 9.2 ± 4.6 and 13.7 ± 5.9 with 95% confidence interval were 7.5-10.9 and 11.5-15.9 respectively. The inter quartile range were 4.25-13 in pre SNAPPS and 9-18.25 in post SNAPPS results. The scores significantly increased in post SNAPPS method. The results of feedback from students regarding the perception of SNAPPS showed improvement in clinical judgement and their overall performance.

Conclusion: From the perceptions of interns, using the SNAPPS model for structured case presentation in medicine in developing their clinical reasoning is found to be effective. It could lead to more efficient use of the limited time available for clinical teaching in the outpatient setting and with regular use, could eventually foster the development of clinical reasoning competencies. It could probably even be used in brief presentations by final year MBBS students, interns and junior residents in medicine to enhance their decision making process.

Practices, Perceptions and Challenges of Postgraduate Medical Students on Breaking Bad News: A Mixed Method Study

Abstract-16

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Keywords: Breaking bad news, Communication, Counselling skills

Background: Any information which will affect adversely and drastically a patient's view of his/her future is called as bad news. Breaking a bad news involves ethical, legal, professional and human rights related issues. But there was no proper training currently among most of the postgraduate medical students of India. This results in miscommunication of information and ultimately lack of trust and piling up of legal cases. Medical fraternity including postgraduates of clinical departments has had some experience of breaking bad news at any point of time. There was limited mixed method study to explore this aspect of communication skills in India.

Description: It was a Mixed Method Study conducted among 122 medical postgraduates excluding non-clinical postgraduates of a tertiary care hospital, Tamil Nadu by Universal Sampling Method using Focus Group Discussion with FGD Guide and a pre-validated questionnaire through Google forms. Quantitative data analysed through SPSS software and qualitative data analysed through manual thematic analysis.

Outcome: Around 51% were from non-Tamil origin and 53% were aware of some type of communication models. SPIKE, ABCDE and BREAK were the models mentioned by the participants.

About 89% had experience of delivering bad news in the past and among the bad news delivered 75.3% was declaring deaths, 67.1% was communicating the patients about COVID positivity status, 64.7% was communicating the patients about a non-reversible complication of a disease, 38.8% was about communication of cancer diagnosis, 18.8% was about HIV positivity status and 10.6% was communication of positive genetic test results. Challenges mentioned by the participants were language issues, lack of better communication skills, not expertise in the field to answer the questions of the patients/relatives, fear of physical assault, fear of legal issues, personal mental health issues, lack of counselling skills, lack of self-confidence, fear of losing reputation of a life-saving Doctor and fear of questions faced in death audit/case audit. About 58% of the participants did not feel comfortable in delivering bad news and 57.7% felt empathic towards them. In addition, 96.5% maintained

privacy while delivering the bad news. Before conveying the bad news, 42% of them agreed that warning shots should be given and 52% felt that after communicating the bad news, the patients should be encouraged to express their feeling and they should clarify their doubts. Around 80% felt that breaking a bad news is a skill and it needs training and expressed that they want to undergo intense training on the same.

Conclusion: Breaking a bad news is a skill and half of the participants felt uncomfortable in delivering bad news. Three fourth of them mentioned that they need further training for delivering bad news even after though they have undergone initial training during PG orientation program and expressed various challenges including language issues and lack of communication and counselling skills. Hence, reinforcement of training in breaking bad news should be part of their teaching to reduce ethical and legal issues in future.

Multistation Hybrid Adaptation of ABIM MiniCEX for a High Stakes Clinical Examination

Abstract-17

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Keywords: Hybrid multistation miniCEX, Clinical examination, Outcome assessment

Background: The Covid 19 pandemic and the constraints imposed on regulations and safety norms prevented a normal hospital-based clinical examination. The hospitals were closed for students due to the rising number of Covid cases. There was a need to innovate and complete the exit examination as early as possible in a safe environment while ensuring that the outcomes were assessed in a valid and reliable examination process.

Description: The Deanery discussed and adapted the ABIM MiniCEX mode into a hybrid, multi-station mode to test the different components. The ABIM MiniCEX form was adopted in parts and used for the different components tested. The stations simulated the real world setting with case scenarios from OP, IP, ER, OT, Field etc. The long case was split into 2-5 stations of seven-fourteen minutes each, and the short cases were of one to two stations. The total time was 28-35 minutes and 14-21 minutes for the long and short cases,

respectively. The average time per station was seven minutes. The stations were duplicated when required to ensure that the circuit ran without any blocks. The chief examiner, a senior medical educationist, monitored the stations through CC TV, ZOOM, and in person.

Outcome: The stations and the outcomes tested were reviewed by the internal and external examiners and the examination board and deemed appropriate. The various MiniCEX stations tested the students' ability to elicit a relevant history, perform a physical examination, present their diagnostic reasoning and discuss the management.

Conclusion: The multistation hybrid model of MiniCEX is an efficient method of testing the desired outcomes in a high stakes' clinical examination. It could be a part of the regular examination process in the future.

Narratives for Professional Development

Abstract-18

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Keywords: Moral narration, Medical education, AETCOM

Background: Medical education today focuses on bridging the gap between doctors' professional handling of disease and the patient's perception of the disease. Reliance on medical education technologies; increase in patients' awareness and disinterest in being a teaching subject; score-oriented assessments have decreased the interaction of medical students with patients. The new curriculum tries to address these issues by early clinical exposure, increasing the clinical hours, and outcome-oriented teaching- learning-assessment activities. However, the resistance on the side of the patient to be subjected to repeated examination for students learning, and

ethical issues arising out of the same can be combated by the use of standardised patients and moral narration. Moral narration in medical education is shown to boost reflective thinking, empathy, and communication skill.

Description: Second phase MBBS students were invited to participate in a value-added program focusing on 'moral narration'. Fifteen-hour sessions were conducted over a period of three weeks. The sessions were taken as an addition to the routine teaching-learning activity. In the first week, out of one hour per day, half-hour was spent on storytelling and the rest of the hour was spent on

reflection. In the following week, residents from different colleges were called to tell a story on a case or medical topic which is close to their heart. The last week was spent on students sharing their stories or the stories of their close ones in the healthcare system.

Outcome: Fifty-four students participated in the program. Feedback at the end of the sessions was collected via Google form and focused group discussions. Though the session was conducted after college hours, the students were very attentive, punctual, and excited. The majority of students (> 90%) found this exercise to be useful to their career and made them conscious of patients' feelings. During

focused group discussions, the students shared that this activity made them realise the importance of professionalism and human touch in medical practice beyond theoretical knowledge.

Conclusion: The art of storytelling needs to be a part of medical education as it imparts empathy, humbleness, and open-heartedness. It is recommended that this educational modality should be utilised through all phases of medical education. Medical education today emphasises attitude, ethics, and communication development. So let us adopt the time-tested granny's way of imparting morals and values by telling a story.

Teaching Behavioural and Social Sciences in Medical Schools: Catch Them Young

Abstract-19

Dr. Sivan Y.S., Independent Researcher, Social Determinants of Health

Keywords: Behavioural and social sciences, Social determinants of health, Teaching, Undergraduate medical education, Curriculum

Background: Teaching Behavioural and Social Sciences (BSS) in medical schools is essential to equip tomorrow's doctors in the art of scrutiny of social determinants of health (SDH), the causes behind the causes of illnesses. BSS continues to be a neglected and nice-to-know topic rather than must-know topic. Training medical students to gain key BSS knowledge and skills at the undergraduate level itself is very important as it facilitates catching them at a very young age and so it is easy to shape their attitude and behaviour. A comprehensive BSS training at the undergraduate level helps in avoiding doctors undergoing training in the same topic at a later stage of their career. This study aims to suggest a model suitable for the Indian medical schools.

Description: This study explores various working models and scrutiny of key medical education documents including those published by WFME, NMC, AAMC, AHRQ, CanMEDS, GMC, NHS, and AMEE. The analysis is carried out based on a framework that evolved from literature review, and based on the themes viz., innovation, implementation, compliance and human resource.

Outcome: The analysis suggests that to effective teaching of BSS in medical schools for undergraduate students, it is important to

bring in structural changes in its implementation. These include clearly specifying a BSS section in the curriculum to overcome barriers in implementation such as formally recognising its need, lack of space in the curriculum, uniformity in implementation, and BSS training for faculty. It further points to the need for not only starting BSS teaching in the first year itself, but also implement course-wide teaching, which is more appropriate for the CBME curriculum. Earlier work presented by the author suggested splitting BSS topics into two parts: Pre-Med BSS - Basic (asynchronous); and Mainstreamed BSS - Advanced (synchronous). This helps in overcoming the problem of lack of synchronous teaching slots, and ensures that the medical students entering the course possess basic knowledge of BSS concepts.

Conclusion: Implementing all the suggestions that emerged from this analysis as a comprehensive measure is likely to make BSS teaching in medical schools more effective, catching tomorrow's doctors at a very young age for orientation, and at the same time helps avoiding senior faculty undergoing training on the same topics in the midst of their career.

Imparting Longitudinal Clinical Clerkship in Internal Medicine by Simulation Model during COVID-19 Pandemic

Abstract-20

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Keywords: COVID-19 pandemic, Longitudinal clerkship simulation, Internal medicine clerkship, Year-5 medical programme, Simulated clinical teaching

Background: During the current COVID-19 pandemic, non-availability of public hospitals for undergraduate teaching purposes

has stalled the face to face clinical experiential learning for all medical students world over including Malaysia. We designed, developed,

implemented and assessed a simulated longitudinal clinical clerkship programme in our Clinical Simulation Centre (CSC).

Materials and Methods: The pilot study was conducted in the CSC of the institution in Feb 2021 for five days. A total of 20, year-5 medical students were included in the pilot study. Structured simulation-based clinical teaching of the cardiovascular and respiratory systems was undertaken. The hybrid simulation model combined simulated patients, normal volunteers, high-fidelity mannequins and other simulation devices were used. Communication, perceptual, psychomotor and cognitive skills of the learners was assessed before and after the week-long (five days) session. Focus Group Discussion on the teaching-learning process was performed on randomly selected students and near-peer supervisor.

Results: All parameters, communication skills ($P<0.001$), perceptual skills (auscultation) ($P=0.044$), psychomotor skills (physical examination) ($P=0.007$) and cognitive skills ($P<0.001$), have shown statistically significant improvement. All students are found this simulated programme useful.

Conclusion: Our adaptation of longitudinal clinical clerkship in internal medicine to simulation mode learning has been an original effort as there are very sparse references in medical literature to similar simulation. Our initial pilot study results are very encouraging and we plan to conduct a larger study to validate the data. This simulation mode model of longitudinal clinical clerkship may be used as a supplement to normal year-5 clinical teaching.

Utility and Evaluation of Mind Mapping as a Complementary Tool in Facilitating Learning among Second Year Medical Students

Abstract-21

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Keywords: Critical thinking, Feedback, Knowledge recall, Mind mapping, Performance

Background: Pharmacology requires recall of vast number of drug names and demands student to critically think and apply this knowledge based on clinical condition. We hence sought to evaluate whether Mind Mapping T-L method is effective in enhancing knowledge recall and promoting critical thinking in the topic of malaria among second year medical students.

Description: Twenty-six second year medical students were enrolled in study.

First contact session: Students were demonstrated methodology of creating digital mind maps using a freely available Mindomo App.

Interim session: (After 1 week) Mind map created by each student was evaluated using MMAR and those with $<50\%$ MMAR score were given re-enforcement training sessions.

Second contact session (After one week): Students' Mind maps evaluated.

Third contact session (After one month): Feedback on mind mapping teaching-learning tool obtained. Knowledge was assessed in all three-contact sessions using an MCQ assessment.

Outcome: Overall student MCQ assessment % score increased from baseline 33% to 36% after two weeks (short term) and to 39% after one month (long-term). Improvement in scores from baseline assessment to long-term assessment was found to be statistically significant. Also higher quality of mind maps (as assessed by MMAR score) statistically positively correlated to improvement in student long-term assessment scores.

Conclusion: Based on performance and feedback from students, it was found that Mind Mapping Teaching Learning tool was effective and well received by students.

Effectiveness of an Online Faculty Development Programme for Dental Educators about Remote Teaching during COVID-19 Pandemic

Abstract-22

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Keywords: Online teaching, Health professional education, Google classroom, Faculty training

Background: Teaching online has become a new normal during the pandemic. The increased access to the Internet and availability of digital technology led to revolution in online learning. Online delivery of contents provides an opportunity to provide flexibility in learning and to reach distant learners.

This study aimed to evaluate the impact of an online faculty development programme on nurse educators' perceived competency in creating and delivering e-content using Google Classroom and other freely available digital tools.

Description: A pre-experimental design was adopted for the study. A six-module online course on effective use of Google classrooms and digital tools was conducted on request for 26 faculty members of a Dental college. Total duration of the course was of eight days. A debriefing session was held on ninth day after the completion of the

course. A 10-item rating scale was used to assess the participants' perceptions of their competency in using Google Classroom and other digital tools for remote teaching before and after the online course

Outcome: Out of 26-trained participants, 20 completed the post-evaluation rating scale, giving a response rate of 76%. In the post-evaluation phase, a high level of competency was perceived by 90% of participants for using Google Classroom and 70.2% for creating video lectures and using an online grade book. A statistically significant difference ($p < 0.001$) between pre- and post-course evaluations was observed.

Conclusion: This study showed that the indigenous online developed and conducted through simple platforms enhanced the remote teaching skills of faculty members.

Case Directed Practical in Biochemistry: Does it Improve Learning

Abstract-23

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Keywords: Self directed learning, Case directed learning

Background: Students doing traditional practical in biochemistry during their first MBBS training, lack in their understanding of applications, clinical relevance and utility of biochemical tests performed. Even though the SLO of Traditionally conducted practical involves analysis and interpretation of results, students are unaware due to lack of case based approach. (i) Development of understanding and applying the knowledge gained during practical and applying later is an important competency that needs to be developed. (ii,iii). This study to find if case directed practical can improve higher order learning interpretation skills gains more relevance with the implementation of competency based curriculum in medicine.

Objectives: To assess the perception of students on case directed vs. traditional approach using validated Likert SAQ. To compare scores of test between case directed and traditional approach in interpretation skill of students using higher order questions.

Description: Population-first year MBBS Students. Sample size-Case directed approach-n=72. Traditional approach-

n=63. Intervention-Case directed practical was conducted by four different instructors for two hrs. Comparison-Traditional practical was conducted by four different instructors for two hrs. Outcome-Difference in perception of students. Difference in knowledge assessment score of students. Design-Quantitative, Non-Randomised Interventional. Setting-Biochemistry practical. Instrument-Validated eight item, 5-point Likert SAQ on perception-Knowledge assessment questionnaire of different types containing six items. Informed Consent and Ethic Committee approval were obtained prior to study. Statistical analysis-Independent t test to assess difference in knowledge assessment scores. Mann Whitney U test to assess difference in perception.

Outcome: Difference in perception of students and difference in knowledge assessment score of students.

Conclusion: Students perceived the case directed to be significantly better than traditional approach. There was no difference in knowledge assessment scores between case directed and traditional approach.

Determinants to Frame the Elements of Curriculum in Heutagogy

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Keywords: Curriculum determinants, Collaborative learning, Flexible curriculum, Negotiated assessment

Background: Heutagogy, is self-determined learning, a student-centred instructional strategy that emphasises the development of autonomy, capacity and capability. As learner is the centre and determinant of learning largely in heutagogy, the determinants of curriculum do not prove easy guides as in other 'gogies'.

Description: To satisfy both aspects that is determinants of curriculum and to maintain the openness, non-linear nature of heutagogy mode of course is the main challenge and need to be explored.

Outcome: In this presentation, author intends to discuss how various determinants of curriculum can influence the heutagogy mode of course delivery.

Conclusion: The idea of heutagogy is not much explored and used in India, can be considered for training post-graduate students to make ready for complex real-life situations.

Communication Skill: Non-tripod Pen Holding-Its Incidence and Effects on Academic Outcomes

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Keywords: Communication, Handwriting, Pen holding

Background: Communication means transferring thoughts, information, emotion and ideas through gesture, voice, symbols, signs and expressions from one person to another. In written communication, it happens through any word written or often written sign which refers the languages uses in any medium. In an age of increasing technology, the possibility that typing on a keyboard will replace handwriting raises questions about the future usefulness of handwriting skills. However, handwriting facilitates reading acquisition in young children by early recruitment in letter processing of brain regions.

Aims and Objectives: i) Identification of incidence of non-tripod pen holders among the medical students. ii) The effect of this pen holding position on digital stress and academic outcomes.

Description: Fifty MBBS students, Velammal Medical College, Madurai, were observed and interacted for their writing behaviours and academic performances.

Parameters: Pen position and digital stress and pain in hand.

Outcome: 15% students were non-tripod pen holders and were told that they experienced more discomfort and digital stress in hand after writing as compared to tripod penholder.

Conclusion: It may be helpful to reduce the digital stress in hand and improve the writing skill which improves academic performance.

Abstract-26

A Descriptive Study of Cognizance of Applied Research Bioethics and Biostatistics Principles among Nursing Postgraduates

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Keywords: Research, Ethics, Biostatistics, Nursing, Training

Background: Acquiring the knowledge of principles of research methodology including biostatistics is the core competency for postgraduates. The awareness regarding the same needs to be assessed and addressed by periodic updates in the field to enhance their capabilities to become a good academician cum researcher in their own disciplines.

Aim: To study the cognizance of applied research bioethics and biostatistics principles among nursing postgraduates

Description: This study was done on nursing postgraduates in southern teaching tertiary care centre to study their cognizance towards the principles of applied research bioethics and biostatistics. Finally after inclusion and exclusion criteria, total of thirty-four participants were enrolled into the study and the data obtained was represented in the form of descriptive statistics.

Outcome: The data obtained from the study revealed that, different questions related to the knowledge domain of applied research bioethics and biostatistics was answered by around half of the study participants. However many of the study participants (more than two third) were willing to update their knowledge in this field. It was also seen that, more than 50% of study participants were heard of any software related to the biostatistics. This study also showed that, majority of the study participants (>70%) opined as 'strongly agree' for the question to a 'good research must have training in biostatistics'.

Conclusion: From this study, it was concluded that, there was a fair knowledge with positive attitude and fair practices towards the applied research bioethics and biostatistics principles among nursing postgraduates in a southern teaching tertiary care centre and hospital.

Abstract-27

Retention of Basic Pre-clinical Sciences among Nursing Faculty in a Southern Teaching Institution

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Keywords: Cognition, Pre-clinical, Retention, Physiology, Anatomy, Biochemistry

Background: Basic pre-clinical sciences form the very important foundation for the medical/dental/nursing profession. The knowledge of basic pre-clinical disciplines is the basis for translational medicine. The retention and update of this knowledge is essential for better health-care delivery.

Aims and Objectives: To study the retention of basic pre-clinical sciences among nursing faculty in a southern teaching tertiary care centre and hospital.

Description: This study was conducted in a southern teaching tertiary care centre and hospital over a period of six months with a target population of nursing faculty in a southern teaching tertiary care centre and hospital. Pre-validated questionnaire based survey was conducted after getting approval from the Institutional Research Committee [IRC] and Institutional Human Ethics Committee [IHEC].

Outcome: It was seen that most of the questions related to the different domains of applied basic pre-clinical sciences principles were answered correctly by the study participants [>50%]. This study also showed that more than 95.5% of study participants had positive attitude with opinion that basic pre-clinical sciences is important, which helps in better understanding the clinical concepts in further professional period. There was also very good response from the study participants that they were willing to undergo updates in clinical implications of basic preclinical sciences principles through various teaching and learning methods as well as through CME/symposia or continuous lecture series programmes [>93.5%].

Conclusion: This study revealed that there was a good knowledge with positive attitude towards the basic pre-clinical sciences among nursing faculty in a southern teaching tertiary care centre and hospital.

Assessment of Perceptions, Barriers and Enablers towards Uptake of Research Activities among Undergraduate Medical Students: A Mixed Methods Study

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Shri Sathya Sai Medical College and Research Institute, Chennai**

Keywords: Medical research, Medical curriculum, Medical undergraduate students

Background: Medical research, even though, is considered as an integral part of medical education, remains the most neglected domain in medical curriculum in majority of the medical colleges and universities across India. Research, when introduced in undergraduate medical curriculum, gives a first-hand opportunity to the medical student to participate in it. These early on impressions of research leave lasting footprints of scientific thought process in the young minds. Hence, this study was planned to be conducted among undergraduate medical students to gain an insight into their perceptions and explore the barriers and enablers towards uptake of research activities.

Description: A mixed methods study was conducted over a period of nine months using a pre-tested semi-structured questionnaire and a FGD Guide among second year MBBS students to interns. Firstly, quantitative survey was conducted on Google form to assess their perception and attitude towards research which was followed by two focused group discussions to explore the various barriers and enablers towards uptake of research activities. Descriptive analysis was done for quantitative data and manual thematic content analysis for qualitative data.

Outcome: Phase I-350 participants responded to the survey out of which majority 168 (59.1%) were females. Most of them 339 (96.9%) perceived research to be important. Also, 313 (89.4%) and 245 (70%) showed willingness to attend research methodology workshop and conduct research studies, respectively. Phase II - Manual thematic content analysis revealed two main themes - barriers to conduction of research and enablers towards uptake of research. Major barriers were categorised as lack of knowledge about conducting research and lack of time and financial constraints. Enablers were categorised as conduction of periodic research methodology workshops and adequate mentoring by faculty.

Conclusion: Students perceived research to be an important aspect of medical curriculum. Research activities among medical undergraduates can be boosted by means of periodic conduction of research methodology workshops, faculty mentoring, including research as a part of curriculum in each phase of MBBS, etc. in order to inculcate clinical reasoning and critical thinking skills.

COVID-19 Pandemic: An Opportunity to Promote Digital Professionalism

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Dr. Srikumar PS, Unit of Psychiatry and Medical Education, Faculty of Medicine, AIMST University, Malaysia**

Keywords: Digital professionalism, Social media, Misconduct

Background: The COVID pandemic and the regulatory constraints imposed shifted the teaching-learning and assessment activities from face-to-face to remote online mode. The students and staff were isolated socially and took to social media and other online platforms for communication, teaching-learning and entertainment. And following this, we had adverse posts on Facebook, reports of unprofessional behaviour during online teaching-learning sessions and various incidences of misconduct.

Description: The Deanery discussed these issues and decided to incorporate aspects of professionalism during our online teaching-learning sessions. The areas of misconduct were identified as inappropriate posts on social media, communication with staff and students and absenteeism. Disruptive behaviour during teaching-learning sessions and other online academic activities, maintaining privacy and confidentiality were also areas of concern.

We conducted briefing sessions for the batch, group discussions with students, explained professionalism and monitored attendance during all online sessions.

Outcome: After the first few months of remote teaching-learning and social isolation, the attendance improved dramatically, the disruptive behaviour during the academic session stopped completely. There were no adverse posts on social media and the students learned to communicate politely and professionally with the staff and each other.

Conclusion: Social media and online teaching-learning activities are here to stay and we need to address and promote professionalism. Our interventions, though brief, had improved professionalism among our students. We could plan for structured longitudinal integrated digital modules of professionalism in future, considering the pervasive presence of social media in the life of a medical student.

Needs and Perception of Medical Faculties Towards Online Faculty Development Programmes in Medical Education

Abstract-30

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Keywords: Faculty development programme (FDP), Teaching-learning, Assessment, Curriculum and leadership, Perception

Background: Teachers of medical institution accomplish their task of teaching by emulating the senior faculties or by trial and error. Medical institutions around the globe have always embarked on curriculum renewal and educational innovation. Faculty development is a reflective process that includes deliberate introspection, determination of one's own needs and demands of the work, identification of the gaps, and taking actions. The realisation of the gap, the difference between required knowledge and current knowledge, is frequently the primary motivating factor towards pursuing further faculty development programs. The objective of the study is to identify the perceived training needs to facilitate development programme among medical faculties and to obtain the faculty satisfaction with current online FDP across India.

Description: A mixed method study was deployed. An online questionnaire was designed under five categories and validated. The online questionnaire was subcategorised using nominal group technique. The questionnaire was circulated to all the faculties through emails and social discussion groups.

Outcome: The results showed that the faculties are looking forward to attend FDP on curriculum and leadership/administration. The topics that the faculties unaware are on curriculum designing and implementation. The younger faculty are willing to attend FDPs on teaching, learning and assessment. 54.4% of the faculty preferred online FDP and 45.6% preferred offline FDPs.

Conclusion: Faculty has opted to their willingness depending on their experience in their teaching field. They have showed more willingness to attend online FDP more than offline FDP's.

Data Visualisation Using Python

Abstract-31

Dr. Sachin Jose, Pharmacology, GS medical college

Keywords: Data visualisation

Background: What to do with data after generating it using software such as Microsoft excel to analyse it further even complicated software is used such as tableau. Data visualisation using python is one such method was analysis happens at a further level.

Description: Example of how matplotlib libraries are used to generate a graph: `import matplotlib.pyplot as plt. Age=[0, 1, 2, 3], Weight=[0,`

`10, 20, 30], plt.plot (Age, Weight) plt.xlabel ('Age (years)') plt. ylabel ('weight (kg)')`

Outcome: Graph is generated i.e., the output.

Conclusion: Data visualisation similar to software such as tableau

Student Involved Fun Activities: A Novel Strategy to Teach Functional Correlation of Brain in Lectures

Abstract-32

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Keywords: Neuroanatomy, Lectures, Activity-based, Teaching

Background: Medical educators often use clinical cases and narratives to make the neuroanatomy lectures interactive for the learners. Making the learner to do activities followed by explaining the neuro-anatomical

correlation is an unexplored area of research. The objective of the study is to compare the test score among students exposed to student involved activities with conventional teaching during a neuroanatomy

lecture, and to assess the students perception of neuroanatomy teaching among students exposed to student involved activities with conventional teaching using a validated feedback questionnaire.

Description: The study participants included 125 first-year medical undergraduate students. The student's prior knowledge was assessed using 20 clinical scenario based multiple-choice questions on the topic "functional areas of brain", two weeks prior to the lecture. The students were divided into two groups based on their roll number. The control group attended two sessions of didactic lecture and the interventional group attended two sessions of lecture with activities. In an activity, the instructor gives a set of task and rules to the learner, followed by functional correlation and clinical correlation. The post-test and feedback questionnaire were

given one week after the completion of the lectures. The students who have attended the lecture sessions and completed both pre-test and post-test were included for analysis.

Outcome: The score improvement was significantly higher in the activity group as compared to the didactic group. The perception score on interest, knowledge attainment and satisfaction were significantly higher in the activity group.

Conclusion: Activity based teaching is an effective and engaging strategy to teach functional neuroanatomy in lectures. The carefully planned student activities have the ability to promote active participation, improved understanding and better application of the subject content.

The Assessment of Effectiveness of Online Learning in Undergraduate Medical Education: A Crossover Case Control Study

Abstract-33

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Keywords: Online teaching, E-learning, Undergraduate medical education, e-lecture

Background: There is a rise in the use of technology in education in recent times due to pandemic and lockdown worldwide. Online Learning has become a norm in teaching methods for most schools and colleges. However there is a concern whether online learning is effective for undergraduate medical education. Hence, in this study, we try to address that concern by trying to evaluate the effectiveness of online learning when compared to offline learning using learning outcomes for undergraduate medical graduates.

Description: 124 students pursuing undergraduate medical education were separated into two groups A and B, with 62 students each. Phase 1: A group attended an offline conventional lecture, and B group received e-lecture through online mode. Phase 2: A group received e-lecture through online mode, and B group attended a conventional lecture offline. Students' perception of online teaching was assessed by a questionnaire and performance by pre- and post-test.

Outcome: Post-test scores: two groups were significantly different ($p < 0.0001$), with the online learning group having higher post-test scores (SMD=0.79; 95% CI: 0.41, 1.18). Pre- and post-test score gains: There was no significant difference between the groups ($p = 0.06$). However, the gains in online teaching are slightly higher (SMD=2.10; 95% CI: -0.14, 4.23. Student perception: compared to the conventional offline teaching method, online mode was liked by 72.7% of the students.

Conclusion: Online teaching methods in medical education were more effective than offline teaching. Online mode of teaching has its own advantages for enhancing learning of the students and flexibility. Hence, it should be considered as a potential teaching method in medical education.

Comparative Evaluation of the OSPE and Conventional Methods in Biochemistry Department

Abstract-34

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Keywords: OSPE, Conventional assessment, Evaluation

Background: Objectively Structured Practical Examination (OSPE) is a transparent competence assessment tool. Conventional assessments used are very subjective and not comprehensive. Hence, the present study is conducted to introduce OSPE and strengthen evaluation methods.

Objectives: Comparison between OPSE and conventional assessment methods

Description: The Quasi Experimental Study was done in Biochemistry Department for one MBBS students ($n = 146$) after taking ethical committee approval. The study was designed as follows:

Conventional assessment design: Student's given qualitative and quantitative experiments according to the syllabus and at the end, each student evaluated by two assessors.

OSPE design: Sensitisation of OSPE was done. Of total 15 OSPE stations, every day, five stations were used for a batch of 50 students. Checklists for all questions were validated and reliability of the examiner was checked prior to exam to avoid bias and ensure objectivity. Statistical analysis was done by student's test.

Outcome: Mean % score of conventional (73.9%) is statistically ($p < .005$) more than OSPE (70.9%) evaluation methods.

Conclusion: In conventional assessment, teacher's biased would have influenced in giving high scores whereas OSPE evaluated objectively and critically, eliminating the examiner variability in scoring.

Innovative Medical Teaching Using Information Technology: A Model Classroom

Abstract-35

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Keywords: Innovative medical teaching, IT based teaching learning method, Model classroom

Background: The medical education content, teaching/learning and assessment methods are ever evolving. The new generation medical students are more inclined towards use of information technology. Keeping in mind their demands and evolving medical science there is a need to transform our conventional teaching/learning methods to Information technology based. This study is undertaken to see the impact of interventions like inclusion of topic based videos, pre- and post-test Test quiz and Feedback in the teaching sessions.

Description: A cross sectional study was conducted among 120 medical students studying MBBS second year in a medical college of Hyderabad, Telangana. Over a period of three months, a series of 'innovative lectures' were organised which included topic related 'videos', 'pre- and post-test' quiz and 'feedback' using google

forms. A pretested and semi-structured questionnaire was used after each lecture. Data was analysed using appropriate statistical tests.

Outcome: The medical students shared a wonderful learning experience of having videos, pre- and post-test quiz and feedback included in their routine lectures. Appreciating students for answering quiz correctly also added to their learning experience and attendance improvement.

Conclusion: The appropriate use of Information technology such as google forms for quiz and whatsapp as a channel is highly appreciated and accepted by the medical students. Therefore, structuring of the lesson plan for the classes with inclusion of information technology can be a model for better teaching and learning.

Tectonic Shift from Traditional to Online Teaching: Perception of Faculty of Medical Domain during COVID-19

Abstract-36

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Keywords: Faculty, Medical, Online, Questionnaire, Teaching, Traditional

Background: Covid-19 has enforced education system across India and the world indeed, to suspend physical classrooms and shift to online classes. While faculty grapples with new ways of managing this sudden transition to online education, students are left clinging on to electronic gadgets. Online education is not as easy as using laptop or phone. There are challenges with this form of education, which are faced at both ends of the spectrum by students as well as faculty. Hence, there was a need to find out the perception of medical faculty regarding tectonic shift from traditional to online teaching during COVID 19 pandemic.

Description: An observational, prospective and cross-sectional study was conducted among the faculty of medical domain with online teaching experience during COVID 19 pandemic. Out of 269 faculty participated: 29% Professors, 22% Associate Professors, 25% Assistant Professors and 15% Teachers and others 9%.

Institutional Ethics Committee approval was obtained prior to the study. Google form with questionnaire and Informed consent with

link were shared with faculty all over the globe. The online facilitation system for students (modified) with 20 questions was used as questionnaire with three subscales: (a) student-related issues, (b) instructor-related issues, and (c) institutional-related issues. SPSS version 21, ANOVA test used for statistical analysis. Where, designation and demographic details considered as independent variables and faculty perception as dependent variable.

Outcome: 269 subjects from medical domain comprising of faculty from Medical 89%, Allied Health Sciences 6% and Nursing 5% participated in this study. Males were 36% and females 67%, within the age group of 25 years and above. More than 50% of the responses were obtained from Biochemists and Physiologists.

Seventy-five to 100% of faculty agreed that they do not have any control on students while teaching online, students can access online course from any place in India or world, students use a wider range of resources, technical problems discourage teaching online. Not meeting students face-to-face prevents the teacher

from knowing them with respect to academics and emotional perspectives, concerned about receiving lower course evaluations, it is more difficult to motivate students in online environment than in the traditional setting

As the age increased the satisfaction, rating has decreased with p value 0.03 (statistically significant) between groups and within the groups. The junior faculty responded with increased mean value rating of satisfaction when compared to the senior faculty. Medical faculty (mean value 2.75) were less satisfied rating with online teaching compared to allied health sciences and nursing (mean value 3.44). Faculties across India and world have responded that

they are partially satisfied with online teaching and prefer traditional teaching.

Conclusion: Online learning is an exciting new way to learn and has a positive impact on students' education as well as faculty from medical domain during Covid-19 pandemic. Faculty of every age is taking it as a good step during pandemic. The difference was found when perception was compared with the designation and age groups. High-quality online teaching requires candid planning, preparation and more individualised feedback and assistance. Hence, preference is given for traditional teaching.

Well-being and Perspective of Second Year MBBS Students on Online Pharmacology Classes Held during COVID-19 Pandemic in a Tertiary Care Teaching Hospital

Abstract-37

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Keywords: Pharmacology online classes, COVID-19 medical education, WHO well-being scale

Background: COVID-19 pandemic shifted all the classroom teaching to virtual online platforms. The overnight change in the teaching structure posed serious challenges especially for medical education. This study aims to assess the well-being of medical students undergoing online medical education during COVID-19 pandemic and their perspective on online pharmacology classes.

Description: We implemented several measures like formative assessments, quiz competitions, zoom polls, student chosen revision topics, student presentations, pharmaco-mnemonic competition, etc. WHO-5 Well-Being Index was used to assess well-being of students. An internally validated questionnaire was used to assess student's perspective on online pharmacology classes. The questionnaire was administered to eligible consenting students online through Google forms. The data obtained was analysed in SPSS software.

Outcome: The mean wellness score (percentage) for all participants ($n=118$) was 48.87%. The mean wellness score for males (58.67%) was higher than for females (42.41%). The average score for overall benefit of conducting online pharmacology classes was 3.32 out of 5. Objectively assessed online interactions like formative assessment, polls and quiz were rated higher than subjective interactions like debate.

Conclusion: COVID-19 pandemic has caused massive disruption in the life of many people. In our study, we report a decreased well-being score in medical students attending virtual classes. The findings on well-being of students have implications on planning redressal mechanism in such extreme situations. Our analysis of student's perspective about online interactions has implications beyond online classes. Some of the interactions can be instituted into regular curriculum increasing the student's participation.

Effectiveness of Crossword Puzzle as an Adjunct Tool for Active Learning and Critical Thinking in Microbiology

Abstract-38

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Keywords: Crossword puzzle, Pre- and post-test questionnaire

Background: Incorporation of active-learning methods into the classroom allows students to be motivated and enhances their learning experience. Crossword puzzles are found to be an interesting educational tool for teaching medical students as it evokes interest, motivate, enhance their critical thinking, allow a better understanding of concepts and help in reinforcing the material acquired during lecture.

Description: A cross-sectional observational study was conducted among second-year medical students who were randomly selected over a period of three months from August to October 2021. Two different crossword puzzles including 10 questions each on different topics in Infective Endocarditis and Rickettsia were made after ensuring content validity. Approval to conduct the study was obtained from

the Institutional Research and Ethical committee. Informed consent from the students for participation was taken. Small groups of 6-8 students each were made and allowed group discussion to solve crossword puzzles created from online resources after the lecture for 15 minutes duration, later the post-intervention assessment was done in both groups with the same set of MCQ and students' feedback on crossword usefulness was obtained.

Outcome: 120 students out of 150 enrolled in the class of batch 2019 evaluated the crossword puzzle activity. An anonymous questionnaire survey was developed to assess the student's perceptions of crossword puzzle activity as a tool to enhance their learning in the classroom. The average MCQ test score in Group A improved significantly from

6.65 ± 3.4 pre-intervention to 11.26 ± 2.5 post-intervention ($p < 0.05$). The average test score in Group B also improved significantly from 5.7 ± 2.9 pre-intervention to 9.59 ± 2.5 post-intervention ($p < 0.05$). But the post-intervention MCQ scores in Group A (crossword puzzle) was higher and statistically significant ($P < 0.05$) in comparison to Group B.

Conclusion: Crossword puzzle promotes active self-learning and develops critical thinking among medical students. It could be used as a supplementary educational tool in microbiology to enhance problem-solving skills along with the information provided through traditional teaching lectures.

Real-time Reflection by Gamification as Teaching-Learning Assessment Tool in Competency-based Medical Education

Abstract-39

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Keywords: Medical education, MBBS, Gamification, Kahoot, Real-time.

Background: In order to improve student's learning skill, digital instructional approaches such as gamification are used in routine practice. We aimed to obtain systematic experience on the feasibility of Kahoot app, when utilised in addition to traditional classroom education using an real-time reflection for students as Teaching Learning Assessment (TLA) tool.

Description: This prospective study conducted at department of biochemistry, MNR Medical College and Hospital during the year January to February 2020. The students included were of phase one MBBS students, first year dental students and first year physiotherapy students. The students were taught the regular subject of biochemistry and participants were divided as the two batches that were randomly picked from the whole batch. The students were taught with four different topics. After completion of two topics, the groups were switched. Before switching groups, they were given with the MCQs of two topics which were taught in common. During the first two topics, Group A students were the one who were given with the Kahoot based MCQs between the lecture hours and Group B were given with traditional paper based MCQ between the lecture hours. The next two topics were taught to all the students, and divided into two groups as Group C which comprise Group A students with traditional paper based MCQ during the lecture hours and Group D, which comprised of Group B students with Kahoot based MCQ during the lecture hours. Once

both the topics are completed, all the students appeared for the post-completion test according to the groups. The MCQ test was of total 50 marks. The time duration required to complete the MCQ in both the format of MCQ and the marks obtained at the end of the lecture hours were assessed. The satisfaction survey in form of questionnaire was designed and all students were requested to fill the questionnaire as Google form.

Outcome: 344 students were included in the present study. Among them, 64.2% were MBBS students, 23% were Dental and 12.8% were Physiotherapy first year students. There was significant higher mean test scores in Group A (Kahoot based MCQ) compared to Group B (traditional paper based MCQ) and Group D (group B students with Kahoot based MCQ) from Group C (Group A students with traditional paper based MCQ) with respect to the topic assessment and end test result. Students strongly agreed that Kahoot help to retain the knowledge (60.5%), it simplifies complex subject (41.9%), learning was fun (74.4%), enhance the understanding of subjects (53.5%), and 90.7% responded they want the Kahoot based learning frequently.

Conclusion: The study showed the utility of game based learning apps like Kahoot use in competency based medical education as real-time assessment tool. Improvement in the learning ability and simplifying the complex subjects was the perception of the students towards Kahoot use during the lecture hours and assessment.

Assignment must Know Physiology: Improves Academic Performance among Slow Learners of First Year Dental Students

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Keywords: Physiology, Dental, Slow learners

Background: It is an integral part of the education system to adopt newer teaching and learning technologies as and when required depending upon the existing challenges to improve the academic performance including the cognitive, psychomotor and affect domains of learning.

Aims and Objectives: To evaluate the assignment must know Physiology in improving the academic performance among slow learners of first year dental students.

Description: The research protocol was approved by the IRB and all the principles of research and bioethics were adhered throughout the study period. As per the study operational definition and inclusion criteria the 'slow learners' the voluntary participants were recruited into the study after obtaining the due written informed consent from

them. The serial assignment(s) were given to the study participants with focus on 'Must Know Physiology Concepts'. The obtained data was recorded and analysed using appropriate statistical tests.

Outcome: This study revealed that, the serial assignments on 'Must Know Physiology Concepts' improved the scoring in academic performance among study participants and it was found to be statistically significant [$P < 0.001$]. It was also observed that, students were motivated and interested to learn with a positive feedback note on their interventional part.

Conclusion: The assignment must know Physiology improves the academic performance among slow learners of first year dental students.

Attitude and Perceptions of Students Towards Self-directed Learning in Under-graduate Medical Education: A Mixed Method Study

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Keywords: Self-directed learning, Life-long learning, learning objectives

Background: Self-directed Learning (SDL) plays an active role in developing the meta-cognitive skills in students which play a very important role in shaping the students to become lifelong learners. The indiscriminate application of SDL principles and poorly prepared teachers/students at times make the introduction of SDL resented rather than welcomed. Though SDL is a long-standing concept in the education literature, it is relatively new to Indian medical education. Considering all these factors the present study has been proposed.

Description: A Mixed-Method study design was employed. Quantitative data was collected by using a self-administered questionnaire measuring students' perceptions towards SDL as well as exploring students' views about the influence of components such as environment, type of curriculum, level of understanding of students' and role of teachers on their SDL. Additional two focus group discussions, each containing eight participants from II MBBS were conducted. The quantitative data were analysed using SPSS.

The focus of group discussions were reviewed, coded and then thematically analysed.

Outcome: About 80% of the students rated SDL as a good teaching-learning strategy. About 70% of students said that the SDL is interesting and it stimulated their learning interest. Challenges include formulating learning objectives, finding the right resource materials and time constraints. Students were not much aware of the SDL process and the role of teachers in SDL. Findings from the qualitative data showed that certain curricular components and guidance from the teachers' played role in promoting students' SDL.

Conclusion: Students were not fully aware of what was expected from them on SDL. Individual characteristics played an important role in determining self-directed learning efficiency and lack of knowledge about the SDL process was one of the major hurdles. Further cross-sectional studies are to identify the level and ability of students' SDL.

Abstract-42

Assessment of Learning Outcomes using Objective Structured Practical Examination (OSPE) in I MBBS CBME Curriculum

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Keywords: OSPE, CBME, OBE, Competency

Background: Traditional method of assessment was being followed in I MBBS curriculum for these many years. The Medical Council of India has described the basic competencies in all subjects across all phases required for an Indian Medical Graduate (IMG) and designed a competency-based module on various Teaching Learning methodologies and assessment methods. Competency-based Medical Education (CBME) Curriculum has been introduced with the focus on outcome based education where testing of IMG outcomes is possible. This study explains the evolution of interpretation-based training to the students by practicing OSPE in the assessment of various physiology topics which initiated the reasoning of clinical relevance

Description: We performed this OSPE for 100 students by allotting eight stations in which four skilled stations and four Non-skilled stations were assigned. Students were asked to perform in each station in the given stipulated time of three minutes. The four skilled stations were assessed

by using scoring sheets and evaluation check list by the two Internal and two external examiners. Non-skilled station sheets were evaluated for marks by the examiners in rotation after the completion of the exam. Marks scored in the traditional exam and OSPE were compared and analysed for results. Feedback by examiners and students were also obtained.

Outcome: The marks obtained from OSPE pattern and performance by the students was better when compared with the traditional assessment. It helped in assessing integrated topics and clinically oriented problem-solving questions to achieve IMG outcomes. The feedback by examiners and students were constructive and helped in developing strategies to improve their performance. It allowed them to show/execute their competence across multiple stations.

Conclusion: Hence, OSPE is a definite, reliable and objective tool for assessment of learning outcomes which is well acquired by faculty and students.

Abstract-43

Snippets of Student Centric Methods for Postgraduate Teaching

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Keywords: Postgraduate learning, Student centric methods

Background: Medical education as a whole has experienced a paradigm shift from traditional teaching to the current competency based medical education where the prominent theme is student centered learning. To provide further evidence in favour of student centric methods this study was carried out.

Description: The faculty utilised the following student centric methods for second year pathology postgraduate students posted in the Department of Biochemistry: experiential learning, flipped classroom, student led seminars and constructivist learning model. Following the

15 days of posting feedback was obtained along with an assessment which was graded.

Outcome: Feedback was obtained from the postgraduate students. End posting exams results were marked with the passing of students.

Conclusion: The move to learner-centred strategies has major implications for faculty development at all levels from the institutional to the individual.

Medical Student's Perception on Clinical Training using Standardised Patients in a Medical College at Puducherry

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Keywords: Standardised patients, Students, Perception, Questionnaire

Background: Medical educators use a wide variety of pedagogical methods to help students develop their interpersonal, clinical and treatment intervention skills. Considering rapid changes in medical education and patient load in hospitals to train the students with available resources, innovative teaching methods to be considered. Use of standardised patients also referred as a simulated patient is growing in the Indian scenario. Not many studies have been done to understand the student's perception about those programme in India.

Objectives: 1. To understand the student's experience with Standardised Patients during their clinical training. 2. To understand the student's perception on clinical training using Standardised Patients.

Description: A cross-sectional study was conducted between second year MBBS students. A semi-structured questionnaire was developed consisting of totally 10 items to assess student's experience with standardised patients and 15 items to understand

student's perception about using standardised patients as learning tool for their clinical training. At the end of the questionnaire two open end questions were added regarding strength and limitations of training with SPs.

Outcome: Out of 250 students, 229 students responded through Google form and most respondents provided valuable free text comments. Students response to statements suggested a more positive experience with standardise patients and the overall perception about the SP programme training was positive. No significant association was found between gender, Mother tongue and family members being a medico and student's perception about SP programme.

Conclusion: The result of the present study revealed that the participated students have positive perception on SP programme running in their institute. Suggestions given by the students for future improvement of SP programme should be considered for betterment of the programme.

Learning Biochemistry through Models in Phase I MBBS

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Keywords: Biochemistry, Models, Concept understanding, Peer assisted learning

Background: Biochemistry, a basic science subject in Phase I MBBS is a building block of clinical interpretation. Knowing the basic mechanisms of various metabolic reactions, structures of important compounds, functioning, importance and molecular biology become very essential. These concepts will be well explained with the models making and discussing with the peers. Hence, model making competition was planned.

Description: About 10 days prior, students were sensitised about this activity. One hundred and twenty students were divided into eight groups (15 students in each group). These groups were asked to discuss among them and submit the topic for model. Each group presented the model to the Judges on the day of activity. The questions asked by the Judges were also answered by the group. Each group was assessed by the team of Judges as per the defined criteria.

Outcome: The assessment of each model was done based on following criteria. a. Ability to represent/replicate (how well the model made) b. Aesthetics (fine craft skills) c. Explanation about the model

d. Relevance/Application in teaching Learning. Feedback from the students were taken. 95% students gave following feedback as:

- i) This activity helped in better understanding of the topic with gain of knowledge.
- ii) This activity helped in concept clearing and analytical thinking.
- iii) The skills like creativity, communication and presentation were improved.
- iv) Building good group dynamics through teamwork was also appreciated by the students.
- v) Confidence building and positive attitude towards the subject was achieved.

Conclusion: Self-directed and peer-assisted learning proved to be the one of the best methods in Teaching Biochemistry. Models made by students made the concept very easy to understand. Learning by doing the models also developed the group dynamics in students.

Abstract-46

Students as Patients: Effectiveness of Peer Simulation over Traditional Clinical Teaching: A Pragmatic Comparative Study

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Keywords: Effectiveness, Peer simulation, Traditional method

Background: Simulation-based Education (SBE) is highly effective for improving medical students' behaviour and skills. However, incorporating SBE into Medical curriculum is limited in our country due to lack of resources. Peer simulation encompasses students representing patient roles thus reducing the cost and manpower, however its effectiveness is unknown. Thus, this study was conducted to assess the effectiveness and difference in students' knowledge, engagement, attitudes and motivation on peer simulation over traditional methods in clinical teaching among final year Part I MBBS students.

Description: Total 60 students with two batches (30 students per batch) participated. One batch underwent traditional clinical teaching and another with a peer simulated teaching method for a period of four weeks from second to 30th September 2021. The students were assessed by OSCE at the end of the posting. Pre-tested questionnaire was used to assess the students' knowledge,

engagement, attitudes and motivation among different teaching methods. Item analysis and unpaired t-test were used.

Outcome: The overall score on OSCE assessment was higher in the peer simulation group than traditional teaching methods with significant difference ($p < 0.05$). The effectiveness of communication skill, elucidating history, patient advice and content coverage was high in peer simulation method with the item value of 0.65 to 0.71, whereas examination skill was lesser in peer simulation method with item value of 0.45. Significant difference was found in engagement, attitude and motivation among peer simulation than traditional methods ($p < 0.05$), whereas knowledge component does not show any significant difference.

Conclusion: Peer simulation was effective in teaching clinical skills among MBBS students. A New method of teaching helps the student to motivate and engage them in active learning. Peer simulation is a cost-effective method that can be adopted to teach students basic skills in clinical examination.

Abstract-47

Group-In-Group Concept: Its Application in Small Group Teaching in Teaching-Learning Process

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Keywords: Small group teaching, Learning, Student

Background: Small group teaching (SGT) enables the learners for higher order thinking, fosters teamwork, inculcates lifelong learning skills and improves communication skills. It empowers the learners to explore their hidden capacities of self-reliance, self-directed learning and self-regulated learning. The application of group in-group concept in small group teaching is an innovative and effective way of teaching-learning process.

Objective: To explore the utility of group in-group concept in small group teaching.

Description: Involved 50 MBBS students were divided in two Groups-A and B each consisting of 25 students. Group B was

further divided into five groups each consisting of five students. Their understanding of the topic taught and satisfaction of the method used were assessed using a five point Likert scale questionnaire.

Outcome: 76% students told group in group method is easier to understand the topic taught and were satisfied with group in group method.

Conclusion: The group-in-group method as a small group teaching method is a useful way for better understanding of a topic.

Perception of Faculty and Students on using Standardised Patient for Clinical Teaching: A Mixed Method Study

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Keywords: Standardised patients, SP, Simulated patients, Undergraduate teaching

Background: Standardised patient (SP) is an umbrella term used to refer to simulated patients as well as actual patients both of whom present their symptoms in a standardised manner. This study was conducted to find out the perception of the medical students and faculty on using standardised patients for clinical teaching.

Description: A mixed methods study was conducted at Shri Sathya Sai Medical College and Research Institute among undergraduate medical students, faculty and SPs. As a part of II MBBS teaching, standardised patients were involved for clinical teaching for history taking and general examination. At the end of clinical posting, feedback and perception of using standardised patient was collected using a pretested and validated questionnaire using google form, a focus group discussion will be conducted among faculty involved in teaching students using standardised patients to find out the advantages, disadvantages, challenges and recommendation of using standardised patient and an in-depth

interview was conducted with the SPs to explore their opinion on merits and demerits of being an SP.

Outcome: Among students, most of the participants were male (51.6%) and 44% of the students strongly agreed that using SPs helped them in identifying the strength in history taking and 52% of the participants agreed that this sessions helped them in identifying the areas of improvement. 31% of the participants strongly agreed that after the SP sessions they felt they were well prepared to face the real patients. 35% of the participants strongly agreed that the cases were realistic. Almost all the students gave feedback that their communication skills were improved after the SP sessions and 67 % of the students want more class on SP session. Manual thematic content analysis of the FGD's and in depth interview was done.

Conclusion: The perception of the undergraduate students and faculty on using SPs for clinical teaching was positive and good and hence, it can be implemented in other institutions also.

Awareness of Applied Clinical Basic Science Principles among Students of a Southern Teaching Dental College: A Descriptive Study

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Keywords: Applied principles, Pre-clinical, Dental

Background: Applied aspects are important to understand and translate the same at bedside. The knowledge acquired during the early part of medical or dental profession needs to be updated periodically and retention of the same is essential for better practice and delivery of health-care services to the mankind.

Objectives: to study the awareness of applied clinical basic science principles among students of a southern teaching dental college

Description: This is a descriptive study in design, done at southern teaching dental college. Prevalidated questionnaires on applied clinical basic science principles were provided to the dental students and were asked to return after complete filling of the questionnaire. In this study, fifty-eight dental students were recruited and who formed the study population.

Outcome: In this study, it was found that only less than half of the study population had correct responses to all the questions related to the 'applied clinical basic science principles'. It was also seen that more than 82.5% of the study participants had positive feedback in the form 'Preclinical subjects forms the core foundation for the basic medical/dental sciences, which helps in better understanding the concepts in various medical/dental disciplines'. This study also revealed that, more than 91% of dental students willing to undergo some kind of training in the applied clinical basic science principles to update their knowledge either through seminars/CME.

Conclusion: This study revealed that there was a poor knowledge but with positive attitude towards the applied clinical basic science principles among students of a southern teaching dental college.

The Role of Conducting Tutorial Classes on Academic Performance in a Southern Based Dental Teaching Tertiary Care Centre and Hospital

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Keywords: Training, Teaching and learning, Students, Tutorial

Background: Tutorial classes are a small group teaching and learning method(s) with two-way interaction(s). Periodic tutorial classes need to be planned on the core themes of disciplines to maximise its academic benefits. These should focus on important elements or principles which can enhance the interest as well as deep learning among students.

Aims and Objectives: To evaluate the role of conducting tutorials classes on academic performance in a southern-based dental teaching tertiary care centre and hospital

Description: The research protocol was approved by the Institutional Review Board [IRB]. The national and international guidelines pertaining to research and bioethics were followed while conducting the study. Written informed consent was obtained prior to the enrolment of study participants into the research project. The privacy and confidentiality of each study participants were strictly maintained. The periodic tutorial classes were systematically planned and executed as per the standard protocol among dental students. At the end of every tutorial class, the participants were

assessed for their cognitive, psychomotor and affect domains of learning. The obtained data was recorded and was analysed using appropriate statistical tests for their significance with the 'p' value of less than 0.05.

Outcome: This study showed that the scoring was more among who had completed the tutorial modular classes when compared to those who did not [$P < 0.001$]; (However for ethical concerns, the other group of study participants were also been given the chance to undergo complete tutorial modules after the data was analysed). It was also seen that, the scoring was even better and on higher rising trends with periodic tutorial modules when compared to their previous performance [$P < 0.05$]. The study participants opined with a positive feedback on tutorial modules and they expressed to have these kinds of teaching and learning methodologies, as it created a more interest and motivation among young learners.

Conclusion: Conducting periodic tutorials classes significantly improved the academic performance among dental students in a southern-based teaching tertiary care centre and hospital.

Systematic Periodic Seminars Significantly Enhanced the Scoring and Interest among Medical Professional Students

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Keywords: Training, Teaching and learning, Students, Seminar

Background: Medical professional students should undergo training with different kinds of teaching and learning technologies to create the more interest and enhance their deep level(s) of understanding in any discipline(s). Seminars are important which can make the students to think on the particular topic with novel creative ideas and greater opportunity to express their level of understandings to the audience.

Aims and Objectives: To evaluate and understand the role of conducting systematic periodic seminars on the scoring and interest among medical professional students

Description: The operational definition of systematic seminar(s) with core topics was identified in the medical discipline. The protocol received approval from the 'Institutional Scientific and Advisory Committee [ISAC] and Institutional Human Ethics Committee [IHEC]. The universal code and principles of bioethics were adhered throughout the study period. The study participants were enrolled after their voluntary written ICD. The privacy and confidentiality of

study participants was maintained strictly adhering to the ICMR guidelines on 'Research Involving Human Participants'. The participants were randomised to either of the group(s) [Exposure to Systematic Seminars/Non-Exposure to Systematic Seminars]. The thematic seminars were conducted serially followed by uniform assignment(s). The data was recorded and analysed using appropriate parametric and non-parametric test of statistical significance.

Outcome: It was very evident from the study that the academic performance/scores were better among who had exposure to the systematic seminars than who did not [$P<0.0001$]. The scores were also high in the cognitive [$P<0.01$] as well as psychomotor [$P<0.05$] domains of assessment(s). Interestingly it was also seen that, retention of memory/facts were for longer duration among intervention group when compared to the control group [$P<0.01$].

Conclusion: Systematic periodic seminars significantly enhanced the scoring and interest among medical professional students.

Authentic Learning in Nutrition Education and the Social Accountability of Health Professions Institutions

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Keywords: Authentic learning, Medical Education, Nutrition education, Curriculum, Social accountability

Background: Studies in different parts of India and the world have found the undergraduate health professions curriculum in nutrition to be inadequate. Promoting the health of the community is one of the prime objectives of all health professions. A number of serious illnesses can be prevented or mitigated by following good nutritional practices. Are the graduates of health profession programme ready for shouldering this social responsibility? In general, the nutrition curriculum has been found lacking in addressing this key health professions capacity-building requirement. Can authentic learning in nutrition bridge the gap between theory and practice?

Description: This paper emphasises the need for preparing health professions graduates with the required nutritional competencies to serve as health promotion leaders. This will enhance the social accountability of the institutions. Nutrition education has to evolve

from the knowledge domain to the skills and values domain. Authentic learning in nutrition can go a long way in improving the health of the professional community as well as promoting the health of the populations by preparing capable advocates for nutrition.

Outcome: Authentic learning, as compared to the fact-based approach to education in the field of nutrition, has the potential to change the nutrition behaviour of the health professions students. This is bound to reflect in the role of the graduates as competent advocates for nutrition and health.

Conclusion: Authentic learning in nutrition can support behaviour change of the learners as well as prepare them for a role as nutrition advocate justifying the social accountability of the health professions institutions.

An Innovative Method of Learning Clinical Applications in Physiology using an Interactive Method: “ANALYSE, INTEGRATE and DISPLAY” (AID) among Phase 1 MBBS Students

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Keywords: Interactive small group teaching, Analyse, Integrate and display, Clinical application

Background: In context to CBME curriculum, the paradigm shift of encouraging students to become the active learners the didactic lectures were reduced to one-third of total teaching learning methods. Due to Covid-19 pandemic, the above context became a huge challenge wherein total education system was jeopardised. Students became passive listeners with no option for interaction with teachers or peers during the online didactic lecture class and with no scope for any interaction. Interactive small group teaching is one of the best ways to engage students in learning clinical applications during 1st MBBS year especially during the pandemic e-learning environment where there is no physical presence around of the peer and teacher interaction.

Description: MBBS 1st phase students were the target population. This innovative method was initiated with a group of 20 members during March-June 2021 through FCC online platform. Students were taught about a particular unit (BLOOD) in Physiology, post which the clinical application related to the unit were taught using AID method. The total session is of two hours, Using SLIDO the online pre-test of 25 marks was conducted for the students. Post which the students were shown the pictures of signs and symptoms,

lab diagnosis, treatment related pictures will be displayed on the screen in haphazard way (Iron deficiency anaemia, Megaloblastic anaemia, Beta Thalassemia), (Prehepatic jaundice, Hepatic jaundice, Post hepatic jaundice). Then the students will be randomly will be divided into 3 groups. For a duration of 30 mins, in groups the students have to analyse, Integrate and display the interpretation of clinical diagnosis by connecting pictures followed by discussion for 15 minutes by each group. After the completion of all the three groups, post-test will be conducted again using SLIDO.

Outcome: The post-test scores were significantly more than pre-test score. All the three groups interacted and presented the clinical case effectively.

Conclusion: The students became the active learners, they interacted with their peers and could analyse, integrate the haphazard pictures of clinical cases and displayed their diagnosis with explanation even through the online mode. AID (analyse, integrate and display), an Interactive small group teaching is one of the best way to engage students in learning clinical applications during 1st MBBS year especially during the pandemic e-learning environment where there is no physical presence among of the peers and teachers.