The hidden curriculum in Peer-Assisted Learning: a study of final year students in a Thai medical school

Authors
Amnuayporn Apiraksakorn, Khon Kaen Medical Education Centre, Khon Kaen Hospital, Khon Kaen, Thailand
Stella Howden, The Centre for Medical Education, University of Dundee, Dundee, UK
Bryan Roderick Hamman, The Research Affairs, Publication Clinic, Faculty of Medicine, Khon Kaen University, Thailand
Janice Loewen-Hamman, The Research Affairs, Publication Clinic, Faculty of Medicine, Khon Kaen University, Thailand

Method
The aim of the current research was to explore the hidden curriculum associated with PAL among fourteen final-year medical students and their perspective of this hidden curriculum using a qualitative case study approach, through direct observation and individual interviews.

Results
The students reported both positive and negative experiences with PAL. Four core themes emerged from the thematic analysis of student interviews which were then triangulated with observational data: (i) developing empathy, (ii) developing self, (iii) tension between feedback needs and eliciting dialogue, and (iv) barriers to deeper learning. This research adds new insights into the hidden curriculum associated with PAL, such as: (a) student concerns about peers presenting incorrect information during teaching sessions; (b) difficulties experienced by students in comprehending English journal articles and statistics; and, (c) students plagiarising presentations.

Discussion & Conclusion
The hidden curriculum can affect the entire educational system; from what and how students are being taught and what is being learnt in the medical habitus, which then informs and shapes the medical curriculum and curricular development. The findings in the current study on hidden curriculum highlight the importance of considering the formal, informal, and hidden curriculum as an integral part of curriculum evaluation. The implications of the study are discussed in relation to the use of PAL as part of medical school teaching and learning strategies.

Take-home message
The policy makers and all stakeholders of medical schools involved in curriculum development and delivery need to consider addressing formal, informal, and hidden curricula to best suit medical graduates and the needs of the patients they will ultimately serve.

Peer-teaching for hifi simulation aimed at clinical reasoning training

Authors
Lucile Morgan
Robin Jouan
Patrick Baqué
Jean Paul Fournier

Background
Tutors shortage is a major limiting factor of simulation. Peer-teaching is an efficient way of training both students or mentors but scarcely used in simulation programs.

Method
Voluntary 4th and 5th-year medical students (4-5 YMS) were trained to prepare and rule 4 hifi simulation sessions with 8 scenarios aimed at clinical reasoning training for 2nd and 3rd-year medical students (2-3-YMS). Students were randomized to attend sessions with peers or faculty in a 2:1 fashion. They took a specifically-designed Script Concordance Test (SCT) before sessions and after a 3 week-wash-out (same questions in a random order). Demographic data, pre-simulation academic examinations scores were compared, as were SCT scores before and after simulation sessions between the 2 groups, year by year. Peers’ demographic data and academic examinations scores before and after sessions were compared with non-participating 4-5 YMS. All analysis were conducted for each academic year. Fisher and Wilcoxon tests were used, with significance being defined for p < 0.05.

Results
86 2-YMS, and 141 3-YMS attended both simulation sessions and SCT. 17 4-YMS and 14 5-YMS prepared and ruled the sessions. Pre-simulation data were not different for all participating students (attendees and peers). 2 and 3-YMS significantly improved their SCT scores, with no difference in progression for peers-trained students vs faculty-trained students: respectively: 10.22 ± 12.25 vs 10.15 ± 7.26 and 4.68 ± 6.61 vs 4.06 ± 9.07. Post-simulation academic scores were significantly higher for 4-YMS (11.42 ± 1.13 vs 10.60 ± 1.36, p = 0.01) and 5-YMS peers (12.63 ± 0.94 vs 11.84 ± 1.37, p = 0.01), compared with non-participating students.

Discussion
Results were reproducible for attendees and peers whatever was their academic year, with a significant improvement in both cases.

Conclusion
Hifi sessions aimed at clinical reasoning training were efficient whatever the tutors were (faculty vs peers). Peers significantly improved their academic results.
1013 (1249)  
Perception of Paired Learning in Speech Therapy Fresh Graduates

Authors  
Chok See San  
Tng Kuan Chen  
Eileen Fong

Presenter: See San Chok, Tan Tock Seng Hospital, Singapore

Background: This education research is to study learners’ perception of paired learning model. Tan Tock Seng hospital (TTSH) has been actively recruiting speech therapists to provide care to a rapidly aging population in Singapore and all fresh graduates are required to undergo clinical education. Therefore, the Speech Therapy department has adopted 1 clinical educator (CE) to 2 learners supervision model with newly developed structures in place since 2017 to promote efficiency and effectiveness in learning.

Method: An online survey was carried out for 9 learners who joined TTSH Speech Therapy department in 2017 with less than 1 year of working experience. The survey includes 10 questions with a 5-point Likert scale, and three open-ended questions.

Results: All learners agreed that they benefited from observing their peers receiving feedback from their supervisors. Almost all of them learnt from peers’ feedback pertaining to their performance and in return they have also contributed to their peers’ learning. However, 25% of the learners felt that paired learning was stressful. 12.5% of them found it difficult to provide feedback to each other. 12.5% of them felt that they did not receive adequate education from their CEs.

Discussion & Conclusion: Two main challenges that were mentioned frequently by the learners are: 1. Difficulty catching up with peers due to differences in learning style and clinical competencies. 2. Too reliant on each other. Almost all respondents suggested having individual sessions at certain stage of their learning journey.

Discussion: Paired learning has contributed to the learning of speech therapy fresh graduates. However there are a few factors we need to consider for further improvement. Having individual training session might be useful towards the end of learning journey to facilitate learners in achieving full competency independently.

Conclusion: The feedback solicited was important for the department to evaluate effectiveness of this model. More specific feedback will be needed to further refine the structures and guidelines supporting this learning model so that it can cater to different learners’ needs.

Take-home message: Paired learning model promotes effective learning experience among the speech therapy fresh graduates.

1014 (556)  
Same grade peer-to-peer tutoring experiences for clinical skills among the 2nd year undergraduate medical students

Authors  
Sang Hui Moon, Seoul National University College of Medicine, Seoul, South Korea  
Sun Jung Myung, Seoul National University College of Medicine, Seoul, South Korea  
Choong Ho Shin, Seoul National University College of Medicine, Seoul, South Korea  
Hyun Bae Yoon, Seoul National University College of Medicine, Seoul, South Korea  
Jun-Bean Park, Seoul National University College of Medicine, Seoul, South Korea  
Kyung Duk Park, Chonbuk National University Medical School, Jeonju-si, South Korea

Presenter: Sang Hui Moon, Seoul National University, Seoul, South Korea

Background: Seoul National University college of Medicine launched new curriculum in March 2016. In preparation for clinical clerkship, Introduction to Clinical Medicine course was scheduled as one-year longitudinal course instead of the previous 3 weeks block. To foster active learning and team approach, we introduced innovative same grade peer-to-peer tutoring for clinical skill classes.

Method: One hundred fifty one 2nd-year students were divided into 6 groups and learned 2 sets of six clinical skills. Each set of classes continued for consecutive 4 weeks; one week for mastering one skill with a faculty tutor and 3 weeks for peer-to-peer tutoring. Every student had one session to teach peers and five to be taught by peers. While small group of student tutors led the class, a fellow or resident doctor supervised the whole process and helped tutors on request. Students underwent two OSCEs, one of which was course evaluation and the second was progress test. We surveyed students’ opinion about peer tutoring.

Results: Tutor student got a little better scores in the first OSCE, however, the result did not change the grade. In the progress test, the score was not statistically different between tutor students and others. The mean students’ satisfaction for the overall course and the way of operation was 4.3 and 4.6, respectively (Likert scale, 6 is very satisfied). Practice itself was chosen as the most helpful method to improve clinical skill, followed by peer-teaching and being taught by peers. Even though students slightly preferred expert tutors for coming classes, more than half of all student were willing to learn from peers. Students showed positive response to being an educator and working together. On the other hand, peer tutors had difficulties in answering questions due to lack of clinical experience.

Conclusion: Same grade peer-to-peer tutoring was feasible and gained positive educational effect of active learning and team work. Less faculty staffs were needed for the course running, however, more study is needed to compare expert and peer tutoring.
Background: Over the course of our combined 70+ years of teaching histology and histopathology in the pre-clinical phase of medical school, we have observed that histology, and closely-related histopathology, seem to be difficult subjects for most medical students to master. In traditional curricula, the disciplines of histology and pathology are often taught in separate years with the promise to students that the normal microanatomy will be important during the pathology course to follow. We combined histology and histopathology as we initiated an integrated basic science curriculum about a decade ago. Our initial teaching paradigm, upon selecting the Aperio Scanscope® (now Leica®) system to digitize our respective histology and histopathology slide sets into "virtual microscopy" slides, was that each individual student would examine the assigned slides, take photomicrographs, and generate their own atlas. The teaching style still remained passive and dominated by the instructor leading the class. We have now modified our pedagogical approach, to a team-based, collaborative learning model.

Method: To accomplish this aim, we assigned the students into small groups of "microdissection" teams, mirroring the approach we use in human anatomy dissection. These collaborative groups of 3 or 4 students would then present the case, including the history, relative labs, imaging, gross pathology, and microanatomy to their classmates. The VINDICATE acronym was used to organize a differential diagnosis framework for case collaboration, and to enhance differential diagnostic and clinical reasoning skills. The exercise mimicked clinical students on rounds with the facilitator serving as attending physician. Each clinical case contained hyperlinked references to the medical literature (a pathology textbook or general medical journal, e.g., The New England Journal of Medicine®). In order to facilitate this collaborative process, we decided to use Microsoft Office 365® and the included OneNote® program.

Take-home message: Students adapted to the collaborative learning experience and improved dramatically in their case presentations and felt better prepared for their clinical years where they will present patients on clinical rounds. The use of collaborative groups also leveraged the diversity of adult learning skills seen in most medical school classes, and use that diversity in styles to enable deeper learning.
Background: This study aims at identifying a collaborative project-based learning path to help maintain students’ positive social interdependence (PSI). To conduct the study, we considered the physicians’ role as collaborators and provided four types of medical-humanities collaborative learning projects to 160 year-3 medical students to select from (40 students per model).

Method: A scale based on cooperative learning theory was conducted to measure students’ appreciation of cooperative learning, psychological process within PSI, and confidence in Teamwork Effectiveness among the four groups: A) study group for community-based medicine, B) open information working group, C) consensus conference working group, D) clinical stimulation for informed consent. 95 students participated in this survey.

Results: The ANOVA of psychological process within PSI was significant (p=0.015). The post hoc tests (Schefee’s procedure) indicated the significant differences existed between group A and group C (p=0.0263.075).

Discussion & Conclusion: Among the four projects, differences in three areas were noted: autonomy, required learning engagement, and group size. The team size in group A was 2 members, in group D was 10, while the group size in other models was 20. Group A had completely autonomy to plan their works but under structured schedule. Students in the small group size with full autonomy to choose their project topics, but within a rigid timeframe demonstrated a stronger attitude towards positive social interdependence.

Take-home message: According to Johnson and Johnson (2005), the positive social interdependence lead students to the successful collaborative learning. To help student maintaining PSI, instructors should provide small group size for team project, rigid working schedule, and empower them to conceive the idea of their final outcome.


10118 (1774)

What are the teaching strategies that promote self-regulated learning among the pre-clinical medical students?

Authors
Shuh Shing Lee, National University of Singapore, Singapore
Dujeepa Samarasekera, National University of Singapore, Singapore
Shing Chuan Hooi, National University of Singapore, Singapore
Kong Bing Tan, National University of Singapore, Singapore

Presenter: Shuh Shing Lee, National University of Singapore, Singapore

Background: Self-regulated learning (SRL) ability is an important core attribute for students to develop. This is essential to instill lifelong learning. However, most medical programmes have yet to grapple with this concept in a systematic and uniform way. Hence, this project aims to investigate the teaching-learning activities which support the development of SRL at NUS Medicine, Singapore.

Method: This research employs an exploratory qualitative approach in collecting data. A focus group discussion to seek teachers’ views on the teaching-learning strategies in pre-clinical years was conducted. This presentation will focus on the qualitative data from teachers’ interview.

Results & Discussion: There are four themes emerged from the qualitative data: pedagogies preferences, need-supportive teaching environment, teachers’ attitudes towards teaching and students as the driver. Under pedagogies preferences, teachers believe that there is a need to move away from controlling teaching approach in promoting SRL. Some approaches that are useful in encouraging SRL are thinking approach, connecting approach and flipped teaching approach whereby students take over as the role of teaching. Apart from pedagogies preferences, a need-supportive teaching environment is required by interacting with students in an autonomy-supportive way. Students must be given the opportunity and to nurture their psychological needs. Teachers’ attitudes towards teaching must be positive especially having strong self-efficacy which is currently lacking. In addition, there is a strong perception that research still holds the prime as compared to teaching. Coping with multiple tasks such as clinical work and research, teaching has become secondary to the teachers. Besides actively promoting SRL by the teachers, students are crucial in engaging themselves in learning. As mentioned by the interviewees, it takes two hands to clap.

Discussion & Conclusion: As conclusion, while teachers recognize the importance of implementing SRL in the teaching and learning environment, there are more effort need to be done to prepare students to achieved this.

Take-home message: We understand from the data that strategies alone is not sufficient in promoting SRL. Providing a supportive environment coupled with appropriate attitude from the teachers and students are essential.

10119 (1918)
Educating for self-directed learning: a longitudinal study of learning strategy development

Authors
Tamara van Woezik, Radboud University Medical Centre, Nijmegen, Netherlands
Jur Koksm, Radboud University Medical Centre, Nijmegen, Netherlands
Rob Reuzel, Radboud University Medical Centre, Nijmegen, Netherlands
Debbie Jaarsma, Universitair Medisch Centrum Groningen, Groningen, Netherlands
Gert Jan van der Wilt, Radboud University Medical Centre, Nijmegen, Netherlands

Presenter: Tamara van Woezik, Radboudumc, Nijmegen, Netherlands

Background: Self-directed learning (SDL) is implemented in education to foster lifelong learning. It is also believed to promote better study results. We tested whether students of Radboudumc developed SDL using the Motivated Strategies for Learning Questionnaire (MSLQ). In their curriculum, SDL is encouraged through project-based courses and monthly coaching groups.

Method: The MSLQ was administered to first and second year medical and biomedical sciences students. The learning strategy scales of the MSLQ were used. The Organisation, Elaboration, Critical thinking and Metacognitive self-regulation scales were considered indicators of self-directed learning; the Rehearsal scale indicated a surface learning strategy. T-tests were conducted to detect differences in means between cohorts and within cohorts.

Results: Cohorts of 2016 (n=218) and 2017 (n=258) were followed up over a two-year period. They filled out the MSLQ twice, in January of their first and second study year. For the 2016 cohort, we found an increase in Elaboration (4.82 to 5.06, p<0.01), Organisation (4.69 to 4.92, p<0.05), and Metacognitive self-regulation (4.34 to 4.51, p<0.01). The effect was similar for the 2017 cohort, except for Elaboration, which did not increase significantly. Furthermore, the 2017 cohort started with significantly higher mean scores on Elaboration than the 2016 cohort (4.82 vs. 5.05, p<0.01).

Discussion: Surprisingly, critical thinking did not increase and was in fact quite underused compared to other learning strategies in a curriculum targeted at Self-directed learning. We found that students did improve on related learning strategies: Elaboration, Organisation and Metacognitive self-regulation. These findings are in line with previous research. Apparently, critical thinking needs specific attention, even in a self-directed learning environment.

Conclusion: Our findings suggest that a self-directed learning curriculum can positively influence associated learning strategies, although the development of critical thinking lags behind. Factors influencing increased scores or lack thereof should be researched qualitatively, especially with regard to critical thinking.

Take-home message: As critical thinking is important for the development of lifelong learning, it is important to pay more attention to the development of this learning strategy. Even in a self-directed learning environment, this is not self-evident.

10II10 (3553)
Self-directed learning Readiness Among Pakistani MBBS students of University College of Medicine & Dentistry (UCM&D)

Authors
Tayyaba Azhar
Maimona Nasreen

Presenter: Tayyaba Azhar, University College of Medicine & Dentistry, The University of Lahore, Pakistan

Background: SDL is defined as a learning methodology in which students take the initiative of identifying their own learning needs, preparing their learning outcomes and learning resources. Students choose appropriate learning strategies and evaluate the learning outcomes. SDL is an embedded component of Medical curricula that adapt problem based learning (PBL).

Method: The students were given a pre-validated questionnaire on “Self-Directed Learning Readiness Scale” a self-assessment tool that aims to assess three main components: self-management, desire for learning and self-control. The students responded to each item on a 5-point likert scale. This study aims to identify the effect of SDL on students’ performance in PBL and the students’ readiness regarding SDL.

Results: According to the Self-Directed Learning Readiness Scale the mean scores for the three components was almost the same, with the highest aptitude for self-control (4.0±0.069) followed by self-management (3.99±0.071) and the mean score for the desire of learning was (3.99±0.068).

Discussion & Conclusion: In the present study SDL readiness showed that the students had the ability for self-control, they were highly motivated for self-learning and had self-management skills. Life-long learning involves the development of skills in self-directedness (SDL), critical thinking and effective group process. Incorporating SDL in the curriculum would help students in better and deeper understanding and learning of the content.

Take-home message: SDL is a skill for the students to become life-long learners. Lifelong SDL is essential to meet the growing challenges in healthcare imparted by a rapid increase in knowledge of health problems.
Longitudinal monitoring of self-directed learning skills: do novice and returning students score comparably?

Authors
Monika Sobocan
Erika Zelko

Presenter: Vanja Zamuda, Faculty of Medicine, University of Maribor, Slovenia

Background: Self-directed learning (SDL) is a skill students acquire during formal studies to support them in unstructured educational environments and foster their learning beyond university level. SDL is especially important in medicine as a high educational demand is put on students in residency through less structured learning. Longitudinal studies on SDL are rare, as they are time-consuming, but represent the basis for any intervention to enhances students’ SDL abilities as well as evaluate any curricular changes. We present our 2-year progress on understanding SDL progress.

Method: In the academic years 2016-17 and 2017-18 students at the Faculty of Medicine, University of Maribor participated in the SDL study. The study used the validated self-rating scale for self-directed learning (SRSSDL). In year one 100 students participated. 84 of them returned to participate in the second research year, providing us with a valuable baseline SDL progress information. Next to the returning participants, the study recruited additional 52 students. Compiling data from 136 different students over two years. Data analysis was done using the Mann Whitney U-test and descriptive statistics.

Results: Among the students, 43 participants from the 2nd and 3rd year of undergraduate medical studies were involved. Data was analyzed to understand differences in returning and novice study participants in a sensitive transition from pre-clinical to clinical education. Returning participants scored on the questionnaire comparatively to novice participants. There was no significant difference in mean awareness (44.4 vs. 44.1; p>0.268), study strategy (43.3 vs. 44.0; p>0.835), study activity (43.2 vs. 42.9; p>0.482) and evaluation (40.3 vs. 40.7; p>0.189).

Discussion & Conclusion: Our data shows that SRSSDL is reliable in long term, as returning and novice students in the same year score comparably. Furthermore, detailed data analysis shows moving from pre-clinical to clinical education in our school doesn’t result in significant changes in study strategies and self-evaluation, enabling us now to form decision making on SDL enhancement.

Take-home message: SRSSDL is a reliable tool for long-term skill evaluation and enables us a detailed understanding of impactful events such as educational transitions.

The attitude toward teaching technique in medical students at Chaiyaphum Medical Education Center

Authors
Paweena Kaladee, Chaiyaphum Medical Education Center, Chaiyaphum, Thailand
Wichunun Kunchai, Chaiyaphum Medical Education Center, Chaiyaphum, Thailand

Presenter: Paweena Kaladee, Chaiyaphum Medical Education Center, Chaiyaphum, Thailand

Background: Medical education is comprised of many teaching techniques such as lecture, self-directed learning (SDL), problem-based learning (PBL), bedside teaching, etc. Despite effective teaching, learning is very important in medical education. The aim of this study was to investigate the least appreciated teaching technique according to medical student’s opinion.

Method: A cross sectional descriptive study in Chaiyaphum Medical Education Center. Thirty four 4th-5th year undergraduate medical students completed the questionnaire about teaching technique. Demographic data and attitude data were collected. The collected data was analyzed using descriptive statistics.

Results: The least appreciated teaching technique according to medical student’s opinion was SDL (66.7%), followed by lecturing (16.7%), PBL (11.1%), and bedside teaching (5.5%). Most students in this study thought SDL was the least effective teaching technique with their given reasons as following: lack of clarity about the purpose 46%, distraction by environment 30%, lack of motivation 15% and lack of skill for data accessibility 9%.

Discussion & Conclusion: The study reveals most of the undergraduate medical students in Chaiyaphum Medical Education Center thought SDL was the least useful medical teaching technique because SDL put students under pressure to find their own way to learn. Effectiveness of SDL is multifactorial and depends on individual.

Take-home message: SDL is an essential tool for developing lifelong learning and improving academic performance. Encouraging medical students to recognize the importance of SDL was needed. Medical staffs need to guide and encourage students to set learning goal, choose learning strategies and assess progression toward their goals.
Utilizing of Logbook - Medical Students’ Viewpoint

Authors
Chonakarn Niyomthong, Surin Medical Education Center, Surin, Thailand
Pakarat Sangkla, Surin Medical Education Center, Surin, Thailand
Mantapond Ittarat, Surin Medical Education Center, Surin, Thailand

Presenter: Chonakarn Niyomthong, Surin Medical Education Center, Surin, Thailand

Background: According to the assessment process of the medical education, the self-assessment by using logbook was become an alternative tool for evaluating the potential of the medical students. The purpose of this study was to appraise the objective of logbook.

Method: The descriptive cross sectional study was conducted in the Surin Medical Education Center, Thailand. Ninety-Three medical students were included. Research questionnaire is composed of 15 multiple checklist questions. This study was analyzed about logbook’s purpose, the requirements in logbook, how to use logbook guided their learning and form of logbook.

Results: The top three ranking answers for logbook’s purpose were to record learning experience, assess learning abilities by themselves and estimate their attitude, that were 71.1%, 62.4%, 38.7% respectively. 87.1% of medical students required lesson’s instruction in logbook, 67.7% required logbook guideline and 38.7% would like to use logbook to express their opinions. However, only 45.2% of medical students use logbook guided and prepared their lesson. The handy, non-electronic logbook was the best choice for the medical student from questionnaire.

Discussion: Most of medical students understood the logbook’s purpose but only a half of the medical students had used it properly. Interestingly, the medical students would like to participate in the lesson via the logbook feedback. The new logbook form that will be used by hand writing, tiny in size and also can be carried comfortably, might be an appropriate logbook for medical students.

Conclusion: Logbook was an effective tool for evaluating the potential of the medical students. The logbook design as medical students’ viewpoint were raising their competency.

Take-home message: Facilitating in logbook form will help medical students use it more comfortable. Moreover, the new design of logbook, students’ viewpoint, also encourage them to use it properly.

Design and development of mobile-based portfolio for medical sciences students: A portable tool for objective assessment in the modern world

Authors
Saeed Abdollahifard
Leili Mosalanejad

Presenter: Saeed Abdollahifard, Shiraz University of Medical Science, Shiraz, Iran

Background: In view of the recent interest in the use of mobile technologies for assessing people’s work and career, tools such as personal digital assistants (PDAs) and cellphones can not only make data collection possible at anytime and anywhere, but also improve this process by allowing for the collection of multimedia data. This study was conducted to design and develop a mobile portfolio and evaluate its efficacy in assessing the performance of nursing students in clinical wards.

Method: The graduate nursing students of Jahrom University of Medical Sciences were recommended to draft a clinical portfolio of their clinical experience in written, audio and video formats in various media. Mobile e-portfolios have been developed to synchronize wirelessly with the user’s personal webpage over Wi-Fi and cellular networks. Data on the students’ duration and type of training, time, learning opportunities, work performance, resources and clinical experiences were recorded on the ward’s website. The teachers were also able to access the students’ portfolios for adding notes and comments. The teachers’ assessments were both qualitative and quantitative. Each student was given a PDA or clinical software to use for three weeks during a psychology course and received training on the tools and then prepared a report on his experience. The focus group discussions were held to explore the advantages and disadvantages of this software. The quantitative questionnaire given to the students contained 20 items scored on a 3-point Likert scale for the quantitative items. The total score obtainable was 60.

Results: Mobile e-portfolios are a user-friendly, accessible and attractive method for the objective assessment of students that enable the careful assessment of the students by encouraging their Improving information literacy and feedback. This tool satisfied 70% of the students.

Conclusion: Smartphone-based e-portfolios can facilitate the continuity of work and create uniform frameworks for the students to display their performance and learning efficiency, invite others to interpret and evaluate their work and selectively publish online documents of their clinical achievements (through careful planning and support). These software also help with the targeted assessment of the students’ performance.
Background: Electronic portfolios (E-portfolios) have been shown to be a valid way to document residents progress, encourage resident involvement in the learning process, and provide feedback for improvement. E-portfolios also represents a method of learning outcomes assessment and curriculum evaluation.

Method: We studied 20 residents who were trained in our family medicine residency program and completed the whole course at the time of data collection. The numbers of electronic portfolio articles of every individual resident were monitored throughout 3 years of residency program and then compared to their residency upgrading examination results.

Results: There was a trend with slightly positive correlation between numbers of electronic portfolio articles and scores of residency upgrading examination, but was not statistically significant (r=0.21, P>0.05). The trend was more obvious compared with oral test(r=0.19) than written test(r=0.17) in the residency upgrading examination.

Discussion: Electronic portfolios participation which was assessed by numbers of electronic portfolio articles might be a predictor of residents' examination performance. We also found a peer effect of numbers of electronic portfolio articles which the residents trained in the same year had similar numbers of published articles.

Conclusion: It is unclear what the factors maybe plays an important role in portfolio management. For family medicine residents who spends more efforts in electronic portfolio might have better performance in other examination.

Take-home message: Residents' participation in e-portfolios can provide a lens to look at trends in residents' learning and outcome assessment, and can also detect the need of early intervention and an opportunity to provide support.

10II16 (195)
Reflections of postgraduate medical students during their clinical years - a qualitative study of logbook entries

Authors
Laurel Weaver, Deakin University, Geelong, Australia.
Anita Phillips, Deakin University, Geelong, Australia
Ryan Spencer, Deakin University, Geelong, Australia

Presenter: Laurel Weaver, Deakin University, Geelong, Australia

Background: This study aimed to identify themes within postgraduate medical students’ logbook reflections, intended to inform future decisions regarding the value of the logbook. In 2017 the logbook for postgraduate medical students at our institution changed focus to encourage reflective practice. Anecdotally the quality of student’s logbook entries improved, however no systematic analysis of entries had occurred. It is uncertain what themes were covered in these entries and indeed whether the majority of entries were in fact reflective. Consequently, the ability of the logbook to promote reflective practice was unknown and its value as an assessment tool unclear.

Method: A qualitative approach with thematic analysis methodology was implemented for this study. A literature review was conducted using the concepts of reflective writing, medical students and clinical experience. Participants were current year 4 students of a postgraduate medical course (Year 3 students in 2017). Data were collected from logbook entries completed in 2017 as a compulsory requirement of intra-rotational assessment. Logbook entries were randomly selected, coded and analysed using an inductive approach to provide an overall description of recurring themes. Thematic analysis of the data was aligned with Borton’s Developmental Framework.

Results: The findings indicated the majority of logbook entries were indeed reflective. Within the categories of knowledge, skills and attitudes, the students reflected on clinical competency (consolidating learning, planning for future learning), professional competency (teamwork, interprofessional communication) and emotional responses to clinical and professional situations.

Discussion & Conclusion: This study sought to explore the logbook entries, aligned with a reflective theoretical framework, to identify and group common themes to allow further discussion. The literature suggests reflective practice is beneficial to the medical profession. Consistent with findings in the literature supporting reflective writing as valuable to medical students overall learning, thematic analysis of the logbook confirmed its value in development of reflective practice in postgraduate medical students. These findings support the logbook as an important assessment tool within the curriculum.

Take-home message: The logbook encourages medical students to reflect on their learning experiences, enabling development of reflective practice, a necessary skill for life-long learning and professional growth.
10l17 (2088)
Using clinical case E-portfolios to support case-based learning and assessment in orthodontic postgraduate education

Authors
Richard Cure
Liz Hopkins

Presenter: Richard Cure, University of Warwick, Coventry, UK

Background: Historically, postgraduate orthodontic students have prepared hard-copy log-diaries of treated clinical cases for specialty examinations. This process occurs towards the end of three years of study, and requires subsequent transportation of documents and artefacts to assessment centres, giving examiners little viewing time, and minimal opportunity for formative assessment, tutor feedback and reflective learning during patient treatment.

Online e-portfolios allow students to upload clinical material contemporaneously, and to reflect upon all aspects of clinical care, propose subsequent actions, and receive formative assessment and feedback from tutors. The e-portfolio clinical cases are subsequently summatively assessed as part of specialty examinations.

Method: Warwick Medical School has developed a clinical-case E-portfolio, using 'Sitebuilder' web-publishing tool, having a template structure, which requires relevant patient data to be uploaded prior to, during, and post-treatment, allowing continuing interaction between students and tutors. Internet access to the University Virtual Learning Environment facilitates outreach-centre education and patient-care delivery. Each student logs-in to their personal e-portfolio, uploading clinical-case material, together with a reflective commentary, at each patient visit. Tutors are simultaneously alerted by auto email feed and provide feedback and/or formative assessment. Clinical E-portfolios are used by Masters level Orthodontic, Orthodontic Therapy and Orthodontic nurse students to support case-based learning; by tutors for support provision, and for assessment.

Discussion: E-portfolios enhance clinical case-based learning, feedback and assessment, by requiring students to contemporaneously log data, analyse case progression and interact with tutors, thus facilitating reflective learning. Clinical case presentation is enhanced and examiners given increased flexibility for summative assessment.

Conclusion: Clinical case e-portfolios are valuable learning and assessment tools allowing immediate tutor feedback and enhance examination processes. They facilitate interactive clinical education and mentoring in outreach centres and are integral to case-based learning. They enable interactive, peer group case-based discussion and are significant in developing understanding of orthodontic case assessment, diagnosis and treatment mechanics.

Take-home messages: Clinical E-portfolios:
- Enhance case-based learning
- Encourage reflective learning
- Facilitate tutor feedback and mentoring
- Allow flexible formative assessment

10l18 (3454)
Use of portfolio of residents in the training of the Medical Institute of NEFU

Authors
Aitalina Maksimova, Medical Institute, NEFU, Yakutia, Russia
Nadezhda Savvina, Medical Institute, NEFU, Yakutia, Russia
Nikolai Gogolev, Medical Institute, NEFU, Yakutia, Russia
Anna Protopopova, Medical Institute, NEFU, Yakutia, Russia

Presenter: Aitalina Maksimova, NEFU, Yakutia, Russia

Background: Portfolio of the resident, developed by the North-Eastern Federal University, as a new tool for training in residency.

Since 2014, the NFU University has started using the "Portfolio of student" programs to use it as an additional tool for training in residency.

Discussion: The purpose of creating the "Portfolio of the student" program is to develop the ideal, maximally effective model for the improvement and development of the resident, based on the method of individual cumulative assessment, the main strategy of which is to monitor the progress of the resident's training in his professional activity.

For the first time the theme of the portfolio in the Russian educational community was voiced in 2003. According to the general opinion of teachers and trainees, the portfolio increases the motivation of the latter, their responsibility for the results of the educational process, and promotes the development of the students' conscious attitude to the learning process and its results.

The idea of using a portfolio in the education system has recently become widespread. As part of the federal experiment to improve the structure and content of general education, which says that the change that has occurred in the state of modern education over the past decade, entails a change in the assessment system.

The portfolio model developed at the university is a fundamentally new learning strategy in a higher medical education institution. This model is able to demonstrate educational activity, level of self-organization, opportunities and practical achievements of the resident.

From the point of view of teaching, the developed model of the portfolio allows you to select an individual approach to each resident, determine its strengths and weaknesses, and use the step-by-step assessment of the learning process to achieve result maintenance. Also, a teacher or curator can easily control the learning process.

Conclusion: Thus, the use of the portfolio as an additional method of education in higher educational institutions is gaining popularity in Russia. In domestic and foreign education, the portfolio is one of the most commonly used varieties of results-oriented technologies.
Using videos from human medicine to reinforce application of diagnostic error concepts in veterinary students

Authors
Regina Schoenfeld-Tacher, North Carolina State University College of Veterinary Medicine, Raleigh, NC USA
Lori Kogan, Colorado State University College of Veterinary Medicine and Biomedical Sciences, Fort Collins, CO USA

Presenter: Regina Schoenfeld-Tacher, North Carolina State University College of Veterinary Medicine, Raleigh, NC, USA

Background: Diagnostic errors are significant causes of morbidity and mortality, in both human and veterinary medicine. To address this issue, we developed a didactic course entitled “Veterinary Medical Decision-Making” as part of a required course sequence in veterinary clinical reasoning. Topics covered include: dual process theory, types of clinical errors, cognitive biases, heuristics, and illness scripts. In addition to lectures, students complete assigned relevant readings from the veterinary literature and engage with online veterinary cases specifically designed to lead them to commit diagnostic errors. In-class debriefing sessions encourage students to name the types of cognitive biases involved and discuss preventive strategies.

Results: In order to examine students’ abilities to transfer and apply knowledge from a veterinary course to a novel environment, we used a video produced by the University of Pennsylvania School of Medicine, designed for resident education, as a stimulus for analysis and reflection. Veterinary students (n = 102) were asked to watch the video depicting a medical team engaged in patient rounds. Their tasks were to: a) identify two cognitive biases displayed in the video, b) identify the key information that helped the team recognize their error(s), and 3) describe strategies used to rescue the situation.

Results: Most veterinary students in the study were able to complete all three tasks satisfactorily, as measured by scores on the assignment (average = 95.3%, SD = 0.82). The most commonly identified cognitive errors were anchoring, confirmation and availability bias. Students had difficulty applying/understanding the concept of outcome bias. Additionally, some students struggled with differentiating anchoring from availability bias.

Discussion & Conclusion: Given the success of veterinary students in identifying cognitive errors and rescue strategies employed by a medical team; this study provides preliminary evidence to support the assertion that clinical reasoning skills are species-independent, and can be transferred across health-care settings.

Take-home message: Educational materials created for use in human health professions can be leveraged for veterinary education. This opens the door for further initiatives utilizing clinical reasoning exercises as a stimulus for fostering shared learning and collaboration in inter-professional settings.

The effects of on-line video supported self-directed learning for three common clinical skills: a comparative study

Authors
Chun-Chao Chang, TMUH, Taipei, Taiwan
Yi-No Kang, TMUH, Taipei, Taiwan

Presenter: Chun-Chao Chang, Taipei Medical University Hospital, Taipei, Taiwan

Background: The purpose of this study was to explore the effects on-line video supported self-directed learning for three common clinical skills including nasogastric tube insertion (NG), electrocardiogram (EKG), and Foley catheterization (Foley).

Method: Taipei Medical University Hospital designed a series on-line video supported self-directed learning activities of clinical skills (SLAOSC) for year-7 undergraduate medical students. Each SLAOCs consists of an on-line video, simulated practice, and discussion on-line platform with a medical doctor response. All the medical students can practice clinical skills that they would like to learn by simulation in the Clinical Skills Center during daytime according to their time management. The students who learn in SLAOSC were asked to fill short 5-point Likert questionnaires before and after each SLAOSC. The questionnaires consist of self-efficacy regarding to knowledge and skill of a specific clinical skill. The post questionnaire has one more question about how is help from the SLAOCS. We reviewed 67 learning records of three common clinical skills including nasogastric tube insertion, electrocardiogram, and Foley catheterization. Around 20 year-7 medical students participate in each SLAOCs.

Results: The results of one-sample t-test (test value: 4) showed that students had no sufficient self-efficacy of knowledge (M±SD=3.8±0.7; p=0.086; t=0.000, p=1.000). The paired t-test showed that students had strong self-efficacy of knowledge and skills after EKG insertion (NG) electrocardiogram, and Foley catheterization. Moreover, no difference in improvements of self-efficacies were observed among nasogastric tube insertion, electrocardiogram, and Foley catheterization in one-way analysis of variance (F=0.068; F=0.999).

Discussion & Conclusion: The SLAOCs provides clinical students a flexible way to learn clinical skills. Clinical students can self-directly practice clinical skills according to their own schedule with on-line video and feedback from a medical doctor. Further large scale of comparison of learning satisfaction and skills performance between SLAOCs and traditional clinical skills course is needed.

Take-home message: The SLAOCs might be a flexible and effective approach for clinical students in learning clinical skills.
Teaching Mental State Examination (MSE) - a new contemporary approach

Authors
Jessica Roberts Hansen, Psychiatry West Region Zealand, Slagelse, Denmark
Erica Høegh, Psychiatry West Region Zealand, Slagelse, Denmark
Ralf Hemmingsen, Department of Clinical Medicine, University of Copenhagen, Copenhagen, Denmark
Maria Gefke, Psychiatry West Region Zealand, Slagelse, Denmark
August Wang, Center of Psychiatry Amager, Copenhagen, Denmark
Sidse Arnfred, Psychiatry West Region Zealand, Slagelse, Denmark

Presenter: Jessica Roberts Hansen, Psychiatry West Region Zealand, Slagelse, Denmark

Background: A psychiatric video library containing short interviews was produced with the aim of assisting undergraduate students’ training of MSE.

Method: In a case-control study, students were assigned to an intervention group (video/V, n = 40) with access to the video library for three weeks, or to a control group (no-video/N-V, n = 27) without access to the library. After the three weeks, both groups were tested with a multiple choice questionnaire after watching three videos. The questionnaires each consisted of 20 descriptive phrases, which might occur in a MSE; five out of these phrases were correct. Specialist trainees/specialists in psychiatry (n = 57) were tested with the same three videos and MC questionnaires – this to provide a “golden standard”. The data was analyzed by one-way ANOVA and chi-square analyses with SPSS©v.24.

Results: The pilot study revealed a higher average-score by the specialist group (mean 12,6 SD 1,6) on all 3 videos compared to both groups of students (mean for student average all videos = 10,5 SD 2,7). The group of students (V) with access to the video library (mean 10,5 SD 3,3) was better at assessing the patient’s mental status in one of the videos compared to the N-V student group (mean 8,7 SD 3,8; p<0.02). The test results of the two other videos showed no difference.

Discussion & Conclusion: The results are promising, and can help with the implementation of a video library as a new standard way to teach undergraduates how to conduct a thorough mental status examination. The available literature, on ways to use videos in the teaching of standardized MSE, is sparse and therefore, it is unknown to the authors, if the use of a video library already is standard practice in other countries.

Take-home message: A video library might be a way to teach medical students the art of MSE. An easy-to-distribute sensitive quantitative assessment of MSE competence has been developed.