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South African Association for Health Educationalists 2008 and 2009 Congresses held in Cape Town

USING SIMULATION IN THE CLINICAL SKILLS CENTRE (CSC) TO ACHIEVE COMPETENCY IN THE PRACTICAL PROCEDURES IN A CRITICAL CARE NURSING PROGRAMME

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Context and setting

The Critical Care (General) Nursing Programme in the Faculty of Health Sciences, Stellenbosch University, South Africa, is a 1-year postgraduate course. The practical component of the course consists of a number of individual practical procedures and case presentations. The individual practical procedures are tasks required of a critical care nurse in their daily work, e.g. suctioning of the intubated patient and administering of intravenous drugs. In order for students to be able to do a case presentation they need to understand and integrate the critically ill patient's disease process as well as the medical and nursing management. To pass the case presentations satisfactorily is often a challenge as a much higher cognitive level is expected than when performing the individual practical procedures.

Why the idea was necessary

During the course of the programme weekly individual clinical guidance is provided to the students at the bedside in the critical care units. The purpose of these bedside sessions is for the students to discuss the critically ill patients with a critical care nurse educator in order to develop their integration, reasoning and case presentation skills. Students however tend to use these teaching opportunities to practise and to be assessed on individual practical procedures. Therefore, graduates will often have the skills to do individual practical procedures required by a critical care nurse, but because they find it difficult to integrate and understand the patient's disease process they lack insight in the holistic picture of the patient. It is therefore often difficult for them to handle situations when their patients' condition deteriorates and they become unstable.

What was done

A case study design was used for this study. The practical procedures identified as suitable for simulation were demonstrated, practised and assessed in simulation in the CSC. The study focused on describing how the tutors and students involved experienced the use of simulation as well as how the use of the CSC for reaching competency in some of the practical procedures impacted on the available teaching time in the clinical settings.

Evaluation of results and impact

The result of completing the majority of the practical procedures in simulation in the CSC was that

- more time was available for the students to practise doing case presentations with the critical care nurse educators during their clinical teaching sessions
- students and tutors valued the use of simulation and enjoyed the sessions in the CSC.

The issue of how successful the transfer of learning from the CSC to the clinical areas takes place poses very valid questions when it comes to simulation. It is vital that students should be able to transfer the learning that has occurred in the simulated setting to the clinical context. Further research on this subject could serve to establish whether students can apply the procedures they have been assessed on in the CSC equally well on patients, or, if not, what measures can be implemented to facilitate this process.

THEY WENT, THEY SAW, THEY LEARNED

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Context and setting

Learning is most effective when it occurs in context. Similarly, transfer of skills from lecture hall to workplace is most likely when the educational situation closely resembles the work situation. At the University of the Free State School of Medicine first-year students are required to establish a link between discipline-based knowledge they acquire in a core module, the ability they develop to think critically about their learning in a fundamental module, and economic and social realities of the Free State region. To this end, provision is made for real-world experiences in the form of clinic visits, whereupon students are expected to write reflectively about their learning.

Why the idea was necessary

Medicine is increasingly establishing itself as a profession that is accountable to the changed needs of society by using real-world community-located experiences and reflection to promote cognitive learning gains, personal growth of students, and also civic engagement. However, despite strong encouragement from the General Medical Council and other directive bodies to develop students' reflective thinking skills, very little has been published on personal reflection (as distinguished from scientific reflection referred to as evidence-based medicine) during the undergraduate phase of medical curricula. The purpose of this study was to determine whether integration of disciplinary core learning with the skill of reflection had been achieved. Evidence was sought that exposure to a challenging situation resulted in an awareness and communication of uncomfortable feelings related to attitudes that the School of Medicine values in student doctors.

What was done

A content analysis was performed on 42 students' reflective writing assignments completed in 2009. McMillan's (1997) three-dimensional theoretical construct, which includes affective, cognitive and behavioural components, was used for organising data in the following four themes: feelings of comfort; feelings of discomfort; willingness to engage in positive actions; and realisation of the worth of the experience. Recurring patterns of thought and frequency of concepts related to the different themes were recorded.

Evaluation of results and impact

The most frequently reported positive feeling was that of empathy for patients waiting patiently in long rows to receive medical attendance (41).

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A substantial number of students (13) were stimulated to look forward to the prospect of practising as doctors as witnessed by their confidence about having chosen the 'right' career. Negative comments were mostly related to the lack of financial, physical and human resources at the clinic. The realisation that they had held unrealistic expectations about the provision of primary health care was profound (72). Cognitive gains became visible in their conviction about the importance of good communication (15) and showing respect for others (10). The visit further made them realise that what they learn in class is actually 'true' in practice (13). The study confirmed that the community-located learning experience had helped first-year students to 'see' in ways that they had never seen before. While the findings may not be generalisable, insight was gained into undergraduate medical students' experiences and attitudes in primary health care settings.

SERVICE LEARNING: EXPERIENCES OF FIRST-YEAR COMMUNITY ENGAGEMENTS BY RADIOGRAPHY STUDENTS OF THE CENTRAL UNIVERSITY OF TECHNOLOGY, BLOEMFONTEIN

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Context and setting
Service learning is 'a credit-bearing educational experience with organised service activities that meet identified community needs and reflect on the service activity in such a way as to gain further understanding of course content'. Using service learning as a facilitation method in resource-based disciplines such as radiography is challenging.

Why the idea was necessary
In a recent survey it was established that only two of six radiography programmes at tertiary institutions in South Africa are currently using service learning. The aim of the study in progress is to investigate and describe the service learning experiences of third-year radiography students and community partners.

What was done
Service learning priorities need to be identified by the community rather than being imposed on them by outsiders. In discussions with students, it was found that most rural communities did not know about medical imaging and they were not aware of services provided by the Free State Department of Health (FSDoH).

Third-year radiography students were divided into three groups, each with its own identified rural community. Learners visited the communities, contacts were identified and groundwork for two follow-up visits was laid. Students decided to concentrate on the dissemination of information related to medical imaging in general and more specifically on mammography, ultrasound and bone densitometry.

Each group performed a dramatised presentation and grade 12 learners and contact persons at each site evaluated the presentations using different rubrics. The radiography facilitator's assessment rubric evaluated whether students included all the outcomes in their presentations. After the interventions radiography students had to complete a structured reflection adapted from Zlotkowsk, *et al*.

Evaluation of results and impact
From the grade 12 assessments (*N*=150) it is clear that the presentations and slide shows were well received, with an average score of 81.4%. Evaluating the content grade 12 learners assigned a score of 77.8%, indicating that the information was new, useful and empowering (they would be able to tell others). The contact persons (*N*=5), who were all teachers, felt that some of the content was beyond learners' grasp; this opinion was not shared by the grade 12 learners. Elocution and the predominant use of English was a problem in some instances. The students' reflection reports demonstrated evidence of educational benefit, including reinforcement of previous knowledge, involvement in own knowledge creation and development of teamwork skills. The students experienced the presentations as confidence building and indicated that they would like to become more involved in community initiatives. Our findings suggest that service learning initiatives have educational benefit and also provide communities with strategic health-related information.

A MIND-MAP APPROACH TO DEVELOP A CLINICAL PROBLEM-SOLVING PROCESS AND TO FACILITATE LEARNING OF CLINICAL ASSOCIATE STUDENTS

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Context and setting
After recommendations in the Pick report on Human Resources for Health, the National Department of Health recognised the need for a new category of mid-level health professional, designated clinical associate, to work within the health service in district hospitals.

Why the idea was necessary
The University of the Witwatersrand aimed to establish a degree programme which would incorporate biomedical, psychosocial and clinical sciences and would produce graduates able to integrate information from these areas when performing their duties, so as to ensure an adequate standard of clinical care. The course would be taught mainly in district hospitals by family physicians.

What was done
A mind-map cycle was developed to achieve integration across disciplines and to develop a clinical problem-solving approach. The cycle is based on a patient complaint; it begins by generating the likely causes of the problem and then analysing relevant structural and functional aspects. This knowledge is incorporated into the process of taking a hypothetico-deductive history and carrying out a physical examination, so as to obtain an appropriate assessment. The cycle continues with the comprehensive management of the patient, including drug and non-drug treatment, appropriate procedures and investigations, communication with patients and with members of the health care team, referral, medicolegal and ethical issues and factors relating to improvement of patient care such as relevant data collection.

Evaluation of results and impact
The cycle, which has so far been used for the first 9 months of the new degree, has helped to structure the curriculum, course content, teaching and assessment methods. The use of mind maps has been applied to the development and promotion of self-learning and group-learning skills. Literature confirms the value of a defined structure to help students organise their knowledge effectively.

A cyclic mind-map approach has been used in the development of the curriculum for a new degree for training of mid-level workers. It is being used to facilitate learning and shows potential value in assisting with integration of theory into a clinical problem-solving process.

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HARNESSING THE POTENTIAL OF ONLINE PERFORMANCE TASKS TO PROMOTE ACTIVE LEARNING: WISHFUL THINKING OR A REALITY?

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Context and setting
The University of the Free State encourages active engaged learning in a blended learning environment. Aligned to this, active engaged learning is one of the intended critical outcomes of the MB ChB programme. To meet this challenge performance tasks in an online environment need to be student centred and not only instructional in nature.

Why the idea was necessary
1. To describe active learning opportunities in the online component of a module on general skills in the MB ChB programme.
2. To report innovative teaching and learning practices that have the potential to stimulate active learning.

What was done
Three types of learning opportunities included in the online component of the module on general skills were selected for their potential to stimulate active learning: independent individual learning; group/social learning; and reflective learning. The 9 individual and 6 group-based learning episodes focus on information technology, competency in communication, teamwork, social responsibility and general life skills, such as self-regulation.

Evaluation of results and impact
The potential of the learning opportunities to stimulate active learning was deduced from module evaluation questionnaires, follow-up nominal group interviews and module marks obtained in 2008. It was reasoned that positive student experiences related to high potential for engaged learning and negative student experiences to low potential for engaged learning. In general, students reported positively on the following online activities: opportunities for applying information technology skills; team activities that focused on interaction and reasoning; reflective writing assignment; research techniques; referencing; and scientific presentation of a community-based project. Students reported negatively with regard to activities that focused on the monitoring of group progress and self-regulation. An average performance mark of 86% for general skills was interpreted as reflecting a positive learning experience in the module.

Feedback from students, triangulated with student performance in the module, suggests that except for minor issues the completion of online learning experiences indeed stimulate active engaged learning.

PORTFOLIO-BASED ASSESSMENT OF GENERAL SKILLS: DEVELOPMENT AND EVALUATION OF AN INTERIM SOLUTION

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Context and setting
The School of Medicine at the University of the Free State has used paper-based portfolios to assess critical outcomes in the Module MEA153 on general skills since 2000. In 2007 this module was relocated to a blended-learning environment. The electronic portfolio solution native to Moodle, the Learning Content Management System (LCMS) used by the UFS at that stage, was not active. Consequently, the authors developed and investigated an interim assessment solution. A database-driven Web interface was formatted into a reflective assessment portfolio with artefact collection.

Why the idea was necessary
To describe the functioning of the reflective assessment portfolio and report student evaluations regarding acceptability and effectiveness of the assessment method.

What was done
Students were required to engage in 15 online learning activities that develop skills in the use of information technology, social and scientific communication, research technique, referencing, reflective writing, teamwork and self-regulation in the Moodle LCMS. Students accessed the portfolio from Moodle. Through the management interface of the portfolio, students uploaded completed assignments to a designated Web server and reflected on completed learning activities. All reflections and uploaded file names (linked to individual student numbers) were captured in the Web-based database. Reflections per learning opportunity were assessed with a rubric that monitored identification of personal strengths and weaknesses in the completion of the learning activity. The lecturer logged marks for assessed learning activities and reflections in the database. All information regarding completed learning activities, i.e. marks, reflections and artefacts, were displayed in the student-specific portfolio interface. Students' perspectives regarding the reflective portfolio-based assessment episodes were captured through a module evaluation questionnaire in 2008 (N=139). Structured and free-text responses were collected.

Evaluation of results and impact
Structured student responses ranged from negative (10%), indifferent (37%) to positive (53%) in 2008. Open-ended responses indicated that students actively engaged with the online learning episodes.

The uploading of completed assignments and the reflection on the learning tasks required in the reflective assessment portfolio compelled students to keep abreast of performance tasks and assignments in the module.

POSTGRADUATE TRAINING PREFERENCES OF WALTER SISULU UNIVERSITY MEDICAL GRADUATES

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Context and setting
One of the goals of the 24-year-old Walter Sisulu University (WSU) Medical School is to produce 'doctors … who are self-directed and lifelong learners that will be able to adapt to changing local and global circumstances, keep up with developments in their profession, and have the necessary motivation and background to acquire relevant specialised qualifications to advance their own careers and to fulfil the needs of the country'.

Why the idea was necessary
As part of on-going programme evaluation, there was a need to document postgraduate (PG) training statistics of WSU medical graduates; to identify disciplines with paucity of such training; and to recommend rectifications for such paucity.

What was done
This was a descriptive study of WSU medical undergraduates' PG training pattern over the period 1992 - 2008, but only looked at doctors who

graduated between 1990 and 2004, because graduates of 2005 and later were still engaged in community service or internship at the time of the study. Data were gathered by means of focus group discussions with WSU medical graduates in the country's major cities (Port Elizabeth, East London, Durban, Cape Town, Johannesburg, Pretoria), and by directly contacting graduates by telephone, e-mail, or SMS. Graduate demographics were extracted from a database for all WSU medical undergraduates since 1985 to date.

Evaluation of results and impact

Although this is still 'work in progress', preliminary data showed that between 1990 and 2004 WSU had 111 'traditionally' trained graduates and 334 PBL-trained doctors, and that at least 31.5% of the former and 23.7% of the latter had as of early 2008 either completed, or were engaged in, PG training (data on PBL doctors were less complete). Irrespective of curriculum, nearly all the specialties pursued by WSU medical graduates were clinical, the order of preference being as follows: paediatrics > O&G ≥ surgery > internal medicine > family medicine. Female graduates dominated paediatrics and family medicine, while males dominated surgery and O&G – patterns that match local and international trends. More than 99% of those who had specialised were practising 200 km or more away from their alma mater. Besides a very few in pathology, no WSU medical graduates had opted for specialisation in basic biomedical sciences. It is concluded that the WSU Faculty of Health Sciences is succeeding in motivating its medical graduates to achieve one of its major goals, namely continuing medical education/professional development and specialisation. However, the paucity of WSU medical graduates choosing careers in basic biomedical sciences as well as the apparent failure of WSU medical graduates who specialise to return to their alma mater are concerns that need to be addressed urgently by the institution.

SELF-DIRECTED LEARNING BEHAVIOUR IN A PROBLEM-BASED LEARNING CURRICULUM

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Context and setting

The University of the Witwatersrand admits two-thirds of its medical students into the 6-year MB BCh programme directly from school and one-third as graduates into MB BCh III. The two groups are thus merged in the last 4 years of the degree known as the Graduate Entry Medical Programme (GEMP). A key objective of the GEMP curriculum is to promote self-directed learning (SDL) by using problem-based learning (PBL). It is assumed that graduates entering the programme are mature, responsible, and competent learners who will readily display self-motivated approaches to learning, while the matric-entrant learners will acquire these skills in the programme.

Why the idea was necessary

Five years after the introduction of the new curriculum, there was some concern that not all students were displaying the anticipated levels of SDL activity. The aim of this study was to investigate the approaches that both matric and graduate entrants have adopted to studying in the GEMP.

What was done

The research was conducted as a retrospective cohort study of the GEMP II class of 2006. Quantitative data were collected using an anonymous Likert scale questionnaire. Biographical data included entry point into the GEMP, age, socio-cultural group and home language. The questionnaire return rate was 60%, with over-representation of white and graduate entrants, and under-representation of Indian, black and matric-entrant students.

Semi-structured focus group interviews were used to add qualitative data.

The graduate entry students reported a greater tendency than matric entrants for:

- using the scheduled free time effectively
- reading outside of the course objectives and course materials
- making use of recommended websites
- finding additional interesting websites to supplement and enhance learning.

The older graduates in particular indicated a greater inclination to read articles in medical journals and reported being more focused on a long-term goal of medical practice rather than on the short-term goal of passing exams. Use of textbooks was reported fairly evenly across the different groups, with black students making most use of the library books. When examined from the perspective of home language and socio-cultural group, the Afrikaans-speaking students showed the greatest and the Indian students the least tendency towards adopting a self-directed approach.

Evaluation of results and impact

The results indicate that after a year in the GEMP, the graduate-entrant students reported a more mature and robust approach to SDL than the matric entrants. While this was in keeping with the expectations for the graduate entrants, the results also suggest that since SDL activity is statistically correlated with age, there may be little difference between the graduates with a 3-year Bachelor's degree and the matric entrants who have completed 2 years of the MB BCh degree.

As the curriculum is producing the anticipated levels of SDL, the results suggest that some established models of learning may be socially derived and resistant to change. The introduction of appropriate formative and summative assessment tools that promote and reward the intended approaches are currently being considered.

ALIGNING LEARNING WITH OUTCOME OBJECTIVES AND ASSESSMENT

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Context and setting

The design principles of the curriculum in the first 2 years of the Graduate Entry Medical Programme (GEMP) at the University of the Witwatersrand include development of self-directed and life-long learning, while requiring students to develop a holistic approach to patient care with an emphasis on understanding the essential concepts, core principles and underlying mechanisms of the basic and human sciences that underpin clinical practice. It is possible, however, to create a tension between encouraging self-directed learning on the one hand, and defining the essential core curriculum on the other. In the GEMP the former is encouraged through the use of problem-based learning (PBL) and the latter by providing students with faculty-prescribed learning objectives linked to the criterion-referenced assessments.

Why the idea was necessary

After the implementation of the curriculum it became evident that alignment between the curriculum outcome objectives and the assessments was not being achieved consistently. We therefore found it useful to

introduce a simple framework for guiding the process of defining the appropriate learning objectives and aligning these with the relevant assessment criteria.

What was done
Defining the core curriculum in terms of a set of learning outcomes requires identification of the necessary content areas, as well as careful specification of the academic depth at which that content is to be covered. The second of these presents the greater challenge. We have found the SOLO (Structure of Learning Outcomes) taxonomy described by Biggs and Collis (1982) to be a valuable tool for this purpose. The taxonomy describes five levels of learning in terms of outcome descriptors:

- Prestructural: No appropriate knowledge
- Unistructural: Identify, define
- Multistructural: List, combine, classify, etc.
- Relational: Compare, explain, analyse, apply, etc.
- Extended abstract: Generalise, hypthesise, etc.

Although SOLO overlaps the more traditional taxonomy of Bloom, we have found it to be more easily understood and consistently applied.

All learning outcomes for GEMP years 1 and 2 are now defined by the SOLO level descriptors and are aligned with the assessments through the use of the same descriptors. Although self-directed learning is still promoted by designating certain content areas for student-driven research, the required learning is framed by the level descriptors specified in the objectives. For example, while studying a case of childhood malnutrition, students are required to find information which fulfils the following objectives:

1. **Define** protein energy malnutrition (unistructural)
2. **List** the typical features seen in a child with kwashiorkor (multistructural)
3. **Compare** the features of kwashiorkor, marasmus and marasmic kwashiorkor with reference to the Welcome classification (relational)
4. **Explain** the pathophysiology of the typical presenting features of protein energy malnutrition (relational).

The associated assessment tests these concepts at the applicable levels and should therefore be aligned with the intended learning.

Evaluation of results and impact
Faculty have responded positively to a clearly defined structure on which to base learning outcomes, students are assured of the level required for knowledge acquisition, and both content and construct validity of the assessments have been enhanced.

ASSESSMENT OF MEDICAL STUDENTS' VIEWS TO THE INTRODUCTION OF COMMUNICATION AND COUNSELLING SKILLS TRAINING

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Context and setting
The College of Medicine of the University of Lagos runs a 6-year discipline-based undergraduate programme. The formal teaching of communication skills in not included in the medical school's curriculum as in most of the medical schools in Nigeria. Attention is therefore not paid to the acquisition of these skills which are fundamental to a successful medical practice for both teachers and students.

Why the idea was necessary
Communication skills in medical practice are critical for information gathering, diagnosis, treatment, patient education and health team interactions. Good communication skills are the most important determinants of patients' satisfaction with care and adherence, and decrease the risk of malpractice lawsuits. Surveys suggest that most people want to get health information from a professional and that counselling from health professionals can be effective both in reducing lifestyle risks and supporting self-management of chronic diseases. Most doctors either do not realise the importance of patient education and counselling, lack the basic communication skills, or are too busy to do so. Formal training in communication and counselling skills is not included in our school's current curriculum.

We therefore evaluated the knowledge of communication skills among medical students at the College of Medicine, University of Lagos, and their views on the inclusion of formal instruction in these skills in their curriculum.

What was done
An anonymous questionnaire was distributed to two cohorts of students – preclinical and clinical. This consisted of a demographic section, an open-ended question on the meaning of communication and counselling, and a section for students' self-rating of their communication and counselling skills on a Likert scale. They also rated the importance of doctors' communication and counselling skills on the outcome of patient management and of the inclusion of formal skills training in their curriculum. Data were analysed quantitatively for means and proportions. Qualitative data were analysed using the grounded theory.

Evaluation of results and impact
A total of 238 students (52 final year and 186 preclinical) completed the questionnaire. Most of the students – 92.8% and 81.3%, respectively – felt good communication and counselling skills were very important in patient management. Most students – 70% and 60%, respectively – rated their communication and counselling skills above average. However, the majority (96%) felt it was important to teach communication skills and 92% wanted counselling skills instruction in their curriculum. There was no significant difference between the clinical and preclinical students' rating of importance of communication skills, self-rating of their skills, and desire for formal instruction. Most of the students felt communication is 'being able to deliver information' and that counselling is 'advising your client on what course of action to take'. However, a few students had the correct knowledge of communication and counselling.

Our medical students (preclinical and clinical) are aware of the importance of communication skills in patient management and would like formal training despite the above-average self-rating of their skills. Students' willingness to receive formal instruction is probably a better reflection of their proficiency, considering their limited understanding of these skills.

EDUCATIONAL BY-PRODUCTS OF AN E-PORTFOLIO TECHNOLOGICAL PILOT PROJECT

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Abstracts

Context and setting
Electronic portfolios are becoming a key technology application in higher education. The Department of Physiotherapy participated in a pilot project of the Blackboard (Bb) e-portfolio run by the Department of Education Innovation (EI) at the University of Pretoria. Previously, the Department of Physiotherapy used a paper-based filing system to keep records of student activities required by statutory bodies.

Why the idea was necessary
Managing this document warehouse was time consuming and needed much space. We wanted to test the technical capabilities of the portfolio system and the user-friendliness of filing, storing and retrieving artefacts, and to investigate the feasibility of students acting as designers of their own portfolios.

What was done
Three lecturers formulated learning outcomes for the development of an individual portfolio from two final-year modules. With the assistance of EI, we developed a customised template based on the outcomes. Students populated their portfolios with: (*i*) reflections on their learning during (*a*) a clinical placement (unstructured), and (*b*) use of the e-portfolio (structured); and (*ii*) other information such as the type of conditions treated, and activities previously completed online. We orientated students (N=48) on the task and using the e-tools during a two-hour interactive session in a computer laboratory. The timetable made provision for this assignment, and on-campus computers with Internet access were available. The portfolios were assessed.

Evaluation of results and impact
The text of the students' reflections on their experience of developing an e-portfolio was coded and main themes were identified. On the basis of students' reflections their opinions were generally positive.

They commented on utilising the portfolio to monitor and guide their development over the course of their studies. They also remarked on the benefits of reflecting on their own past learning, learning from other students' experiences, and the benefits of the portfolio for continuous professional development. This last-mentioned finding suggests the importance of the portability of a portfolio after a student leaves an institution. Students were also positive about collaborative learning as users may access others' portfolios if owners of these portfolios give permission. They appreciated the ease of use and flexibility in developing their portfolios. Students named time pressure, a lower level of computer literacy than other class members, and slowness of the on-campus computers as obstacles during their experience. Facilitating factors were thorough preparation, orientation and training, previous exposure to the system and ongoing support.

Participation in this pilot study enriched both the curriculum and the participants. During their own reflection, lecturers discovered indirect positive educational effects of participation in the e-portfolio pilot. One positive effect was the identification of potential areas of improvement in the overall programme, e.g. to introduce structured individual reflection earlier in the curriculum (instead of oral reflections in a group) and to involve clinical supervisors to assist learning and assessment by using an e-portfolio. Students achieved the learning outcomes and mastered additional competencies, such as confidence using technology, even though they used the e-portfolio for only two months.

SCIENTIFIC BASIS AND GOOD CLINICAL PRACTICE: EVALUATION OF UCT COURSE

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Context and setting
The Medicines Control Council (MCC) of South Africa requires health care professionals and all others involved in conducting clinical trials and studies to attend a training course in good clinical practice (GCP) every 3 years. The International Conference on Harmonization published guidelines on good clinical practice for use when generating clinical trial data for submission to regulatory authorities. This guidance is the industry standard and its observance has been legislated with some modifications in South Africa. Regular Clinical Trials – Scientific Basis and Good Clinical Practice courses have been offered at the University of Cape Town (UCT) from 2005 to 2008. Independent evaluations of these courses were conducted by health care educators.

Why the idea was necessary
As a quality-improvement measure each course was evaluated in order to judge its success and benefit to the participants. A learning history approach of planning, reflective evaluation, analysis, report, feedback and application was used to reveal opportunities or potential weaknesses of the courses.

What was done
The half-day training courses conducted twice a year at UCT are designed to include the scientific and ethical basis of GCP. The content covers the syllabus put forward by a European Science Foundation Advisory Group, but gives particular attention to the South African local context and the vulnerable populations.

Presenters come from multidisciplinary backgrounds and have links to formal bodies (e.g. human ethics research committees and clinical trial units) and are therefore able to give insight into underlying principles of GCP. Content covered includes the scientific basis of clinical trials; ethical considerations, including those related to the vulnerable population; new drug development and the role of the MCC; documentation issues; and audits. A case scenario is used to clarify important principles, and there is a panel discussion for interaction with participants.

Participants at each course were a multidisciplinary group of about 100. Feedback forms were used to obtain broad perceptions regarding the course. Participants were asked to rate statements around the presenters, the panel discussion and the course as a whole on a 5-point Likert scale – from 'strongly agree' to 'strongly disagree'. In addition, free-form responses required a response in the participant's own words to open-ended questions. These were analysed qualitatively and provided more detailed feedback. Five courses were evaluated and yielded an average return rate of >80%. The evaluations in each case provided recommendations for modification of subsequent courses.

Evaluation of results and impact
Evaluation of the five courses offered in 2005 - 2008 showed similar results. Rated responses to statements for each course consistently indicated that participants considered the presentations, panel discussion and course as a whole as valuable and worth while. The strengths of the course were seen as: the calibre of the presenters who were knowledgeable and members of the UCT Research Ethics Committee, a local course

of acceptable length, the reasonable cost and that it was offered regularly. Themes emerging from the analysis of the free-form responses showed that the course satisfied a real need by providing a forum within which practical and ethical problems encountered in research could be discussed and practical problems addressed. A consistent difficulty, however, has been the diverse target group. Although all attendees were involved in research they came from different educational backgrounds and therefore the level of the discourse was at times inaccessible to some of the participants. Although this course is designed to satisfy MCC accreditation regulations, requests were repeatedly made to cover research other than drug development.

The course has improved since 2005 owing to the 'learning history' cycle of evaluation, analysis, and reporting modifications based on the evaluations. Participants have called for a follow-up or refresher course over and above the basic course which is now run annually. In accordance with adult learning theory recommendations were made that the follow-up course should be more participatory and take place in an active learning setting.

AN ELECTRONIC PRE-HOSPITAL EMERGENCY CARE REGISTRY FOR THE MANAGEMENT OF CLINICAL LEARNING

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Context and setting

Clinical learning comprises an important learning opportunity in all years of study for the National Diploma and Bachelor's degrees in Emergency Medical Care at the University of Johannesburg. Placement of students for clinical learning, and the management and quality assurance of their activities during and after work in the field, is both complex and time consuming.

Why the idea was necessary

Students are required to record clinical data for each patient interaction and, together with evaluation data, submit these as a portfolio of clinical learning activity. The volume of raw data generated by this exercise was difficult for lecturers to assess and manage when in non-electronic format. It was also very difficult to obtain any kind of summary information regarding exposure to clinical skills for individual students or groups and thus assess the adequacy of clinical learning at any point in time.

What was done

A Web-based clinical learning registry was designed and first implemented within the Department in 2001. Students followed the same procedure for point-of-care clinical data recording on paper, but were required to enter these data into the registry using the Department's computer laboratory. The registry's design incorporates a user interface with data input validation, an input navigation form sequence specific to patient characteristics and an automated screening of existing patient care records for completeness each time a student logs in. A more detailed student evaluation tool was added to the registry in 2006. Accumulated and summarised clinical learning data are available to lecturers during the course of the year through a separate user interface. This includes standardised reports on students' usage of the system, numbers of patient care records entered, summaries of clinical skills performed and compliance with clinical skill and patient care record requirements. Correctness of electronic patient care records, compared with the paper version, and the presence of required signatures are assessed by audits of randomly drawn patient care records for each student. Once used for management of clinical learning, patient care records from each year are accumulated – the registry currently contains more than 20 000 of these records.

Evaluation of results and impact

The powerful features of data aggregation and summary made possible by electronic storage, retrieval and manipulation have made management and quality assurance of clinical learning easier and more efficient. Data from the registry have played a vital role in characterising the nature and extent of clinical skills exposure, a task that was not previously feasible. The registry is an invaluable source of data for both clinical and educational research. Two articles, one clinical and one investigating exposure of students to clinical skills, have already been published in international emergency medicine journals based on registry data accumulated between 2001 and 2007. Within the last two years three other universities in South Africa offering similar programmes have approached the Department and requested access to the registry for management of their own clinical learning activities. Work on refining the registry for commercial release in the future has already begun.