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Monash Pharmacy Education Symposium 2013 - Teaching for Learning

Venue: Monash University Prato Centre,

Via Pugliesi, 26, 59100 Prato, Italy

Day One, Oral Stream One. A caring profession: teaching interpersonal competencies for professional practice

Monday, 8 July (2.15 – 3.15pm)

O1. Developing a resource to support awareness of fitness to practise and ethical dilemmas

Jason Hall[1*], Tim David[2], Mary Tully[1]

Presenting Author: Jason Hall

[1]*School of Pharmacy, The University of Manchester, UK*
[2]*School of Medicine, The University of Manchester, UK*
[*]*Corresponding author email: jason.hall@manchester.ac.uk*

Keywords: *fitness to practise; ethical; dilemma.*

Introduction: Schools of pharmacy in Great Britain (GB) are required to have fitness to practise procedures in place. These procedures are in place to protect the public and encourage students to strive for high standards in their professional and personal lives. This abstract describes how we developed a resource for all Schools and students to help raise awareness of fitness to practise.

Methods: An expert advisory panel was formed to guide the team and to identify relevant fitness to practise issues and ethical dilemmas and to help write the scenarios. The Panel contained representatives from occupational health, disability support, other health care professions, pharmacy pre-registration coordinators, the British Pharmaceutical Students' Association (BPSA) and a pharmacy student. As there were few hearings involving pharmacy undergraduate students, this overview was extended to cover the training of other health professions (*e.g*. medicine, dentistry, nursing, midwifery and social work).

Results: A list of ethical dilemmas and fitness to practise issues with relevance to pharmacy training are provided in Table I. In the guidance, these are broken down in more detail, describing the key issues and the outcome of each scenario is provided.

Conclusion: This resource aims to support effective decision-making in ethical dilemmas and fitness to practice using scenarios based upon real life situations involving health professions from across GB.

Reference

General Pharmaceutical Council (2010) Guidance on Student Fitness to Practise Procedures in Schools of Pharmacy.

Table I: Issues covered in detail in the guidance

Fitness to Practise	Ethical Dilemmas
Dishonesty Criminal convictions Police caution for theft Drug and alcohol misuse Drug misuse Unprofessional behaviour or attitudes Cheating or plagiarising Health concerns and lack of insight or management of these concerns	Patient confidentiality *versus* communication Autonomy of the student *versus* adherence to a professional code Autonomy of another student *versus* whistle blowing Autonomy of the student *versus* respecting dignity of others Protecting dignity *versus* disclosing personal information Making patients your first concern *versus* complying with legal and professional requirements Making patients your first concern *versus* making judgments that are not influenced by personal interests

O2. Saying 'no' professionally: simulated learning approaches to teach pharmacy students to refuse patients' inappropriate requests

Jasmina Fejzic,[1,2*] Michelle Barker,[2] Ruth Hills,[3] Alannah Priddle[4]

Presenting author: Jasmina Fejzic

[1]*School of Pharmacy, Griffith University, Australia*
[2]*Department of International Business and Asian Studies, Griffith University, Australia*
[3]*Griffith University, Australia*
[4]*Gold Coast Hospital, Australia*
[*]*Corresponding author email: j.fejzic@griffith.edu.au*

Keywords: *simulated learning; pharmacist refusing request; qualitative; quantitative.*

Introduction: Pharmacy students need to interact with challenging patients who request medication that pharmacists are ethically bound not to supply. The EXCELL Program (Westwood *et al*,. 2000) identified 'refusing a request' as a challenging social skill that students need to master to communicate effectively in professional practice.

Methods: Fourth year MPharm students (*n*=94) completed two 4-hour simulated learning workshops over 2 weeks. Six modules (SLMs) concentrated on professional competencies, practice interactions, and sociocultural competencies (Westwood *et al*,. 2000). In one SLM, students role-played a pharmacist refusing a request for restricted medications from actors who adopted the role of a demanding patient. Teaching strategies included modelling of optimal responses, feedback, debriefing, and social interaction maps (Westwood *et al*,. 2000). A sample of student and actor interactions were filmed. Evaluations included quantitative and qualitative measures.

Results: Post-workshop, students indicated greater confidence in being able to refuse a request in a pharmacy setting. The majority gave positive feedback about enhanced communication skills with aggressive people. Using real-life scenarios and actors were seen as adding to the ecological validity of the training experience.

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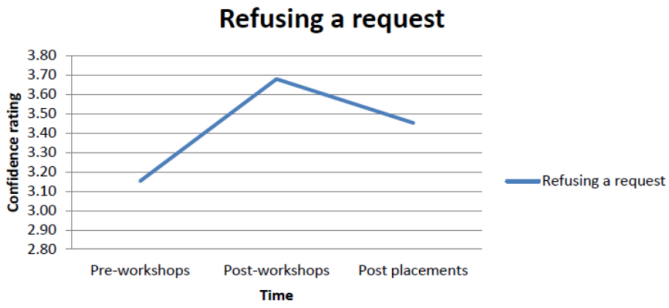
Conclusion: Students identified the need for further development of assertive communication skills to manage demanding customers more effectively, particularly where professional ethics are challenged. Teacher reflections highlighted the value of reducing small group size, and whether including assessment would improve learning outcomes.

Reference

Westwood, M.J., Mak A., Barker, M. & Ishiyama, F.I. (2000) Group procedures and applications for developing sociocultural competencies among immigrants. *International Journal for the Advancement of Counselling,* **22**(4), 317-333.

Figure 1



O3. Stimulating simulations: learning outcomes and lessons learnt about simulated learning modules addressing common pharmacy practice interactions

Jasmina Fejzic,[1,2*] Michelle Barker,[2] Ruth Hills,[3] Alannah Priddle[4]

Presenting author: Jasmina Fejzic

[1]*School of Pharmacy, Griffith University, Australia*
[2]*Department of International Business and Asian Studies, Griffith University, Australia*
[3]*Griffith University, Australia*
[4]*Gold Coast Hospital, Australia*
[*]*Corresponding author email: j.fejzic@griffith.edu.au*

Keywords: *pharmacy practice; simulated learning; communication; qualitative; quantitative.*

Introduction: The need for improved communication skills was evident in examinations, placements, and practice of Pharmacy students from culturally and linguistically different backgrounds (CALD), as well as non-CALD students. Impetus for enhanced experiential training was initiated by internal (academics, students), and external (Health Workforce Australia) stakeholders.

Methods: Fourth year MPharm students (n=94) completed two 4-hour workshops over 2 weeks consisting of 6 simulated learning modules (SLMs) based on professional competencies, practice interactions, and sociocultural competencies (Westwood *et al.*, 2000). The SLM modules were: 1. Seeking help, 2. Expressing disagreement, 3. Participating in a group, 4. Receiving feedback, 5. Refusing a request, 6. Giving feedback. Each module comprised actors, interaction maps, feedback, debriefing, and discussion. Qualitative and quantitative surveys were administered to students before and after the workshops focusing on their learning outcomes, satisfaction, and acceptance of SLMs. Facilitators also provided reflections on this teaching modus.

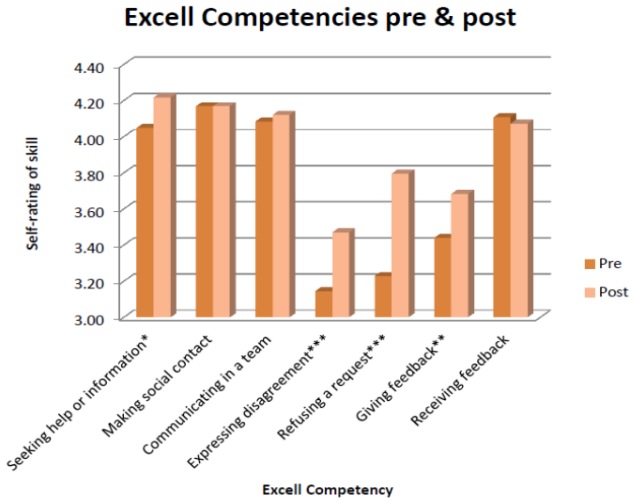
Results: Students reported significant improvements in self-reported confidence in four of the competencies (1., 4., 5., 6.). Qualitative feedback reported a high degree of acceptance of SLMs, with students indicating improvements in communication and pharmacy practice skills. Staff reflections offered ways to optimise the teaching of SLMs.

Conclusion: SLMs showed great potential for Pharmacy curriculum, however, several modifications should be considered to enhance learning outcomes.

Reference

Westwood M.J., Mak A., Barker M. & Ishiyama F.I. (2000) Group procedures and applications for developing sociocultural competencies among immigrants. *International Journal for the Advancement of Counselling,* **22**(4), 317-333.

Figure1



$^{*}p<0.05$; $^{**}p<0.01$; $^{***}p<0.001$

O4. International service learning and community engagement course contributes to cultural competency

Rosemin Kassam,[1*] Augusto Estrastra,[2] Yvonne Huang,[2] Birpaul Bhander[2]

Presenting author: Rosemin Kassam

[1]*Faculty of Medicine, School of Population and Public Health, University of British Columbia, Canada*
[2]*University of British Columbia, Faculty of Pharmaceutical Sciences, Canada*
[*]*Corresponding author email: rosemin.kassam@ubc.ca*

Keywords: *service learning; international; community engagement; cultural competency; experiential.*

Introduction: The literature proposes that cultural competence is important to providing quality health care in communities that are racially and ethnically diverse. The emphasis towards cultural competence has brought increased awareness and acknowledgement among pharmacy educators that practicing pharmaceutical care without cultural competency can put patients at risk of poor patient outcomes.

The objective of this presentation is to discuss the development, implementation and evaluation of an innovative international service learning and community engagement course to provide cultural competence training to pharmacy students.

Methods: The course was designed to cultivate pharmacy students' ability to care for patients from diverse cultural backgrounds. The experience consisted of 2 parts: (1) pre-departure preparation, and (2) the immersion within a "real life setting". An essential component of this experience was its emphasis on continuous cycle of learning and reflection. Students' reflections were qualitatively analyzed to understand the impact of this learning on their competence.

Results: Students' reflections revealed increased self-awareness of their personal and professional culture; exposure to a participatory health delivery model that involved patients, community members and a multidisciplinary group of health providers; opportunities to partake in care for patients from diverse cultural backgrounds; and an increased sense of responsibility to advocate for individuals who are socially marginalized.

Discussion: This immersion experience provided life-changing experiences for students at a personal and a professional level.

Day One, Oral Stream Two. From a Distance: communication technology in pharmacy teaching

Monday, 8 July (2.15 – 3.15pm)

O5. Teleconferencing for team- and case-based learning (TBL, CBL) in online PharmD pharmacotherapy courses

Shaun Gleason[1], Monika Nuffer[1], Maria Grogan[1], Kari L. Franson[1], Ralph J. Altiere[1*]

Presenting Author: Kari L. Franson

[1]*University of Colorado, Skaggs School of Pharmacy and Pharmaceutical Sciences, U.S.A.*

[*]*Corresponding author email: ralph.altiere@ucdenver.edu*

Keywords: *team-based learning; case-based learning; online; distance education; teleconferencing.*

Introduction: Teleconferencing was introduced into online pharmacotherapy courses to better prepare our globally-based students for patient-centered care (AACP, 2011). This methodology incorporates TBL and CBL and is based on our on-campus capstone course (Comprehensive Patient Care). Outcomes, including learning and perceived efficacy, are presented.

Methods: Within an online learning management system, individual, asynchronous clinical application exercises were replaced with case-based assignments to design pharmacotherapy care plans. The methodology was initiated in introductory units, where students prepared cases independently or in teams. In later units, students prepared cases similarly, and discussed patient and pharmacotherapy issues with peers on faculty-facilitated teleconferences. Learning was assessed by analysing exam results in two pilot courses. Student perceptions of effectiveness were measured and improvements were made between the two courses. Course evaluations were obtained for all courses.

Results: Results demonstrating efficacy of online TBL and CBL are shown in the table. Additional courses currently are being analyzed and will be presented.

Discussion: In an online PharmD program, TBL and CBL via teleconferencing is effective in teaching the application of clinical knowledge to students across broad geographical areas, as demonstrated by exam results and student perception. This learning experience aims to improve students' ability to provide patient-centered care and will be extended to online courses in our international PharmD program.

Reference

American Association of Colleges of Pharmacy, (2011) 112th Annual Meeting of the American Association of Colleges of Pharmacy. *American Journal of Pharmaceutical Education*, **75**(5), Article 5, 1-146.

Table I

Overall exam results (means)	PILOT Course 1 n=47	PILOT Course 2 n=62		Student survey results (means)	PILOT Course 1 n=25	PILOT Course 2 n=30	
Exam 1*	86.5%	86.2%		**Perceived Efficacy** (1=not effective at all, 2=marginally effective, 3=effective, 4=very effective, 5=extremely effective)			
Exam 2†	85.9%	81.3%		Case-based learning	3.9	4.2	NS
n = number of students *after introductory units †after teleconference units				Team-based learning	3.5	3.9	P<0.05

O6. Enhancing continuing education programs for practising pharmacists with the use of an audience response system

Josephine To[1*], Luke Grzeskowiak[2], Alicia Thomas[3], Emily Reeve[1], Adam Phillips[4]

Presenting Author: Josephine To

[1]*School of Pharmacy and Medical Sciences, University of South Australia, Australia*

[2]*The Robinson Institute, The University of Adelaide, Australia*

[3]*Pharmacy, Repatriation General Hospital, Daw Park, Australia*

[4]*Good Health Choices, Chemplus Pty Ltd, Australia*

[*]*Corresponding author email address: jo.to@unisa.edu.au*

Keywords: *continuing education; audience response system; pharmacist; professional development; randomised controlled trial.*

Introduction and Aim: The use of an audience response system (ARS) has been suggested as a means to improve the effectiveness of didactic lectures. To date, the majority of studies investigating the use of ARS have involved undergraduate students, with none specifically among practicing pharmacists. This project aimed to determine the effectiveness of using an ARS in enhancing continuing education programs for practising pharmacists.

Methods: A multicentre, randomised controlled trial involving the delivery of a specifically developed continuing education module on the safe and appropriate use of proton

pump inhibitors. Practising pharmacists from three metropolitan hospital sites in South Australia were invited to participate. At each site participants were divided into two groups with one group attending the presentation incorporating the use of an ARS while the second group attended the same presentation without the use of an ARS, using summary points in the place of questions. The presentation was delivered by the same person across all sites. Before the presentation, data was collected on participant demographics and baseline knowledge. Following the presentation, data was collected on the quality of the presentation, speaker quality, knowledge of the material presented and impressions of the ARS for one group only. A follow-up assessment of knowledge retention at one month was undertaken by email. Changes in knowledge scores at each time point were compared between groups using an unpaired t-test and within groups using a paired t-test.

Results: Data collection is currently underway and results will be presented at the conference.

O7. Synchronous online problem based learning – embedding social learning to develop advanced practice amongst senior pharmacy practitioners

Andrea Taylor[1*], Lyn Hanning[1,2]

Presenting Author: Andrea Taylor

[1]*University of Bath, Department of Pharmacy and Pharmacology, U.K.*
[2]*South West Medicines Information and Training, Bath, U.K.*
[*]*Corresponding author email address: a.d.j.taylor@bath.ac.uk*

Keywords: *problem based learning; synchronous; e-learning; advanced practice.*

Introduction: Problem-based learning (PBL) is an established approach for structured group learning and has been used to good effect in medical education (Dolmans *et al*., 2005; Hartling *et al*., 2010). It has translated effectively into online learning environments (Jeong & Hmelo-Silver, 2010). Using PBL online in real-time is novel and presents educators with unique opportunities and challenges of time and place.

Methods: A small scale participatory design research evaluation has enabled us to explore:

- how three distinct groups of experienced pharmacy practitioners engaged with synchronous online PBL using Adobe Connect© to develop knowledge and skills in management, learning and teaching, and research
- issues and challenges for educators in embedding these approaches in online courses for advanced pharmacy practitioners.

Results and Discussion: Using synchronous online technologies to support real-time group work presents challenges of time, place, digital literacy and work organisation. The benefits of working collaboratively online in real-time include enhanced engagement and participation, co-construction of knowledge, and increased satisfaction due to higher levels of authenticity in learning task (relevance to work).

References

Dolmans, D., DeGrave, W., Wolfhagen, I. & Van Der Vleuten, C. (2005) Problem-based learning: future challenges for educational practice and research. *Medical Education,* **39** (7), 732-741.

Hartling, L., Spooner, C., Tjosvold, L. & Oswald, A. (2010) Problem-based learning in pre-clinical medical education: 22 years of outcome research. *Medical Teacher*, **32**, 28-35.

Jeong, H. & Hmelo-Silver, C.E., (2010) Productive use of learning resources in an online problem based learning environment. *Computers in Human Behaviour,* **26**(1), 84-99.

O8. Maximising the learning opportunities of experiential learning by utilising a web-based tool

Lynne Bye[1*], Trudi Aspen[1], Fiona Kelly[2], Adam Blake[3]

Presenting Author: Lynne Bye

[1]*School of Pharmacy, The University of Auckland, New Zealand*
[2]*Griffith University, Australia*
[3]*Centre for Learning and Research in Higher Education, The University of Auckland, New Zealand*
[*]*Corresponding author email: l.bye@auckland.ac.nz*

Keywords: *experiential learning; web-based tool; peer review; reflection.*

Introduction: The need to maximise the learning from the experiential learning components in the Bachelor of Pharmacy (BPharm) programme at University of Auckland (UoA), New Zealand (NZ) was identified. Peer review and reflection are behaviours expected of practising health professionals both within and across health disciplines. Aropä is a web-based system designed to support peer review activities in large undergraduate classes (Hamer, 2011) .

Aim: To describe the use of a web-based peer review activity, in two experiential learning components of the (BPharm) programme at UoA.

Method: Descriptive study examining student submissions, reviews and evaluations from cohorts of students undertaking two different experiential learning components from 2010 to 2012 at the School of Pharmacy, UoA.

Results: The web-based tool, Aropä, reduced the administrative burden of peer review both for students and academic staff members and was generally well received and students became actively engaged in peer review and reflection. There was a notable improvement in the quality summaries submitted via Aropä.

Discussion: Our findings show that peer review embedded into experiential learning components can aid learning in a variety of ways, which are aligned with those identified in the PEER project which evaluated the learning benefits from a student peer review process.

References

Hamer, J. (2011) Aropä Introduction v12 (on-line). Available at: http://www.clear.auckland.ac.nz/index.php?p=online_res#anchor7. Accessed 20th September, 2011.

Nicol, D. (2011) Peer evaluation in education review (on-line). Available at: http://www.reap.ac.uk/PEER/ Project.aspz. Accessed 27th October, 2012.

Day Two, Oral Stream One: Up close and personal: face-to-face teaching methods

Tuesday, 9 July (2.15 – 3.15pm)

09. Linking chemistry to pharmacy practice

David Manallack[1*], Kim Styles[1]

Presenting Author: David Manallack

[1]*Faculty of Pharmacy and Pharmaceutical Sciences, Monash University, Australia*
[*]*Corresponding author email: David.Manallack@monash.edu*

Keywords: *chemistry; pharmacy practice; video; linking disciplines.*

Introduction: Chemistry plays a key role in the life of a pharmacist helping them to understand the pharmacology, pharmacokinetics and physicochemical properties of a drug. Despite this, students often do not see the relevance of chemistry to their careers as pharmacists. To counter this viewpoint we have developed teaching material that makes clear links between pharmacy practice and basic chemistry.

Methods: This presentation will outline a video we have produced that showcases two related drugs, explaining differences in their biopharmaceutical characteristics using their chemical structures. From a constructivist perspective we are drawing on two separate areas: chemistry and pharmacy practice. By combining them in the video we are supporting the creation of new mental models for students where these areas were not previously related. To evaluate the impact of our strategy, a short survey (110 responses) was conducted several days after showing the video to compare the medium term information retention from each approach. Questions with increasing degrees of difficulty tested chemistry concepts taught in each of the lecture material and the video.

Results and Discussion: The students overall answered questions from the video 23% better than those from lectures. In summary, linking chemistry and pharmacy practice in a visual medium has had a positive impact on concept formation and retention in pharmacy students. Illustrating the purpose behind the chemistry material with a real-life pharmacy scenario assists students to understand the relationships between these two disciplines.

O10. Inter-professional, hospital based teaching for student learning of pharmaco-therapeutics

Luigi Gaetani[1,2], John Fardy[1], Wilfred Yeo[1]

Presenting Author: Luigi Gaetani

[1]*University of Wollongong, Australia*
[2]*Wollongong Hospital, Australia*
Corresponding author email: lou@uow.edu.au

Keywords: *inter-professional; pharmaco-therapeutics; pharmacy graduates; pharmacy students; medical students.*

Introduction: Medication errors persist despite conventional pharmacology teaching for pharmacy and medical students.

Aim: To establish an inter-professional teaching program based at a tertiary teaching hospital aimed primarily at improving pharmaco-therapeutic knowledge of medical and pharmacy graduates/students and promote quality use of medicines within hospital practice.

Method: Small group meetings involving recent pharmacy graduates, pharmacy students on clinical placement and Phase 2 medical students are conducted weekly. Structured discussion covers a clinical case, the medication chart, medication history taking, rational prescribing and any interventions required. A Senior Hospital Pharmacist (LG) and Senior Medical Practitioner (HJF) are present.

Results: Each tutorial of 60 minutes has 2–3 pharmacy graduates and 26 medical students attending. Over the 48 month period, 10 graduate pharmacists, several pharmacy students and approximately 320 medical students have undergone tuition. Feedback from pharmacy graduates and medical students was gathered. The informality of medical practitioner and clinical pharmacist interactions in the tutorial helped break down interdisciplinary barriers and strengthen the perception of clinical teamwork.

Conclusion: The program offers both an educational intervention and a means of developing inter-professional dialogue. Formal evaluation of the program has demonstrated some encouraging results and evaluation is ongoing.

O11. Undergraduates' views on therapeutics interprofessional education (IPE) sessions - similarities and differences between pharmacy and medicine students

Dai N. John[1*], Sion A Coulman[1], Anesha Premji[1], John P. Thompson[1], Helen Sweetland[1], Jamie Hayes[2], Philip A. Routledge[1]

Presenting Author: Dai N. John

[1]*Cardiff University, U.K.*
[2]*Welsh Medicines Resource Centre, U.K.*
[*]*Corresponding author email: Johndn@cf.ac.uk*

Keywords: *interprofessional education; medicine and pharmacy; undergraduate; therapeutics; evaluation.*

Introduction: Interprofessional education should be an integral part of health care professionals' education. Pharmacy and medicine faculty developed materials and piloted them with fifth year pharmacy and medicine students. The aim was to compare views of pharmacy and medicine students on an IPE therapeutics session.

Methods: Students worked in pairs, alternating between roles of pharmacist or doctor, as appropriate, and patient. At the end of session students completed an anonymous questionnaire of mainly Likert questions. Comparisons between groups were made using Mann-Whitney. University ethics approval was obtained.

Results: A total of 341 students (167 pharmacy, 174 medicine) participated in, and completed, the evaluation. Students found the session useful and enjoyable (93% and 94% agreed/agreed strongly, respectively). Ninety-three percent indicated they had learnt something from the approach

of their partner and 98% agreed/strongly agreed it was useful working with a student from another profession (no-one disagreed). Only 4% disagreed that there should be more IPE between pharmacy and medicine undergraduates. Two differences between the groups were found. Pharmacy students indicated a higher level of agreement (27% agreed strongly and 53% agreed) that they were well-prepared in terms of medicines history-taking ($p<0.001$) than medical students (9% strongly agreed and 55% agreed). There was also a difference in sufficient preparedness for therapeutics ($p=0.16$) between students of pharmacy (42% strongly agreed or agreed and 28% disagreed or strongly disagreed) and medicine (32% strongly agreed or agreed and 42% disagreed or strongly disagreed).

Discussion: The findings support the development of further interprofessional education between medicine and pharmacy undergraduates.

O12. GIMMICS: a pharmacy game in an academic setting

B.M. Verdel[1*], B.M.A. van Wieren-de Wijer[1], J.G. Van Paassen[1], A. Heersche[1], A.C.M. Hazen[1], M.L. Bouvy[1]

Presenting Author: Marianne Verdel

[1]*Department of Pharmaceutical Sciences, Utrecht University, The Netherlands*

[*]*Corresponding author email: b.m.verdel@uu.nl*

Keywords: *GIMMICS; pharmacy game; pharmacy practice training; communicative skills.*

Introduction: GIMMICS (Groningen Institute Model for Management in Care Services) is a teaching game in which a community pharmacy is simulated in a controlled academic environment. Growing interest for pharmaceutical care and the need for lifelong learning were triggers for implementing this new teaching method in the master programme Pharmacy at both faculties in The Netherlands (Groningen and Utrecht) and Belgium (Brussels).

Methods: Teaching objectives are: to integrate student's knowledge from different fields, to practise social and communicative skills under controlled circumstances and to prepare students for their responsible and challenging tasks as pharmacists. Setting: The pharmacy game is organised before the students' primary practice training and acts as a bridge between pharmaceutical education and pharmacy practice training. Teams of 5-6 students work in their 'own' pharmacy in a 4-week period. The game combines routine activities (daily prescription processing, compounding, contact with patients and physicians) and long lasting projects (academic detailing, pharmaceutical care project, QA manual) with events initiated by the game coaches or the students. All assignments are assessed by the coaches or external reviewers. For each pharmacy team, all scores are processed during the game on the website. No direct feedback is provided, but on the final day the game coaches evaluated several assignments. To encourage a reflective attitude, a self evaluation and a team evaluation are part of the pharmacy game.

Conclusion: Despite the high workload, pharmacy students highly value the pharmacy game. They appreciate this teaching method in which academic knowledge and social competences are integrated.

Day Two, Oral Stream Two. Beyond the classroom: what else drives learning

Tuesday, 9 July (2.15 – 3.15pm)

O13. Revealing the skills curriculum: skill mapping an undergraduate pharmacy degree

Kim Styles[1*], Lynette Torres[2], Peter Stewart[1], Deborah Horne[1], Leanne McCann[1]

Presenting Author: Peter Stewart

[1]*Faculty of Pharmacy and Pharmaceutical Sciences, Monash University, Australia*

[2]*Monash University Library, Monash University, Australia*

[*]*Corresponding author email: Kim.Styles@monash.edu*

Keywords: generic skills; research skills development framework (RSD); skills mapping; graduate attributes; skills reporting.

Introduction: Pharmacy degrees prepare graduates with knowledge, attitudes and skills required for professional practice and future research. Skills and attitudes required are normally defined by national qualifications frameworks, the values of the institution and by accrediting professional bodies, resulting in a substantial range and number of skills to be addressed. These bodies normally have discrete reporting procedures, creating substantial workloads. There is additionally an absence of tools and techniques for objective, comparable collection and reporting of skills across degrees that use research validated frameworks. Unit level assessment of skills is possible with OSCEs but this strategy is not widely used particularly in the sciences.

Methods: To reduce workload and complexity in reporting, Monash University determined an approach to rationalise data gathering and analysis. A skills matrix based on the Research Skills Development Framework was developed from analysis of various skills requirements. Units in the undergraduate pharmacy program were mapped using a customisable computerised tool that recorded if skills were taught, practised or assessed, and the level of student autonomy with respect to content and approach in activities.

Results: The data shows that academics assume skills are developed through practice. Overall, less than 20% of skills-related activities focused on teaching, and 35-40% on their assessment. Academics' assumptions about students' prior skills were also clear.

Discussion: Access to a systematic skill and attribute mapping process reveals the skills curriculum, often hidden by the conceptual curriculum. The skills audit information provides quantitative evidence on which to align and improve curricula, and report efficiently.

O14. Pharmacy educators: fire-lighters, pastors, mirrors or chefs?

Sue Burton[1]

Presenting Author: Sue Burton

[1]*Department of Pharmacy, Faculty of Health Sciences, Nelson Mandela Metropolitan University, South Africa*

[*]*Corresponding author email: susan.burton@nmmu.ac.za*

Keywords: *pharmaceutical educators; professional identity; metaphors.*

Introduction: Although the philosophy of pharmaceutical care has been embraced by international pharmaceutical organisations for two decades, pharmacy practitioners have been slow to adopt and implement it. One of the reasons for this has been attributed to deficiencies in pharmaceutical education and attempts to address these deficiencies have focused on the curriculum and on pedagogic practices. However, Palmer (1997) asserts that "good teaching cannot be reduced to technique" and is rooted in the identity and integrity of the teacher. In an effort to deepen an understanding of the identity of pharmacy educators in South Africa, this paper explores the metaphors used by pharmacy educators to describe their self-perceived professional image.

Methods: The study involved in-depth interviews with eight pharmacy educators from each of the schools of pharmacy in South Africa and a qualitative survey conducted with a further 32 pharmacy educators. Thematic analysis and interpretation of the interview transcripts and the questionnaire responses was conducted using qualitative data analysis software – Atlas.ti®.

Results: Metaphors identified included - "mirror", "aunty", "pastor", "chef" and "fire-lighter" and provided useful insights into the self-image of the educators as "teacher" and as role model for students.

Conclusion: Analysis of the metaphors described provides an opportunity to better understand "who" it is that teaches within faculties and schools of pharmacy, and the potential impact this could have on the effective socialisation of pharmacy students into the profession.

References

Palmer, P. (1997) The heart of a teacher. *Change Magazine*, **29**(6), 14-21.

O15. Foundation years development of community pharmacists: learning from others, learning from yourself

Sarah Willis[1]

Presenting Author: Sarah Willis

[1]*Centre for Pharmacy Workforce Studies, The University of Manchester, U.K.*

Corresponding author email: sarah.willis@manchester.ac.uk

Keywords: community pharmacy; postgraduate; education; situated learning; social networks.

Introduction: While social networks – relationships with peers, managers, mentors – provide valuable opportunities for learning, many pharmacists report a lack of such networks during the foundational stage of their careers (Wills, *in press*). The purpose of the (ongoing) study reported here is to explore how, where and from whom community pharmacists learn, and whether this learning changes as they become embedded in their careers.

Methods: Community pharmacists who graduated in 2006 who previously participated in a longitudinal programme of research were invited to take part in a telephone interview exploring their learning and development; subsequently, snowball sampling was used to recruit graduates from more recent cohorts so that we could explore whether perceptions of learning varied according to years in practice. Interviews were recorded, transcribed verbatim, and a framework approach taken to data analysis.

Results: To date, 14 interviews have been completed. Analysis of these interviews suggests that social networks provide both "someone who you can ask rather than making it up" and also "enable me to make the decision by myself", hence supporting learning and development in multiple ways, with networks particularly valuable for learning about applying clinical knowledge. However, networks were less valuable for learning about ethical decision-making – here, participants cited reflection as central.

Discussion: Findings suggest that foundation years development involves both learning from/with others and from effective reflection on practice.

References

Willis S.C. (*in press*) Occupational well-being and early career pharmacists' learning in practice: the impact of social networks on adjustment to work. *International Journal of Pharmacy Practice.*

O16. Feedback: how do the views of staff and students compare?

Louise Hughes[1*], Janet MacDonald[2], Kayleigh Williams[1]

Presenting Author: Louise Hughes

[1]*Cardiff University, U.K.*

[2]*Cardiff University, Wales Deanery, U.K.*

[*]*Corresponding author email: HughesML@cardiff.ac.uk*

Keywords: *feedback; staff perceptions; student perceptions.*

Introduction: Feedback is essential for students to learn and develop, however a common complaint of many university students relates to poor or insufficient feedback (Hattie & Timperley, 2007). We investigated views and experiences of staff and students at one UK school of pharmacy in order to identify similarities, differences and opportunities for improvement.

Methods: Undergraduates were surveyed through an anonymous, self-complete questionnaire distributed to all four years of the course (n=429); resulting data were entered into SPSS and descriptive analysis undertaken. Staff views were obtained through semi-structured interviews with a purposive sample of staff; interviews were audio-recorded, transcribed verbatim and thematically analysed.

Results and Discussion: Twelve staff interviews were carried out and 73% of students returned a questionnaire. Both staff and students demonstrated a positive attitude towards feedback. Staff commented that students don't always recognise feedback, echoed by the student questionnaire where less than a third of respondents recognised formative feedback. Students ranked generalised feedback as their least preferred form, yet this was the most common type provided by staff. Staff identified lack of time as the main barrier to providing timely and individualised feedback; although 60% of students expected feedback within two weeks of an assessment, 55% thought a delay was acceptable when staff were busy. Staff and students held a number of similar views,

and most differences could be managed by better communication between parties now that student expectations are known.

Reference

Hattie, J. & Timperley, H. (2007) The power of feedback. *Review of Educational Research*, **77**, 81-112.

Poster Sessions

P1. The impact of a consultation skills teaching programme on pharmacy students' learning

Delyth James[1*], Gerogina Cozens[1], Graham Davies[2]

Presenting Author: Delyth James

[1]*Cardiff University, UK*
[2]*King's College, London, UK*
[*]*Corresponding author email: jamesdh@cf.ac.uk*

Keywords: *consultation; consultation skills; pharmaceutical care; communication skills.*

Introduction: The role of the pharmacist requires the use of effective consultation skills in order to identify and resolve any actual or potential medication-related problems. The medication-related consultation framework (MRCF) (Abdel-Tawab *et al*., 2011) was developed to provide a structured approach for face-to-face interactions between patients and pharmacists. The aim of this study was to establish the impact of a consultation skills teaching programme on fourth year pharmacy undergraduates' perceived confidence to conduct patient-centred consultations.

Methods: A confidence rating scale (Otter *et al*., 2003) was distributed to students prior to and following participation in a two and a half hour consultation skills workshop using the MRCF. This questionnaire measured confidence relating to twelve different consultation activities (*e.g.* 'gathering information from patients about their medicines') using a 4-point scale (very, moderately, little and no confidence).

Results: Ninety-three completed the pre- and ninety-six students completed the post-workshop questionnaire. Students' confidence ratings were statistically significantly higher after the workshop for all twelve activities. The largest increase in confidence was shown for 'ability to construct a pharmaceutical problem list' (MD=-0.69, t=-8.51, df=92, $p<0.001$) and 'ability to critically discuss disease management' (MD=-0.67, t=-8.37, df=91, $p<0.001$).

Discussion: This study supports the use of the MRCF as a basis for the design of effective educational learning opportunities for pharmacy students

P2. Comparison between "active learning" and traditional lectures: effects on student satisfaction and assessment outcomes in a physiology BPharm. unit

Daniel Malone[1*], Sabatino Ventura[1], Paul White[1]

Presenting Author: Daniel Malone

[1]*Faculty of Pharmacy and Pharmaceutical Sciences, Monash University, Australia*
[*]*Corresponding author email: dan.malone@monash.edu*

Keywords: *active learning; lectures; comparison.*

Introduction: It has long been recognised that lecturing approaches which involve students in a more interactive setting (active learning) leads to greater student satisfaction and enhanced student learning. The present study tested student learning and satisfaction following the introduction of active learning activities in lectures in 1st year physiology to B.Pharm. students at the Monash University Parkville campus (part of an active learning pilot conducted at the Parkville campus in semester 2 of 2012).

Methods: Five lectures that were previously presented to students in a typical didactic fashion were changed so that students were required to do pre-reading and then were given four lectures with periods of student participation. Following this, students were surveyed regarding their perceptions of the active learning pilot. Student exam performance on multiple choice questions was compared with the same questions from students in the previous year that had typical lectures.

Results: Student survey results revealed approximately 50% of responses were positive and 15% were negative (compared with 50% positive and 38% negative for typical lectures by the same lecturer). 60% of students would like active learning approaches to be used more frequently. 65% of students agreed that active learning improved their understanding of the topic and 18% disagreed. There was no significant difference in multiple choice question exam performance between the cohort of students that had active learning lectures compared with students that did not.

Discussion: These results suggest that students prefer and have a perception of gained benefit from active learning lectures, but exam performance was not changed.

P3. Outcomes of a postgraduate clinical pharmacy program: does competency-based performance evaluation tell the whole story?

Judith Burrows[1*], Treasure McGuire[1,2]

Presenting Author: Judith Burrows

[1]*School of Pharmacy, The University of Queensland, Australia*
[2]*Mater Pharmacy Services, Mater Health Services, Australia*
[*]*Corresponding author email: j.burrows@uq.edu.au*

Keywords: *clinical competence; education; pharmacy; evaluation; performance.*

Introduction: In 2011, the UQ Postgraduate Clinical Pharmacy Program (PGCPP) introduced a formative, compulsory competency-based performance evaluation and an opportunity to reflect on the Program's impact on students' practice, to link university learning and clinical practice development.

Methods: Students enrolled in the PGCPP undertook two performance evaluations by a trained evaluator, using a

validated tool, in early 2011 and late 2012. Competency ratings of the seven key performance criteria from 2011 and 2012 were compared. Students provided feedback on the evaluation process and completed an exit survey reflecting on practice improvements.

Results: Twenty-one students completed all elements; with improvement in the proportion whose performances rated as 'consistently' across key criteria. Performances identifying, prioritising and resolving medicine-related problems were superior to adherence assessment. Feedback was very positive, with a median rating of at least 6 of 7 for the evaluation being 'useful', 'fair' and 'inspiring'. Perceived impact of the Program on professional practice focused on attitudinal rather than process improvements. While many acknowledged enhanced breadth and depth of clinical knowledge, skills in leadership, management, teamwork, delivery of presentations and teaching were reported, as well as enhanced confidence, understanding of practice, higher order thinking and patient centred care.

Discussion: Competency-based evaluation focuses on performance processes meeting a minimum standard; however, professional attributes are less readily demonstrated. To capture the contribution of PGCP programs to enhance patient centred pharmaceutical care, there is a need to develop validated tools that measure professional attributes of advanced pharmacy practice to complement competency-based tools.

P4. Becoming pharmacists: are knowledge and skills enough?

Judith Burrows[1]

Presenting Author: Judith Burrows

[1]*School of Pharmacy, The University of Queensland, Australia*
Corresponding author email: j.burrows@uq.edu.au

Keywords: *professional; practice; expertise; education; development.*

Introduction: The development of competent professional practice is complex. Progressive professional educators argue that knowledge and skills alone are inadequate for effective practice which requires an integration of knowing, acting and being professionals (Dall'Alba & Barnacle, 2005). Many deficiencies in the attributes of pharmacists have been identified as barriers to the development of extended professional roles. As a result, calls continue for transforming pharmacy curricula to better prepare graduates to be effective professionals who are reflexive in response to change and open to new possibilities (Noble *et al*., 2011; Berger, 2009).

Methods: A review of professional education literature was undertaken, to identify theories and models relating to how students learn to become professionals and develop expertise through undergraduate programs and beyond.

Results: The models and theories identified, serve to explain the complexities and variability in understanding and enactment of professional practice. Contemporary authors provide new insights in how to facilitate professional becoming that extend beyond the acquisition of knowledge and skills. Criticisms of current professional curricula, along with recommendations on how professional becoming may be better facilitated are highlighted.

Discussion: This review provides new insights for pharmacy educators to transform curricula to better prepare graduates to embrace current and future roles.

References

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Noble, C., Shaw, P.N., Nissen, L., Coombes, I. & O'Brien, M. (2011) Curriculum for uncertainty: certainty may not be the answer. *American Journal of Pharmaceutical Education*,**75** (1): Article 13a.

P5. Redesign of a pharmacy program

Elizabeth Hotham[1]

Presenting Author: Elizabeth Hotham

[1]*School of Pharmacy and Medical Sciences, University of South Australia, Australia*
Corresponding author email: libby.hotham@unisa.edu.au

Keywords: *pharmacy; education; curriculum.*

Introduction: In mid-2006, academic staff and two key external pharmacists were selected to review UniSA's Pharmacy program. The four year degree was established in 1997; since then, student numbers had doubled and the international cohort significantly increased. The structure was based on two years of enabling sciences, with pharmacology, pharmacotherapeutics and experiential placements in the final two years.

Methods: Opinions on program design and curriculum sequencing were sought from graduates and current students via on-line surveys and through face-to-face discussions with the external Advisory Group and the broader profession.

Results: The revised program was introduced in 2009 for both the 1st and 2nd year cohorts: pharmacy practice courses incorporated into all four years; pharmacology moved to 2nd year, designed to be delivered in concert with other science disciplines such as microbiology and biochemistry; all pharmacotherapeutics teaching based in 3rd year in an innovative, integrated "theory/practice" format; a public health course added to 1st year with concepts extended in 4th year. Time allocated for Honours projects was extended to 18 weeks.

Discussion: The first cohort to undertake four years of the revised structure completed in 2012 and program-wide evaluation has occurred, in addition to ongoing course evaluations. Many aspects have worked well, especially practice courses across the four years. The melding of pharmacology with other science disciplines into two "double -weighted" courses has not been straightforward and is again under review. With new Australian Qualifications Framework dictates, a restructure of 4th year is underway which may also impact on 3rd year offerings.

P6. Sustainable programme assessment for pharmacy students

Buge Apampa[1*], Judy Cohen[2]

Presenting Author: Buge Apampa

[1]*Medway School of Pharmacy, Universities of Kent & Greenwich, U.K.*
[2]*Unit for the Enhancement of Learning & Teaching, University of Kent, U.K.*
[*]*Corresponding author email: j.cohen@kent.ac.uk*

Keywords: *learning; assessment; student engagement; retention; progression.*

Introduction: Following concerns around high attrition rates and low student satisfaction, assessment was identified for investigation as a possible factor adversely affecting students' learning. It was felt that the existing assessment regime may be overloading students and 'crowding out' opportunities for reflection, revision and learning.

Methods: An assessment review based on the University of Winchester's 'Transforming the Experience of Students Through Assessment' project methodology was initiated. The review involved mapping MPharm programme assessment patterns, surveying the assessment experience of Stage 4 students over their 4-year programme, followed by focus group consultations. The review was repeated after one year.

Results: The first review highlighted areas for enhancement, in particular, the need to enhance and increase the number of learning opportunities and reduce the volume of summative assessments. Clearer assessment criteria to enhance students' learning goals were also developed, based on the perceived need of students. Assessment changes in 2011-2012 resulted in a significant improvement in student performance. This was reflected in better student progression particularly for 1st year pharmacy students.

Discussion: While this improvement can be attributed to several factors, the students participating in the 2011 – 2012 focus groups reported that the reduction in summative assessments was beneficial to their learning as it allowed increased time for reflection. This revised assessment regime supports the centrality of Boud's notions of sustainable assessment and lifelong learning in the development of tomorrow's pharmacy professional.

Reference

Boud, D. (2000. Sustainable assessment: Rethinking assessment for the Learning Society. *Studies in Continuing Education*, **22**(2), 151-167.

P7. Language of science: crosswords in a chemistry class

Elizabeth Yuriev[1*], Kim Styles[1], Ben Capuano[1]

Presenting Author: Elizabeth Yuriev

[1]*Faculty of Pharmacy and Pharmaceutical Sciences, Monash University, Australia*
[*]*Corresponding author email address: elizabeth.yuriev@monash.edu*

Keywords: *chemistry; crossword; verbalisation.*

Introduction: Physical chemistry forms an important part of the enabling sciences in the First year pharmacy curriculum. In this context, students are often confronted by seemingly intangible mathematical and physical phenomena. They are commonly capable of dealing with mathematical interpretations (*i.e*. formulas) of physical laws. However, their ability to analytically apply these formulas is often impeded by limited understanding of physical relationships embedded in these laws. In our long-term experience of teaching first year physical chemistry to pharmacy students (30+ years combined), we observed that this understanding often relates to students' capacity to verbalize physical laws. We have experimented with different techniques aimed at promoting students' use of language-in-science, such as peer-assistance and student presentations.

Methods: To further develop students' abilities to articulate physical chemistry laws and relationships, we have recently developed topic-specific crosswords and implemented them into tutorial classes and the online learning and teaching environment.

Results: We have discovered that, when used as a study tool, crosswords improve students' ability to analytically approach physical chemistry problems. We have also determined some improvement trends relating to students' pre-crossword level of preparation as well as, interestingly, physical and mental acuity.

Discussion: In this presentation, we will introduce examples of physical chemistry crosswords and describe their use and evaluation.

P8. Developing the undergraduate pharmacy curriculum to improve pharmacy graduates' employability skills

Harsha Parmar[1]

Presenting Author: Harsha Parmar

[1]*The University of Manchester, U.K.*
Corresponding author email: harsha.parmar@manchester.ac.uk

Keywords: *employability; curriculum development; practice preparation.*

Introduction: The current economic climate and increasing competition for pre-registration pharmacist trainee places in the U.K. are drivers to improve employability skills of students. This project aims to develop a unit within the final year that equips students with knowledge and skills to better prepare them for the practice based pre-registration year.

Methods: Action research methodology has been adopted to develop and evaluate the curriculum to improve employability skills of students. Using polling software a questionnaire was presented to final year pharmacy students at Manchester University (n=160), during one workshop. Questions were asked about their current knowledge of the pre-registration year to seek views on areas for development for preparation into practice. Questions were informed using regulation requirements from the U.K. pre-registration pharmacist trainee manual.

Results: One hundred and sixty students participated in the questionnaire. Many students (77.0%) stated that they did not

feel prepared for the pre-registration year. Only 26.0% of students were aware of the annual leave allowance permitted by the regulator, and only 3.5% of students were aware of the sickness allowance. Students stated that workshops focusing on dealing and communicating with difficult patients (44.0%) and difficult situations (45.0%), breaking bad news (36.0%) and managing people (33.8%), would benefit their transition into professional practice.

Discussion: A unit containing information on the pre-registration year and workshops to enhance communication skills will be developed. Further insight from those supervising pre-registration trainees is also being sought. The impact of the unit's provision will be evaluated using feedback from current final year students.

P9. Primary care professionals learning together

Sarah Willis[1*], Angela Brockbank[1], Sally Greensmith[1], Chris Cutts[1]

Presenting Author: Sarah Willis

[1]*Centre for Postgraduate Pharmacy Education, The University of Manchester, U.K.*

[*]*Corresponding author email: sarah.willis@manchester.ac.uk*

Keywords: *interprofessional learning; community pharmacy; collaboration; general practice; relationships.*

Introduction: Despite policy initiatives emphasising the need for primary care professionals to work collaboratively, recent studies report that closer relationships still need to develop (Bradley *et al*., 2012). With other research suggesting that learning together facilitates collaboration, an interprofessional workshop for community pharmacists and general practitioners (GPs) was designed and evaluated.

Method: A pre-post test study design was used to evaluate the workshop's effectiveness in promoting interprofessional collaboration. Mean scores pre-participation were calculated for knowledge and attitudes to community pharmacy-GP interactions, and for rating confidence, frequency and experience in collaboration. Mean scores for confidence, post-participation, were calculated and subsequently compared to evaluate effectiveness. Forty primary care professionals took part (18 pharmacists, 22 GPs).

Results: Results suggest that, on average, community pharmacists' understanding of GPs before the workshop was greater than GPs' understanding of community pharmacists. Community pharmacists reported having contact with a local GP practice several times a week whereas GPs reported having contact with community pharmacies only once a month; community pharmacists' mean scores for experience and confidence in collaboration were also higher than those reported by GPs prior to the workshop (6.11 vs 4.36 and 6.50 vs 5.65 respectively). After taking part in the learning, confidence in collaboration increased significantly amongst both groups (p<0.001).

Discussion: Creating an opportunity for primary care professionals to learn together was effective in building participants' confidence in collaboration.

Reference

Bradley, F., Ashcroft, D. & Noyce, P. (2012) Integration and differentiation: a conceptual model of general practitioner and community pharmacist collaboration. *Research in Social and Administrative Pharmacy*, **8**(1), 36-46.

P10. Development of a distance education international PharmD (IPD) program

Shaun Gleason[1], Kari Franson[1], Rocsanna Namdar[1], Ralph Altiere[1*]

Presenting Author: Ralph Altiere

[1]*University of Colorado, Skaggs School of Pharmacy and Pharmaceutical Sciences, U.S.A.*

[*]*Corresponding author email: ralph.altiere@ucdenver.edu*

Keywords: *online; distance education; patient-centered care; international education; PharmD.*

Introduction: There is an increasing awareness and desire for advancing pharmacy education worldwide to better prepare graduates to provide patient-centered care. Recognizing this global need, we have developed a distance education IPD program, which is modeled after our longstanding online post-BS PharmD program offered to U.S. and Canadian pharmacists. The IPD program aims to educate and train non-PharmD practicing pharmacists to be advocates for patient-centered pharmacist care in their communities.

Methods: Applicants must demonstrate plans to provide local patient-centered care. Successful candidates will pass foundational sciences competency exams and English proficiency tests. The program consists of competency exams, online and face-to-face courses. Students initially complete on -site courses in Colorado in pharmacy skills and clinical pharmacy practice. Students then enter the online curriculum, consisting of coursework in integrated clinical sciences, pharmacy and healthcare and communications and informatics, with synchronous activities such as teleconferencing and online simulation exercises. Upon completion of online coursework, students return to the U.S. for additional skills courses, and introductory and advanced pharmacy practice experiences (APPE). The program is designed to be completed in three years but allows for student flexibility up to six years. Enrolment will begin in the 2014-2015 academic year.

Results: Success of the program will be assessed through applicant, admission, retention and graduation numbers, and mean capstone and APPE course grade comparisons across our on campus and online PharmD programs.

Discussion: The distance-based IPD program will prepare pharmacists to provide patient-centered care and be advocates for change in their communities.

P11. Pharmacists and pharmacy technicians: learning to work together effectively – inter- or intra -professional education?

Ellen I. Schafheutle[1*], Fay Bradley[1], Sarah C. Willis[1], Peter R. Noyce[1]

Presenting Author: Ellen Schafheutle

[1]*The University of Manchester, School of Pharmacy & Pharmaceutical Sciences, U.K.*
[*]*Corresponding author email: ellen.schafheutle@manchester.ac.uk*

Keywords: *skill mix; role delegation; pharmacist; pharmacy technician; intra-professional education.*

Introduction: In community pharmacy, pharmacists typically work with support staff, and clear role understanding and appreciation is important for effective team working. The aim of this paper is to present perceptions pharmacists and pharmacy technicians (PTs) have of each other's roles, and discuss relevance to pharmacy intra-professional education.

Methods: This paper draws on a survey of 1500 pharmacists and 1500 PTs undertaken to inform potential changes to pharmacist supervision requirements in the UK likely to require effective use of skill mix within the pharmacy team, with substitution of pharmacists with PTs for some activities. Descriptive statistics were used to compare responses between subgroups.

Results: Response rates: pharmacists 43.2%, PTs 57.3%; 78.8% of pharmacists, 61.5% of PTs worked in community; 18.7% and 37.6% respectively in hospital. Community pharmacists were most cautious when judging which activities they felt their support staff could safely perform during their absence; community PTs and hospital PTs felt significantly more confident performing technical activities, with hospital pharmacists' views more aligned. Furthermore, community pharmacists were the subgroup least supportive of role substitution; they were least agreed that support staff were competent to perform more tasks, or that they should.

Discussion: Confidence in support staff competencies is vital for effective teamwork. In light of differing perceptions held by pharmacists and PTs, these pharmacy professions may benefit from joint learning during undergraduate study and PT training to foster mutual role understanding. This could focus on technical activities in dispensing classes in the first instance.

Acknowledgement: Funded by Pharmacy Research U.K.

P12. The College of Pharmaceutical Sciences, a new international undergraduate honours programme for the training of pharmaceutical scientists

B.M. Verdel[1*], A.S. Koster[1], B. Olivier[1], I. Meijerman[1]

Presenting Author: Marianne Verdel

[1]*Department of Pharmaceutical Sciences, Utrecht University, The Netherlands*
[*]*Corresponding author email: b.m.verdel@uu.nl*

Keywords: *enquiry-based learning; honours programme; research-based.*

Introduction: In September 2010, the College of Pharmaceutical Sciences (CPS), a novel international, selective, research-based undergraduate honours programme, started at the Utrecht University. This programme aimes at attracting talented students from an international context, who are interested in a research career within the pharmaceutical field.

Methods: The CPS was designed according to the principles of enquiry-based learning. Several reasons prompted this educational approach: selected students are expected to be highly motivated and talented; they will be trained for the discovery and development of drugs in a research environment and they are expected to be able to cope with less repetition and more challenging education. It is important to foster high-end learning, higher-order thinking skills, self-regulated learning and creativity, where the teachers' role is to support students in developing their own personal understanding of scientific concepts. The first year of the CPS -programme consists of four highly integrated 10-week courses, following the "drug development pipeline" in reversed order (from man to molecule). In their second year, students can choose from a wide range of electives offered in the chemical, biomedical and pharmaceutical field. In year 3, students follow a mandatory course Drug Discovery and Development as a preparation for their individual undergraduate research (6 months).

Conclusion: The CPS is a novel international undergraduate honours programme. Small-scale project-based education and direct interaction with principal investigators of the department is organised throughout the curriculum. The first graduates of this programme are expected to enter research master programmes from September 2013.

P13. Discussion as a learning tool for reflecting on pharmacy observational placements: barrier or facilitator in an internationalised HE context?

Efthymia Mantzourani[1*], Rhian Deslandes[1]

Presenting Author: Efthymia Mantzourani

[1]*Cardiff School of Pharmacy and Pharmaceutical Sciences, Cardiff University, U.K.*
[*]*Corresponding author email address: MantzouraniE1@cf.ac.uk*

Keywords: *reflection; observational placements; discussion; internationalisation.*

Introduction: Brief observational placements have been an integral part of the pharmacy curricula. Post-placement workshops were introduced this year, so that groups of students can share and reflect on their experiences through the use of discussion. Discussion is a valuable tool for students to revisit their placement and turn surface into deep learning. English is not the first language in about 20% of students; therefore groups are inevitably culturally diverse. The aim of this study was to evaluate whether language was a barrier in this workshop.

Methods: The sampling frame was first and third year students (n=247). Following the workshop an evaluation questionnaire was distributed, for immediate return, employing both a 5-point Likert scale and open questions.

Results and Discussion: Of the 236 returned questionnaires (96%) 3 were incomplete and not included in the study. 186 students stated English was their first language (cohort A) and 47 said it was not (cohort B). A higher percentage of cohort A (see table) perceived that the discussion facilitated their reflections, in agreement with literature that problematic integration might affect quality of experience of students' education. Interestingly, the difference in the level of

agreement was reduced when the students were asked if discussion allowed them to learn from their peers and if they enjoyed their experience. These results need to be interpreted with caution, as they are a snapshot of the students' perceived views on discussion at one point only of their degree, and they could reflect students' different learning styles.

Table: Percentage of students who agreed/disagreed with some statements regarding their post-placement workshop.

The community pharmacy post-placement discussion with my peers has….	Agree (1-2 Likert Scale)		Disagree (4-5 Likert Scale)	
	Cohort A	Cohort B	Cohort A	Cohort B
….. facilitated my reflections on the placement	87%	70%	7%	17%
….. been an enjoyable experience	69%	62%	16%	19%
….. allowed me to learn from my peers	83%	72%	8%	13%

Cohort A: Students whose first language is English
Cohort B: Students whose first language is not English

P14. Evaluating the effectiveness of the PharmD program in Qatar University in developing the student's practice skills – preceptors perspective

Banan Mukhalalati[1,2*], Andrea Taylor[1]

Presenting Author: Banan Mukhalalati

[1]*University of Bath, Department of Pharmacy and Pharmacology, U.K.*
[2]*College of Pharmacy, Qatar University, Qatar*
[*]*Corresponding author email: banan.m@qu.edu.qa*

Keywords: *PharmD program; preceptors; design research; practice skills.*

Introduction: The Doctor of Pharmacy (Pharm D) is a degree that qualifies graduates to practice pharmacy in an advanced way. A Pharm D program has been designed by Qatar University (QU) to meet advanced pharmacy practice needs in Qatar. The college of pharmacy at QU is accredited by the Canadian Council for Accreditation of Pharmacy Programs (CCAPP). The Pharm D program received its first intake of students in September 2011. This study evaluates the role of Pharm D preceptors in the design and continuous development of the program. We will explore how the preceptors affect the development of student's practice skills.

Methods: A Design Research approach is used for the evaluation in this study, which allows for a blend of both qualitative and quantitative methodologies to produce a rich picture of the processes and issues that arise in the implementation of this novel degree. Data collection methods include qualitative focus groups and semi structured interviews and quantitative tools which seek to measure the preceptors' assessment of students' developing practice skills.

Discussion: Using Design Research to evaluate development of the Pharm D is novel in this context and will be described in this poster, along with preliminary lessons for practice.

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P15. Implementing Moodle™ to support lifelong learning for pharmacists

Natalie Collard[1*], Karen O'Leary[1], Yvonne Allinson[1,2], Suzanne Kirsa[1,3]

Presenting Author: Natalie Collard

[1]*The Society of Hospital Pharmacists of Australia*
[2]*NPS MedicineWise, Australia*
[3]*Peter MacCallum Cancer Centre, Australia*
[*]*Corresponding author email: ncollard@shpa.org.au*

Keywords: *e-learning; Moodle™*

Introduction: The Society of Hospital Pharmacists of Australia (SHPA), a professional body representing more than 3000 pharmacists, supports members' lifelong learning by delivering CPD activities. SHPA's aims were to increase the range of CPD provided and improve access to CPD for members.

Methods: SHPA members holding academic positions recommended online learning platforms. These platforms were reviewed against selection criteria that included the ability to host all current CPD activities and expand the range of activities. Platform hosting and initial development options were explored and selected SHPA staff were trained how to use the platform and began building the site.

Results: Moodle™ was the platform selected. Since implementation in November 2011:

- Hard copy content such as a training workbook (Anderson, 2011), the Society's journal and all digital content previously circulated on DVD have been transitioned to Moodle™.
- Five additional CPD activities have been created, including an Introduction to 'Don't Rush to Crush' and the Medication Safety Toolkit.
- SHPA e-Books can be downloaded by members in Moodle™.
- Monthly course logs increased from implementation (165) and peaked at the end of CPD year in 2012 (320).
- Content can be searched by topic and accessed through both computers and mobile devices.

Discussion: Implementing e-learning using the Moodle™ platform has increased the range of CPD activities offered and access to these activities, in particular access through mobile devices. Extensive planning and staff up-skilling were central to the success of SHPA's transition of CPD activities to Moodle™.

Reference

Anderson, E. (2011) Australian Medicines Information Training Workbook. Collingwood: SHPA.

P16. An evaluation of clinical placement requirements in pharmacy and the role of the Australian Pharmacy Council in monitoring quality

Debra Rowett[1], Colin Chapman[1], Gabrielle Cooper[1], Sue Kirsa[1], Charles Mitchell[1], Kylie Woolcock[1], Rachel Adkins[1*]

Presenting Author: Rachel Adkins

[1]*Australian Pharmacy Council*
[*]*Corresponding author email: rachel.adkins@pharmacycouncil.org.au*

Keywords: *accreditation; clinical placement; benchmarking.*

Introduction: While undertaking the 2012 review of the Accreditation Standards for Pharmacy Degree Programs, the Australian Pharmacy Council convened a sub-committee of the Accreditation Committee to undertake an analysis of current clinical placement requirements in pharmacy. This sub-committee was tasked with considering a comparison of clinical placement requirements among Australian health professions and pharmacy education internationally, as well as details of the clinical placement reports provided to Health Workforce Australia by the Australian accredited pharmacy schools.

Methods: The evaluation was undertaken as a literature review of current research regarding clinical and experiential education, regulatory requirements imposed through accreditation bodies in Australia and internationally and an analysis of data cubes relating to pharmacy that underpin the Health Workforce Australia Clinical Placement Study.

Discussion: While the findings of the sub-committee were used to inform the development of the standards relating to clinical placement requirements in APC accredited programs, the broader analysis will continue to be built upon to inform the ongoing development of quality guidelines for pharmacy simulation, experiential learning and clinical placements.

P17. Using a design experiment approach to create and evaluate an e-learning resource on consultation skills for medical and non-medical prescribers

Andrea Taylor[1*], Marjorie Weiss[1], Ruth Riley[1], Susan Horrocks[2], Peter Hawkes[3], Barbara Lau[3]

Presenting Author: Andrea Taylor

[1]*University of Bath, Department of Pharmacy and Pharmacology, U.K.*
[2]*Department of Nursing and Midwifery, University of the West of England, U.K.*
[3]*School of Social and Community Medicine, University of Bristol, U.K.*
[*]*Corresponding author email: a.d.j.taylor@bath.ac.uk*

Keywords: *problem based learning; prescribing; interprofessional; e-learning; design research.*

Introduction: Design research methodology was developed for iteratively creating, reviewing and improving engineering designs. This approach is used in educational research to improve teaching interventions. Design experiments involve inter-professional teams of practitioners, and researchers, with researchers operating as participants (Collins *et al.*, 2004). The approach has rarely been used in evaluating clinical education. Using a design experiment we evaluated the creation of a novel, online, problem-based learning (Hartling *et al.,* 2010) resource for enhancing consultation skills. The resource accommodates personal experience and values, develops self-reflection, and draws on best evidence.

Methods: A small scale participatory design research evaluation has enabled us to explore:

- How an interprofessional team (comprising staff from 3 institutions, representing GPs, nurses and pharmacists, a patient participant and an educationalist) work together to iteratively design an online resource for enhancing prescribing practice.
- Inputs, resources and design process required for creating this resource.

Results and Discussion: The act of co-construction for educational design mirrors working in practice and foregrounds questions about participants' differing professional histories, paradigms, pedagogies and contexts. Designing learning for different professional groups and varied career stages is challenging but achievable through drawing on experiences of team members. Design experiments provide an alternative means to evaluate experiences and outputs of learning activities.

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P18. Assessing responding to symptoms with 'expert patients' – a case study

Andrea Taylor[1*], David Taylor[1]

Presenting Author: Andrea Taylor

[1]*University of Bath, Department of Pharmacy and Pharmacology, U.K.*
[*]*Corresponding author email address: a.d.j.taylor@bath.ac.uk*

Keywords: *standardised patient; responding to symptoms; OSCEs; case study.*

Introduction: Patients are used in all aspects of education of health professionals, from giving expert lectures, to participation in design of curricula and learning resources (Adamo, 2003). Using real patients greatly increases authenticity in the learning experience. Masters of Pharmacy (MPharm) students are taught about 'Responding to Symptoms' (RTS) as a key skill of the pharmacist in the community setting. A spiral curriculum approach (Harden *et al.*, 1999) is used to increase complexity in RTS teaching and

learning during the MPharm and this is tested using Objective Structured Clinical Examinations (OSCEs). This poster describes the first use of real patients as standardised patients (SP) in RTS OSCEs for second year MPharm students at Bath University.

Methods: A case study approach (Yin, 2008) is used to describe how real patients were introduced into assessment of student pharmacists' skills in RTS.

Results: From initial conception to final conduct of the exam, all aspects of the use of real patients are evaluated and discussed, including selling the idea to colleagues, ethical considerations, recruitment and training of patients, briefing staff and students, logistics and financial implications. It also addresses patient, staff and student experiences. A final comparison of student performance between academic years is considered.

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P19. E-learning for accuracy checking: an example of the ADDIE model

K. Lynette James[1*], Andrea Taylor[1]

Presenting Author: K. Lynette James

[1]*University of Bath, U.K.*
[*]*Corresponding author email: k.l.james@bath.ac.uk*

Keywords: *ADDIE; design research; accuracy checking.*

Introduction: Accuracy checking medicines is a core skill that pharmacy trainees must demonstrate before qualifying as pharmacists. Research suggests that pharmacists self-develop this skill during practice and their accuracy checking process is flawed (Alexander, 2006; James *et al.*, 2010).

Methods: An e-learning package was created, following the ADDIE model for instructional design (Dick & Carey, 1990), to develop undergraduate pharmacy students' accuracy checking skills (Figure 1).

Discussion: The ADDIE model commenced with focus groups of pharmacy teaching staff and fourth year pharmacy students to inform curriculum design and choice of learning technologies. The resultant e-learning package consisted of self-paced tutorials centred on a concept map of the accuracy checking process with video vignettes illustrating the process. Online tests enabled students to gain structured practice of accuracy checking medicines followed by feedback. The package is accessible to students via the virtual learning environment Moodle™. Evaluation involved pre- and post-intervention assessment of student competence and understanding of accuracy checking using a simulated checking exercise and concept mapping task respectively (James *et al.*, 2010); and a focus group with participating students to determine user acceptability and necessary improvements.

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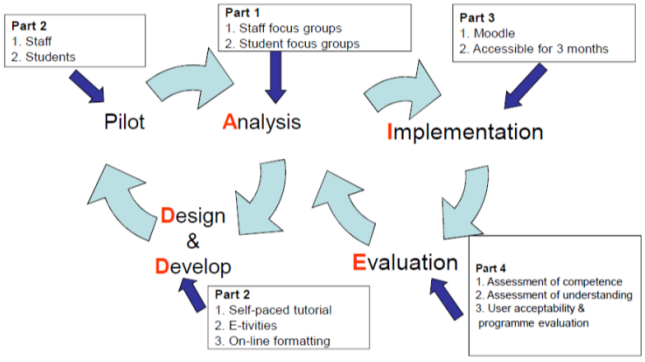
Figure 1: ADDIE model



P20. An improved pharmacy midlevel worker qualification in South Africa: possibility of co-teaching pharmacists and pharmacy technicians

Teri-Lynne Fogarty[1*], Shirley-Anne Boschmans[1]

Presenting Author: Teri-Lynne Fogarty

[1]*Nelson Mandela Metropolitan University, South Africa*
[*]*Corresponding author email: teri-lynne.fogarty@nmmu.ac.za*

Keywords: *midlevel worker qualification; Co-teaching; lived experiences.*

Introduction: In February 2013 the first cohort of students registered for the full-time, university programme for pharmacy midlevel workers in South Africa. Prior to 2013 all pharmacy midlevel worker training was workplace based. Practicing pharmacists acted as tutors and periodic contact sessions were presented by the provider of the qualification. In 2012 the South African Pharmacy Council registered two new qualifications for pharmacy midlevel workers. These were the Higher Certificate in Pharmacy Support, the Pharmacy Technical Assistant qualification and the Advanced Certificate in Pharmacy Technical Support, the Pharmacy Technician qualification. Nelson Mandela Metropolitan University has been presenting the undergraduate pharmacy qualification for over 50 years. The emergence of university level pharmacy midlevel worker qualifications was seen as an opportunity for cross-cadre co-training between pharmacists and midlevel workers.

Objectives: This paper will present the proposals for 1) developing improved skill levels in midlevel workers; 2) development of co-teaching opportunities; and 3) lived experiences of academic staff and students during the first six months of presentation of the new midlevel worker qualification.

Methods: The presentation is descriptive in nature and will describe the current skill levels of pharmacy support personnel versus the improvement in the skill level of the new mid-level workers that is foreseen. Case studies will provide a detailed analysis of the experiences of staff involved in the implementation of the Pharmacy Technical Assistant programme including experiences of co-teaching opportunities across qualifications. A survey of student experiences will be conducted and will provide insight into their experiences as an historic cohort of South African Pharmacy mid-level worker students.

P21. An examination of student learning experiences in virtual sterile cleanrooms and factors influencing student perception of learning effectiveness and environment

Suzanne Caliph[1*], Keith Sewell[1], Kim Styles[1]

Presenting Author: Suzanne Caliph

[1]*Faculty of Pharmacy and Pharmaceutical Sciences, Monash University, Australia*

[*]*Corresponding author email: suzanne.caliph@monash.edu*

Keywords: *pharmacy sterile dispensing; virtual learning environment; online learning evaluation.*

Introduction: For many pharmacy schools, practical teaching of sterile dispensing in a cleanroom facility mimicking a real-life practising environment is a challenging matter. Limited student learning experiences and outcomes of traditional practical classes versus sustainability of cost and labour intensive repeated small group rotations need to be considered.

Methods: A 3D interactive learning environment mimicking real-life pharmacy sterile dispensing suite was designed to provide flexible and unlimited access to learning tasks such as environmental monitoring, gowning-up and hand-washing, prescription calculations and intravenous injection dispensing. Face-to-face and online introductory tutorials provided learning guidance. A paper-based evaluation survey was administered to examine student learning experiences and factors influencing perceived effectiveness of learning and learning environment.

Results: More than 90% of participants agreed that virtual sterile cleanroom tasks helped them to better understand the specialised work environment needed to prepare sterile medicines. A great majority (>85%) perceived that it was a good way to learn sterile processing and activities were consistent with expected learning outcomes.

Discussion: Student perception of learning effectiveness, quality and usefulness of guidance and feedback materials, ease of use and accessibility, exploration in virtual learning environments were found to be influenced by gender and cultural differences and previous online gaming experience. With increasing use of virtual learning environments, and online learning becoming increasingly popular and important in pharmacy education, educators and e-learning designers should reflect on these differences when developing online learning resources.

P22. Mother tongue or English language skills as predictors of pharmacy student achievement in a pharmacology module

Shirley-Anne Boschmans[1*], Paul Webb[2]

Presenting Author: Shirley-Anne Boschmans

[1]*Department of Pharmacy, Faculty of Health Sciences, Nelson Mandela Metropolitan University, South Africa*

[2]*School for Education Research and Engagement, Faculty of Education, Nelson Mandela Metropolitan University, South Africa*

[*]*Corresponding author email: Shirley-Anne.Boschmans@nmmu.ac.za*

Keywords: *English language skills; mother tongue; student achievement.*

Introduction: Poor English skills contribute to unsatisfactory throughput at universities and a positive relationship between English as mother tongue and pharmacy-related vocabulary knowledge has been demonstrated. This study investigated the relationship between English as mother tongue, English language skills, and achievement in pharmacology in a multilingual South African cohort of pharmacy students.

Methods: A sample (117) of second-year students enrolled for Pharmacology 2 were assessed for English skills using the Admissions and Placement Assessment Programme English Reading Comprehension test. The final examination mark for the module Pharmacology 2 served as an indicator of achievement in pharmacology.

Results: A significant, positive correlation was found between Pharmacology 2 grades and scores achieved for the Reading Comprehension Test (p <.05, r = .21). However, English additional language students achieved significantly better academically than English mother tongue speakers (p =.045).

Discussion: The findings suggest that English language skills rather than English mother tongue status relate to achievement in Pharmacology.

P23. Health promotion and public engagement: an alternative to the traditional final year project

Jason Hall[1], Jenny Hughes[1*], Harsha Parmar[1], Mary Rhodes[1], Victoria Crabtree[1], Ian Smith[1]

Presenting Author: Jenny Hughes

[1]*The University of Manchester, U.K.*

[*]*Corresponding author email: jenny.k.hughes@manchester.ac.uk*

Keywords: *health promotion; projects; public engagement.*

Introduction: Pharmacy undergraduate students must demonstrate a systematic and critical awareness of current knowledge and bring originality to their application of this knowledge.(GPhC, 2011) In the past, this has been achieved by students completing traditional research projects but the task of finding meaningful individual project titles and supervising these is becoming more challenging with increasing student numbers. This abstract describes work in progress as we attempt to achieve the above learning outcomes supervising student-led health promotion initiatives.

Methods: Eight groups of final year pharmacy students selected their own area of health promotion. Students individually conducted a literature review on their chosen area. Systematic and critical awareness was assessed. Each group of students planned and carried out two separate health promotion events and the originality in application was assessed via a self-reflection diary they completed during the events. The student reports will be graded using the standard project grading form.

Results: The topics selected by the students were: smoking cessation, asthma, substance abuse, cardiovascular disease, HIV infection, alcohol, and cancer awareness. The health promotion events included displays in train stations, shopping centres, and the students' union. Compared with previous projects, the staff supervising these projects found the students engaged more fully with the activities and they demonstrated high levels of originality in their execution of the health promotion events.

Conclusion: Upon completion, the work will be evaluated by ascertaining staff and students' views on their experience and investigating student achievement of the learning objectives.

Reference

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P24. Experiences using the confluence wiki as an e-portfolio in a pharmacist prescribing programme

Lyn Hanning[1*], Nitin Parmar[2], Elizabeth Morris[2]

Presenting Author: Lyn Hanning

[1]*University of Bath, South West Medicines Information & Training, U.K.*

[2]*University of Bath, U.K.*

[*]*Corresponding author email: L.Hanning@bath.ac.uk*

Keywords: *e-portfolio; wiki; prescribing.*

Introduction: In 2012, the pharmacist prescribing programme at the University of Bath introduced an e-portfolio as a method of assessment. Although the concept of e-portfolios is not new (JISC, 2012), the development of a wiki to support this has been less widely described. This paper describes how the team developed the university Confluence wiki into a bespoke e-portfolio and evaluated the views of the users of the product, the process and the impact of digital literacy.

Methods: The 2012 cohort of students were set up with bespoke wiki pages which mirrored the assessment tasks in the programme. Students completed practice-based activities and uploaded evidence of these in the form of structured tasks, attendance logs and reflection. This work was assessed remotely by experienced markers. The students and markers were surveyed for their experiences of the wiki. The programme team together with the university e-Learning team then evaluated the impact of this new process of assessment together with issues of digital literacy.

Discussion: The programme team have demonstrated an enhanced level of Quality Assurance and an ability to deliver timely feedback on evidence of practice facing activities. The level of digital literacy impacts on the ability of the student to present data. The feedback from the student and marker survey is currently being collated but suggests good engagement with this method of assessment, reduced costs and enhanced feedback.

Reference

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P25. Sydney pharmacy indigenous camp (SydPIC): a novel strategy to boost Indigenous pharmacy enrollments

Rebekah Moles[1*], Nial Wheate[1]

Presenting Author: Rebekah Moles

[1]*The University of Sydney, Australia*

[*]*Corresponding author email: rebekah.moles@sydney.edu.au*

Keywords: *indigenous students; summer camp; survey of participants.*

Introduction: Closing the Gap is a strategy aimed at reducing Indigenous health disadvantage in Australia. One disadvantage faced by communities is a lack of Indigenous pharmacists.

Aim: To host a four-day pharmacy camp for Indigenous high school students in order to motivate them towards a career in pharmacy.

Methods: An extensive program, incorporating pharmaceutical practice and sciences was developed. Advertising consisted of a university press release and a direct mail out to Indigenous health centres (248) and schools identified as having high Indigenous cohorts (500). Selection of students was based on school marks, appropriate subjects being studied, the strength of a school recommendation letter, and their perceived interest in pharmacy. Evaluation of the camp was performed via a survey using a 5-point Likert Scale and open-ended questions.

Results: 55 students applied to attend the summer camp with 23 students aged between 14-17 chosen based on selection criteria. The camp ran from January 20-24, 2013. Students from Victoria, New South Wales, Queensland, the Northern Territory and Western Australia participated. Table I outlines the feedback results from all students, which were overwhelmingly positive. One student wrote: "*I hope to see you next year @ Sydney university @ the faculty of pharmacy*".

Conclusion: A novel approach to improving the recruitment of Indigenous pharmacists was undertaken by the Faculty of Pharmacy, University of Sydney. The recruitment of more Indigenous students into pharmacy courses will not be evident until 2014 and beyond, however we are confident that this approach will facilitate the process.

Table 1. Mean feedback scores from students attending the Sydney Pharmacy Indigenous Camp (n=23)

Question asked in Survey	Mean score (1 = strongly disagree, 5=Strongly agree)
I enjoyed the camp	4.8
I would recommend the camp to friends	4.9
The camp was well planned	4.5
I feel I have a good understanding about a career in pharmacy	4.1
The camp motivated me towards a career in pharmacy	4.1
The undergraduate mentors were friendly and approachable	5.0
The staff on the camp were friendly and approachable	5.0
I enjoyed staying at St Andrew's college	3.7
I'm happy with the travel organised for me to get to the camp	4.4
The pharmacy site visits were useful and interesting	4.5

P26. Preparing hospital pharmacists to prescribe: stakeholders' views of postgraduate courses

Gritta Kamarudin[1], Jonathan Penm[1], Betty Chaar[1], Rebekah Moles[1*]

Presenting Author: Rebekah Moles

[1]*The University of Sydney, Australia*
[*]*Corresponding author email: rebekah.moles@sydney.edu.au*

Keywords: *prescribing; postgraduate education; competency; basel statement.*

Objectives: To explore pharmacy stakeholders' views, on developing a postgraduate course to prepare hospital pharmacists for collaborative prescribing in Australia.

Methods: Semi-structured interviews were conducted with pharmacy stakeholders from universities, hospitals and professional organisations (n=25) to gather views on the content, structure and delivery methods of a possible postgraduate prescribing course for pharmacists. Transcripts were analysed thematically and coded using NVivo software.

Results: There was strong support for collaborative prescribing as an appropriate role for advanced pharmacist practitioners and acknowledgement that further training is needed to implement this new role. It was proposed that postgraduate training for hospital pharmacists should be based on a national prescribing competency framework and participants highlighted key aspects of the prescribing process in which pharmacists need particular up-skilling: diagnosis, physical assessments, clinical decision-making and consultations. The training model used in the United Kingdom (U.K.) was favoured, where candidates undertake university-based study combined with collaborative training with a doctor and a practical assessment of competency.

Conclusion: The findings from this study have provided valuable information which can provide a pathway for the development of a postgraduate course to prepare Australian hospital pharmacists for prescribing. Future research should focus on uncovering the perceptions of Australian doctors, nurses and policy makers on the training requirements needed for pharmacist prescribing in the hospital setting. Stakeholders' views on pharmacist prescribing training in the community setting could also be explored.

P27. Using Facebook© as a communication tool to enhance learning and teaching in pharmacy

Rebekah Moles[1*], Nial Wheate[1]

Presenting Author: Rebekah Moles

[1]*The University of Sydney, Australia*
[*]*Corresponding author email: rebekah.moles@sydney.edu.au*

Keywords: *Facebook©; social media; evaluation; focus groups.*

Introduction: Students spend considerable time communicating via social media. We aimed to evaluate the use of Facebook© as a course communication tool in two third -year undergraduate units.

Methods: A Facebook© group was created by two coordinators that teach in parallel units (Musculoskeletal/ Dermatology and Oncology/Immunology). The site was moderated by the coordinators. Lecture notes, tutorial cases and announcements were posted to the site. Students were free to discuss pharmacy-related material within the group. Evaluation of the use of social media was performed via focus groups and a survey, as well as monitoring the number of students and their activity in the group.

Results: Ninety-one percent of the year voluntarily joined the group, making 592 posts and leaving 4,229 comments over a period of 5 months. Most activity came before unit exams. As well as posting and replying to questions on course content, the site was also used to place orders for textbooks, organise a blood donor trip, conduct student polls about e-learning, access lecture material (PowerPoint slides and videos), conduct senate voting, provide feedback to staff about the course, and communicate changes to classes and class locations. Focus group responses highlighted that the use of the social media was well received and that it helped students study and keep up-to-date with course material. Students were very appreciative of the quick response time to questions by coordinators.

Conclusion: Social media was well received. Rolling out this teaching tool to further units of study is currently underway.

P28. Students' perception of advanced pharmacy practice experience (APPE) – simulated journal club activity

Marissa Salvo[1*], Lisa Holle[1], Lauren Schlesselman[1]

Presenting Author: Lisa Holle

[1]*University of Connecticut School of Pharmacy, U.S.A.*
[*]*Corresponding author email: marissa.salvo@uconn.edu*

Keywords: *SOAP note; literature evaluation; journal club; patient assessment.*

Introduction: This study evaluated students' perception of an APPE-simulated journal club activity within a required patient assessment course. The activity provided students with the platform to practice literature evaluation before beginning APPEs.

Methods: An anonymous survey assessed student perception of the activity's effectiveness. The survey was distributed to 95 third-professional-year students enrolled in the course, following completion of the activity. A follow-up anonymous survey was distributed to the same students and a focus group was convened after completion of ≥ 3 APPEs.

Results: Of the 95 students, 91% and 21% completed the completed the initial and follow-up surveys, respectively; and 4% participated in the focus group. Following completion of the course activities, 71% of students agreed completing a journal club presentation strengthened presentation skills, 65% reported better understanding of components, and 56% were more confident in literature evaluation skills. At the time of the follow-up survey, 50% of students completed journal clubs during APPEs, however, approximately 80% felt more prepared to use literature evaluation skills because of course journal club activity. Focus group feedback suggested more practice opportunities, more accountability for journal club preparation and participation, and additional instructor guidance.

Discussion: Following successful completion of the course, instructors believed students would be better prepared for APPEs through the use and application of literature evaluation skills. Students reported confidence and preparedness following the course and subsequent APPEs. The activity was redesigned to incorporate student feedback and include a practice opportunity. Proficiency in activities was observed by course coordinators during APPEs.

P29. Lessons learned: inclusion and advancement of student subjective-objective-assessment-plan (SOAP) note writing within a required patient assessment course

Lisa Holle[1*], Marissa Salvo[1]

Presenting Author: Lisa Holle

[1]*University of Connecticut School of Pharmacy, Department of Pharmacy Practice, U.S.A.*

[*]*Corresponding author email: lisa.holle@uconn.edu*

Keywords: *SOAP note; active learning; patient assessment.*

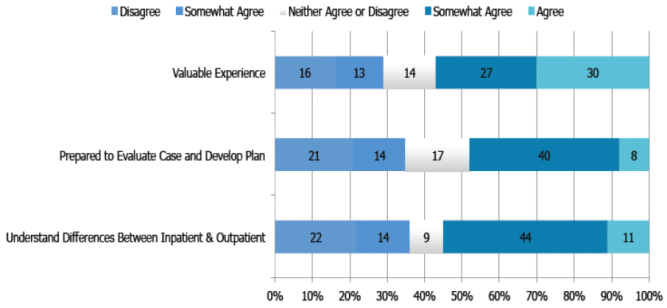
Introduction: Patient Assessment is a required course for third professional–year students. The course goal is to serve as the link between the student's therapeutic knowledge and clinical practice application. To better prepare students for their advanced pharmacy practice experiences (APPEs), SOAP note writing assignments were incorporated.

Methods: During the Spring 2011 semester, students individually composed three written SOAP notes based on patient cases. Notes were graded for accuracy and completion of required components. Following the course, students completed an anonymous survey to evaluate and provide feedback on activity. A follow-up survey completed by the same students during Fall 2012 assessed the activity's effectiveness in APPE preparation. Students were also invited to participate in a focus group. During the Spring 2012 semester, students individually composed four SOAP notes. Three notes were discussed in small groups and assigned a grade based on note completion and active participation in small group discussion. Only the final written SOAP note was fully graded by course coordinators using the grading rubric.

Results: Figure 1 shows initial survey results. In the follow-up survey, 70% of students reported completing at least 1 SOAP note during APPEs and feeling prepared to develop a written patient-specific plan. Students from the Spring 2012 course expressed satisfaction with the modified SOAP note writing process.

Discussion: Using student feedback, course coordinators modified the SOAP note writing process to provide more practice and feedback opportunities before a rubric-graded SOAP note was completed. Proficiency in SOAP note writing was observed during APPEs.

Figure 1: Initial Survey Results for SOAP note-writing activity



P30. An innovative approach to enhancing continuing education activities for practising pharmacists using clicker technology

Luke Grzeskowiak[1], Josephine To[2*], Alicia Thomas[3], Adam Phillips[4]

Presenting Author: Josephine To

[1]*The Robinson Institute, The University of Adelaide, Australia*

[2]*School of Pharmacy and Medical Sciences, University of South Australia, Australia*

[3]*SA Pharmacy, Repatriation General Hospital, Daw Park, Australia*

[4]*Good Health Choices, Chemplus Pty Ltd, Australia*

[*]*Corresponding author email: jo.to@unisa.edu.au*

Keywords: *audience respose system; clickers; continuing education; pharmacist; professional development.*

Introduction: The use of audience response devices (*i.e.* clickers) offers significant potential as an engaging tool for learning and research and may enhance continuing education activities. The aim was to evaluate the use of clickers as part of a continuing education program for practising pharmacists.

Methods: Attendees at a symposium were invited to utilise and evaluate the use of clickers. In an attempt to engage and test attendees, multiple choice questions were incorporated into presentations during the symposium, providing speakers and attendees real-time feedback. Electronic data relating to participant demographics were collected at the beginning of the symposium, with electronic data evaluating the use of clickers collected at the end.

Results: The 60 attendees who used the clickers were mostly pharmacists (76%), worked in hospital pharmacy practice (86%) and had used clickers before (70%). Attendees strongly agreed or agreed that clickers were easy to use (94%), enhanced interaction during presentations (98%), allowed them to compare knowledge with that of their peers (78%), brought to their attention their knowledge deficits (64%) and should be used for future symposiums (94%).

Conclusion: The innovative use of clickers at the symposium was very well received by all attendees and offered a number of benefits, including the ability to provide a more engaging and interactive CE activity and provide participants with real-time feedback about their knowledge. Future research should address whether use of clickers in these settings results in improved learning outcomes for participants.

P31. A critical review of using audience response systems to enhance continuing education programs for practising pharmacists

Alicia Thomas[1], Josephine To[2*], Adam Phillips[3], Luke Grzeskowiak[4]

Presenting Author: Josephine To

[1]*SA Pharmacy, Repatriation General Hospital, Daw Park, Australia*

[2]*School of Pharmacy and Medical Sciences, University of South Australia, Australia*

[3]*Good Health Choices, Chemplus Pty Ltd, Australia*

[4]*The Robinson Institute, The University of Adelaide, Australia*

[*]*Corresponding author email: jo.to@unisa.edu.au*

Introduction: Significant potential exists in using audience response systems (clickers) to enhance the provision of continuing education (CE) programs for practising pharmacists. A critical review was undertaken to evaluate this potential.

Methods: An extensive literature review was undertaken using Medline, EMBASE and PsychINFO. Search terms included 'clickers' and 'audience response system' and articles were limited to those investigating the use of clickers amongst practicing healthcare professionals. Studies were assessed according to Kirkpatrick's four levels of training evaluation (Reaction, Learning, Behaviour and Results).

Results and Discussion: Eleven studies were identified (4 experimental, 1 quasi-experimental and 6 non-experimental). All studies assessed reactions to the use of clickers, with feedback overwhelmingly positive. Reported benefits included increased attentiveness, engagement and enjoyment of presentations. Sustained increase in attendance was also reported. Four studies assessed learning outcomes. Two studies compared the use of clickers to traditional didactic lectures, demonstrating improvements in quiz scores immediately post-presentation and at 6-12 weeks follow-up. In contrast, two studies compared clickers to an interactive lecture with integrated questions, finding no differences in outcomes between groups. One study attempted to assess behaviour outcomes associated with clicker use, however study design limited adequate assessment of behaviour change. No studies assessed result outcomes of learning with clickers.

Conclusion: While methodological limitations of identified studies challenge our ability to delineate the effects of clickers on learning outcomes, it is likely that benefits stem from the effectiveness of using clickers to improve interactivity, enhancing CE programs for practicing pharmacists through increasing audience satisfaction, enjoyment and attendance.

P32. A stepwise process for designing and implementing a renewed Doctor of Pharmacy curriculum

Joseph Saseen[1]

Presenting Author: Joseph Saseen

[1]*University of Colorado, Skaggs School of Pharmacy and Pharmaceutical Sciences, U.S.A.*

[*]*Corresponding author email: joseph.saseen@ucdenver.edu*

Keywords: *curricular design; ability based outcomes; course development; assessment planning.*

Introduction: The University of Colorado Skaggs School of Pharmacy and Pharmaceutical Sciences started designing a renewed Doctor of Pharmacy curriculum in 2007 that was implemented in 2012. Renewal was done to assure coordination and alignment of contemporary educational methodologies and content within the entire curriculum.

Methods: The renewal process included preplanning activities and a 9-step process and was overseen by the Curriculum Committee (Figure). Preplanning activities addressed needs of both the existing and renewed curriculum and resulted in new faculty approved curricular outcomes, new visions for graduates and the curriculum, and modernization of several policies. The 9-step process led to development of the renewed curriculum and included initial mapping to standards and outcomes, course development using a curricular domain approach, faculty retreats for feedback and revisions, and faculty approval of the renewed curriculum.

Results: The renewed curriculum started in 2012. A new course approval process was developed to assure that courses were conducted according to renewal plans. This process has assured the quality of course structure and assessments, but was met with initial resistance by faculty.

Discussion: Our process was approached as a renewal process so that the quality components of our existing curricula were continued. This has resulted in a state of the art curriculum with contemporary content and an innovative structure that is appropriate for future pharmacy graduates. Faculty engagement in our process was essential to assure ownership and pride, and to facilitate the culture changes needed to implement a renewed Doctor of Pharmacy curriculum.

Figure 1: Curriculum Renewal Process for the University of Colorado Skaggs School of Pharmacy and Pharmaceutical Sciences