## Introduction
This booklet contains the abstracts of presentations and posters from the 1st Pharmacy Education Conference at the Manchester Pharmacy School on 30th June 2014. The abstracts are also available online at: [http://www.pharmacy.manchester.ac.uk/about-us/events/conference2014/papers/](http://www.pharmacy.manchester.ac.uk/about-us/events/conference2014/papers/)

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Evaluation of a workshop between pharmacy and pharmacy technician students to support intra-professional integration

Author: Helen Cook, School of Pharmacy, University of Bradford, Bradford

Background: Interprofessional Education (IPE) is a requirement of healthcare professional undergraduate courses and there is an existing body of literature within this area (Hammick, et al, 2007). In preparation for clinical practice, pharmacy students also need to understand specific roles within the pharmacy team. Whilst intraprofessional learning may be of value in this context (Schafheutle et al, 2013), there remains a gap in the literature in this area.

Method: An opportunity arose to explore intra-professional working between pharmacy students (PS) (n=24) and pharmacy technician students (PTS) (n=28) as part of a broader strategy to promote interprofessional collaboration at this institution. Using learning outcomes closely aligned to recommendations for IPE (Thistlethwaite and Moran, 2010), a three hour workshop explored roles, responsibilities and negotiation skills within these groups, the main aim of the workshop being to develop an understanding of the importance of collaboration in the workplace. A feedback form with rating-scale questions and space for free text comments was given to all participants, the aim being to explore the students' perceptions of the value of learning from and about each other and whether this enabled them to meet the workshop aim. Qualitative data were fully transcribed and subject to thematic analysis (Braun and Clarke. 2006).

Results: Overall, students were positive about the workshop (72% PS and 93% of PTS); they valued sharing knowledge and ideas and would recommend future workshop opportunities. Written feedback indicated that having the session together improved their understanding of collaboration in the workplace. In terms of specific content however, there was a mixed response to the use of case-studies, ranging from enhanced understanding of roles to questioning need.

Conclusion: This was a small scale evaluation but suggests that further intraprofessional learning opportunities should be considered within an overall strategy of promoting interprofessional education initiatives. Further research and evaluation in this area of student engagement are also highlighted.

References
Integrating patient perceptions within healthcare education: reflections and implications for pharmacy education and practice

Author: Beverley Lucas, Bradford School of Pharmacy, Bradford

Background: The importance of patient involvement as a positive contribution to healthcare education is now widely acknowledged. A literature review reported the potential to promote the learning of patient-centred practice, including inter-professional collaboration and community involvement. Further benefits suggested high learner satisfaction, recognition of the needs of vulnerable populations and increased confidence when learning clinical skills. An area for consideration arising from this review revealed the potential confusion around the language used to describe the spectrum of the patients’ role, including the purpose of patient involvement and associated research strategies. A patient “spectrum of involvement” taxonomy was presented to address these difficulties. This matrix explores the degree to which the patient is actively involved in the learning encounter ranging from a focus on case based material to evidence of institutional commitment and sustained involvement.

Description of work: At this institution, the use of this patient “spectrum of involvement” taxonomy has informed our patient and public involvement strategy. Reflections on previous research related to an in-depth exploration of patient perceptions of their role in undergraduate medical education including benefits to students, patients and education within a primary care teaching practice will be offered.

Proposed evaluation: This presentation will also share experiences on the early application of the taxonomy within pharmacy in terms of educational practice and research and development opportunities. The first stage of data collection is focused on curricular mapping using the spectrum of involvement taxonomy to clarify the patient’s role and facilitate communication of different initiatives. Drawing on suggestions for research foci four key areas will then be explored; drivers, structures, processes and outcomes of patient involvement.

References
Textwall- integrated IT intervention or irritating, irrelevant intrusion

Author: Bob Morris. Liverpool John Moores University, Liverpool

Background: Textwall by Learning Apps is a technological tool available to encourage participants in large or medium sized groups to engage with speakers and their delivered content using phones, email or via the internet. Students are invited to send messages during lectures that can either be incorporated into the lecture content or discussed following the lecture. These could be in response to a question posed by the lecturer or generated from students’ considering the lecture content. By involving students in lectures more it may be possible to integrate the content of the individual session with other parts of their whole learning experience. Academics delivering material that may be considered as uninspiring may be interested in this study to help improve their students’ experience and also achieve learning outcomes more effectively.

Description of work: Following encouraging demonstrations at post graduate and non-university events I was tempted to embrace the technology as high value is placed in Higher Education on student engagement. The study aims to identify the types of responses generated by pharmacy undergraduates at one UK school of pharmacy to inform use of Textwall in delivering engaging lectures. Responses will be categorised into similar themes and an investigation of the different ways responses are used in teaching will be undertaken. Experiences and possible learnings will be reported. Throughout 2013-14 I have used Textwall in most of my large group teaching undergraduate and postgraduate sessions. I identified some benefits and drawbacks immediately so decided to record and categorise responses. I have performed a simple quantitative analysis of this data and will report results of this analysis.

Possible Evaluation: Quantitative and qualitative data will be analysed. Following categorisation of responses and source of comments types of responses will be compared to identify areas to improve the delivery of pharmacy lectures. Suggested use of Textwall will be identified from responses.
How to help first-year pharmacy students to gain the big picture

Author: Defang Ouyang, School of Life & Health Sciences, Aston University

Background: Many first-year students arrive at university unprepared for study. It is difficult for them to overcome the big gaps between high school and the university first year, and they cannot capture the big picture of the whole MPharm program until the final year. They also have little knowledge about their future job as pharmacists.

Methods: In this study, we aimed to develop a new teaching method to help the first-year MPharm students to understand the structure and main contents of the whole program, the requirements of the future job (pharmacist) and to develop their personal plan for next four-year study. In the autumn of 2012, pre-test and post-test assessment questionnaires were sent to 150 first-year students at one UK Pharmacy School before and after first-year professional development courses. Students’ responses in the pre-test and post-test were compared to assess the influence of the professional development courses. This research assessed the school’s endeavour to implement an inter-disciplinary, active learning, professional development course in the first year of MPharm program.

Results: In our survey, 140 students responded to the pre-test, while 130 responses were obtained in the post-test. (Overall response rate 88%). The responses indicated that the professional development courses had a positive influence on students’ professional development. All the post-test scores were higher than the pre-test scores. The results toward a pharmacist’s role and the duties of the pharmacist clearly showed the significant improvement under exposure to the professional development module. Moreover, about 70% of students understood the structure of MPharm, while only 40% of them knew it at the beginning. Results also showed that the professional development course further improved the understanding of job duties and learning attitude of first-year students.

Conclusions: A new teaching method had successfully developed to improve first-year pharmacy students’ attitudes toward to the role of the pharmacists and learning motivation in MPharm program. This inter-disciplinary course also provides a model to other pharmacy programs in the UK and the world.
Using Facebook to support exam preparation in a clinical therapeutics module

Author: Andrew Mawdsley, Lecturer in Pharmacy Practice, Manchester Pharmacy School, Manchester

Background: Social media platforms are increasingly utilised for educational purposes, with Facebook being the most popular networking site. A Facebook page was created to engage students in assessment through online discussion of sample questions, module content, web resources and FAQs. The aim of this study was to gauge student opinion on this method of teaching.

Method: Facebook data (likes, posts etc) were downloaded for descriptive analysis. A survey was administered via e-mail and Facebook to all 4th year students (n=171), to gauge students’ views on the usefulness of the page.

Results: The page received 142 “likes” indicating that 142 people followed it. Total “engagement” peaked on 20/01/14 (the exam sat on 21/01/14) with 369 (indicates the number of clicks and posts). The peak weekly “reach” (number of page views) was on 23/01/14 and totalled 2391. The peak “hit” rate was 9234 on 20/01/14. 48 students (28%) completed the survey. 69% found the page very useful, with 78% (strongly) agreeing that it benefitted exam performance. 91% valued module leader support and 86% valued practice MCQs. Comments were positive around usefulness of the page, tutor feedback and motivation, and questions with worked answers. Peer support was valued highly (71%).

Discussion and Conclusion: Students widely use social media to communicate about studies. This evaluation demonstrates that students engage in social learning if it is perceived as having a direct benefit to assessment.

References
What are pharmacy students' perceptions of social media in education?

Author: Andrew Mawdsley, Lecturer in Pharmacy Practice, Manchester Pharmacy School, Manchester

Background: Pharmacy¹, and medical educators² are embracing social media. This study aimed to gauge this institution's students' opinion and experience of social media in teaching.

Method: Undergraduate students across four years (n=623) were invited to take part in a survey regarding their views of social media in education.

Results: A total of 196 (31%) responded. 180 (92%) reported actively using social media - in particular: Facebook (79%), Instagram (46%), and Twitter (39%). Students had experience with discussion boards (79%), chat (70%) and file sharing (68%), but little experience of webinars (11%). 58% would use Facebook for studies: group work (80%), communication (77%), further reading (71%), exam preparation (68%) and peer support (67%). 55% welcome social media in education but, interestingly, 57% prefer to use Blackboard exclusively. 47% felt they would have concerns about privacy.

Discussion and Conclusion: Students in this institution engage with social media and have educational experience with it. Students have concerns around personal privacy. Clinical educators believe social media offers advantages over drawbacks³. However, pharmacy students have reservations regarding online professionalism and confidentiality⁴.

References
‘When two schools meet’: Pharmacy and medical undergraduates learning clinical skills together.

Author: Dr Mathew W Smith, Ms Sian Williams*, Ms Clare Cann*, Dr Emma Kidd, Dr Robert Dewdney, Ms Anna Milsom*, Prof Paul Kinnersley*. Cardiff School of Pharmacy & Pharmaceutical Sciences, Cardiff University and * Institute of Medical Education Clinical Skills and Simulation Centre, Heath Park Campus, Cardiff

Background: The GPhC guidance document “Future Pharmacists”¹ highlights the importance of team working and an appreciation of the roles, responsibilities and skills of other health care workers. Interprofessional education (IPE) can counter inflexibility and tribalism², preparing people to work together to provide quality patient care. Learning together builds a strong foundation for more effective teamwork through greater understanding of and respect for each other’s skills and expertise³. Cardiff University School of Medicine Clinical Skills and Simulation Team and the School of Pharmacy have successfully forged a unique partnership in order to implement regular IPE in Clinical Skills within their curricula.

Method: The IPE initiative adopts social constructivism, in the belief that students from both Schools have unique views and knowledge bases of the skills that they learn together. Discussion between faculty from each School led to the agreement of learning objectives for the IPE, a timetable was set out for the combined training of Year 1 medical students (300) and Year 4 Pharmacy students (120) in the skills of Basic Life Support (BLS) and Vital Signs. Tutors from both Schools worked together to deliver the teaching. At the end of each session a simplified version of the “Readiness for Inter-Professional Learning Scale” (RIPLS) was distributed to students using total population sampling.

Results and Evaluation: Whilst logistically challenging to organise, the timetabled sessions of the first stage of this initiative have been highly successful, producing positive feedback from Pharmacy and Medical students. More than 71% of students strongly agreed (35%) or agreed (36%) they had “learned something by watching the approach of students from the other profession”. The evaluation response rate was over 90% from both medical and pharmacy undergraduates.

Discussion and Conclusions: Within any healthcare setting effective multi-disciplinary team working is essential for quality patient care. In order to deliver practice ready healthcare professionals undergraduate curricula must embed IPE. Research studies measuring longitudinal benefits of IPE³ suggest the initial benefits from learning together may fade after a number of months. It is therefore imperative that we develop this initiative to help us ensure long term value of our IPE programme.

References
Integrating learning, practice and professionalism

Author: Tom Gray, School of Pharmacy, University of Nottingham, Nottingham

Background: Following recommendations from the Modernising Pharmacy Careers Board for ‘one five-year curriculum that is jointly owned, planned and delivered by universities and employers, where students have greater access to work-based learning and contact with patients from earlier in degree programmes’, University of Nottingham designed a 5 year MPharm programme that ‘builds on the strong scientific foundation…to enhance clinical skills and the attitudes, values and behaviours required to deliver effective care and treatments’1. This novel programme received Step 1 accreditation by the General Pharmaceutical Council in 2013, integrating two 6 month professional placements into years 4 and 5 of the MPharm. Years 1-3 involve a spiral curricular approach to learning, integrating science and practice, through combined ‘drug, medicine and patient’ modules, supported by a zero credit professional competencies module, to establish the attitudes, values and professional behaviours required for practice. Students will undertake their first professional placement in August 2015.

Description of work: Work is ongoing to establish valid, reliable and consistent assessment of the professional placements in a safe, supported, supervised and quality assured training environment. This is being done in partnership with an Advisory Board, consisting of employers, regional training providers and commissioners, to build on existing regional training and quality frameworks, and match student preferences to employer and future workforce needs. Academic facilitators, working in collaboration with pre-registration training tutors will support, assess and quality assure training.

Proposed evaluation: Evaluation will be based on a portfolio of evidence developed using established formative assessment methods and supervised learning events, tested for reliability and consistency across sectors, along with audit and online summative assessment. Independent educationalists will support evaluation of educational and professional outcomes. A survey of stakeholders, demonstrates enthusiasm and support for the new course to better meet the needs of patients, employers and future pharmacists.

References
Innovation in IPE: let the students teach each other

Authors: Jonathan Berry and Anne O'Brien, School of Pharmacy and School of Health and Rehabilitation, Keele University

Background: Interprofessional education (IPE) has long been mooted as a method to improve teamwork, collaboration and clinical outcomes in healthcare. Poorly designed IPE has the potential to reinforce stereotypes and power relationships between physicians and other healthcare professionals. Students can become more sceptical of IPE the further they progress with their undergraduate studies. We aimed to design a teaching experience that would negate this scepticism.

Method: A bespoke interactive workshop was designed for final year pharmacy and physiotherapy students. Aims of the session were:

- To explore the differing approaches used by pharmacists and physiotherapists whilst dealing with clinical problems
- To share knowledge of the evidence base supporting the therapeutic management of patients
- To teach the other profession the key skills and concepts of their own therapeutic approach
- Discuss when it would be appropriate to refer a patient to a pharmacy/physiotherapy colleague

The session was evaluated with a bespoke pre and post workshop questionnaire.

Results: Since AY 2010/11, 516 students have undertaken the workshop. Prior to the session 59% of students stated that their previous IPE experience was not beneficial to their clinical practice, correlating with the findings of Pollard et al. Student evaluation of this intervention has been consistently good; 92% of students this year stated that this IPE session had been extremely/ fairly useful; 85% stated the session would positively impact upon future clinical practice. In pre-session evaluation 41% of students were confident that they understood the role of the other profession; this improved to 98% after the workshop.

Discussion: Four successful iterations of this workshop have received positive student feedback. Students’ confidence in their own clinical skills is improved by being given an opportunity to teach other professionals the skills they have learned. The design of any IPE session must take into account the previous experience and skills of students in order for it to be perceived as beneficial.

References
Introducing hospital pharmacy: An innovative approach

Author: Natalie Lewis, Julie Brooks and Lucy Paskin, Teacher Practitioner Team, Aston University

Background: Employers and the General Pharmaceutical Council recognise that work based learning is critical to pharmacy teaching. It is vital early in undergraduate study that the diverse role of the hospital pharmacist is explored; allowing academic knowledge to be contextualised and work based learning optimised. An alternative to the traditional small group “tour” was required to deliver a quality assured and cost effective hospital pharmacy introduction.

Method: A professional, bespoke, pharmacy focussed film was created at a cost of £3,000 (includes professional media team and teacher practitioner time). The film captures a clinical pharmacist working as part of the multidisciplinary team at ward level; enabling visualisation of the role of the hospital clinical pharmacist. The dispensary, aseptic manufacture, medicines information, purchasing and stores (robotic and traditional) were included to give an overview of hospital pharmacy.

The film was integrated into an interactive lecture for stage one students (n=149) which utilised individual electronic voting systems (IEVS) to gain students’ response and expand key points. This was also used to evaluate engagement with the session (response rate to questions and evaluative questions).

Results: Students (n= 90) demonstrated a high level of engagement within the session with 91% (n=82) engaging with every question as measured by the IEVS. From the evaluative questions 82% (n=69/84) felt the film provided enough insight into hospital pharmacy for it to act as preparation for subsequent work based learning. No prior experience within hospital pharmacy had been gained by 91% (n=79/87) of the students.

Conclusion: The two hour session effectively replaced the traditional small group “tour” which totalled 80 hours/year. Time saved has allowed teacher practitioner involvement in other university activities maintaining students’ engagement with practice pharmacists. The reduction of student traffic through hospital departments has had a positive impact on working efficiency within the pharmacy departments.
An exploration of the academic viewpoint of integration, using a Bernsteinian perspective.

Author: Jon Waterfield, De Montfort University, Leicester

Background: The integration of ‘science’ and ‘practice’ within a modular MPharm curriculum is an increasing emphasis within pharmacy education. Some of the main challenges associated with the integration of pharmaceutical science and pharmacy practice can be highlighted by applying Bernstein’s vertical and horizontal knowledge discourse. This study aimed to explore the perspectives of both the science-based and practice-based pharmacy educator through the application of Bernstein’s social realist approach to knowledge and vocational education.

Method: An exploration of pharmacy knowledge and its relationship to professional practice, using semi-structured interviews with 12 academic members of staff from three different Schools of Pharmacy. Interviews were audio recorded, transcribed and analysed using a reflexive, framework analysis.

Results: Respondents were invited to discuss their experiences of the integration of science and practice within the MPharm curriculum. Many of the themes from the analysis of the interview transcripts focused on the perceived practical barriers associated with integration such as:

- Modular organisation viewed as an obstacle to fuller integration of science and practice
- It is possible to over-integrate and the programme content becomes fragmented
- Some parts of the science curriculum are more difficult to integrate with practice than others
- Integration sometimes feels ‘forced’

Discussion: Bernstein uses specific language to describe vertical (scientific) knowledge and horizontal (practice) knowledge. Some of the practical difficulties and “forcing” associated with integration can be defined more clearly by referring to Bernstein’s description of knowledge relations. The interview narratives suggest that horizontal, segmented practice knowledge can be transferred into a vertical hierarchical scientific knowledge structure. By contrast, the integration of scientific, hierarchical knowledge into practice may be more difficult to achieve.

Reference
Development of the integration of pharmaceutical science and pharmacy practice through a new model of pharmacy practice skills (PPS) practical classes

Author: Jon Waterfield, De Montfort University, Leicester

Background: Third year MPharm undergraduate classes in a ‘Skills for Practice’ module at this institution have moved to a common format that focus on four key skill areas: information gathering, information giving, teamwork and assessing the work of others. Each Pharmacy Practice Skills (PPS) class is based on a specific therapeutic area where the main aim is to facilitate integration across modules using a common skills-based format.

Description of work: All sessions are designed for 20 students and each subgroup of 5 students rotates around four timed workstations. For example a PPS session on the respiratory system includes:

- A systematic process of gathering information when a patient requests an emergency supply of an inhaler (WS1)
- The accurate and bespoke provision of information when counselling a patient with adherence issues (WS2)
- Interaction with colleagues utilising a range of resources to apply knowledge of COPD (WS3)
- Checking the work of others including legal and clinical checks (WS4).

This session fosters integration across all streams of the programme:

- Practice and Healthcare
- Body Systems and Clinical Studies
- Pharmaceutical Sciences

Proposed evaluation: Current evaluation of this work has been mainly through student and staff feedback. Further work is proposed using a mixed methods study to evaluate student views on how PPS sessions facilitate the integration of pharmaceutical science and pharmacy practice. The purpose of this work is to gain some insight into how students create connections between knowledge within different modules. This work will support our understanding of how students apply different types of knowledge to generic practice skills. This evaluation will be used in the ongoing development and further integration of the MPharm programme.
Undergraduate inter-professional simulation: an innovative pilot project

Author: Jodie Gwenter, Adele MacKellar, Kate Hart, Rebecca Barker. Clinical Tutors, University Hospital South Manchester

Background: In January 2014, clinical tutors in a School of Pharmacy were given the opportunity to develop and deliver an innovative clinical skills tutorial to 3rd year undergraduates. As one of the core GPhC outcomes, inter-professional education (IPE) became an obvious primary focus. Coupled with the recent development of a clinical simulation facility at the university hospital it provided an ideal and timely opportunity for learners to practice elements of IPE with the same distractions and complexities present in the real clinical setting in a safe learning environment.

Description of work: Third year UoM medical and pharmacy students (43 in total) were challenged with common clinical scenarios in the safe environment of a simulated ward. Students worked in pairs or as a group of three to represent the actions and contributions of their own profession. Joint GMC and GPhC outcomes were devised in order to make the sessions relevant to both disciplines and each scenario was made more realistic with the use of clinical skills tutors (with backgrounds in nursing/midwifery and pharmacy) playing the role of nurses, patient/manikin voice and relatives. Each simulation was also facilitated by a separate clinical tutor responsible for pre-session briefings and post-session de-briefs. The students were required to work collaboratively to safely manage an acutely unwell patient, prioritising tasks such as diagnosis, medication histories, prescribing, prescription review, discharge planning and counselling on high-risk medicines such as warfarin.

Proposed evaluation: To assess the learning of students participating in the interprofessional simulations we used a post assessment tool, validated by assessment researchers from the Macy grant at University of Washington¹. Elements explored included learning and performance, skills, team structure, leadership, situation monitoring, mutual support and communication. 100% of students enjoyed learning in a simulated environment and the opportunity of working with students from other professions.

References
Does IPE in a clinical environment lead to positive perceptions of interprofessional working?

Authors: Layla Fattah and Andrew Mawdsley, University of Manchester and Central Manchester Foundation Trust

Background: There is a current move to integrate inter-professional education (IPE) into the undergraduate curriculum at this institution. To support the IPE agenda, the Clinical Tutors developed and delivered a learning session for undergraduate medical and pharmacy students that engaged the students in “situated learning” in a clinical environment.

Description of work: Third year pharmacy and medical students assigned to placements at two local foundation trusts were recruited to attend a joint IPE teaching session. The aim of the session was to provide students with an opportunity to engage in authentic practice activities in a clinical environment adopting roles mirroring their respective roles in practice. The session focussed on the management of a real patient. Students were allocated to a clinical ward in small interprofessional groups of three or four. The student group interviewed a real patient to obtain a medication and drug history. They then used resources such as the BNF and NICE guidelines to review the patient’s current medication and make suggestions for initiating drug treatment. Students were encouraged to write a prescription for the new items they intended to prescribe for the patient. This promoted collaborative decision making and situated learning. The session was intentionally semi-structured to allow students to naturally form team roles authentic to practice. All students completed a pre- and post-session evaluation utilising the validated IPE data collection tool, Readiness for Interprofessional Learning Scale (RIPLS)¹.

Proposed evaluation: The session will be evaluated both quantitatively and qualitatively. RIPLS forms will be analysed using SPSS. Themes will be analysed from student written comments. The Clinical Tutors observed mixed dynamics in the group working processes and informally received both positive and negative feedback from the students. Focus groups will be undertaken to further explore the student experience of this IPE initiative.

References
Ward engagement study: a teaching strategy to enhance pharmacy students’ integration into the ward environment

Author: Natalie Lewis, University Hospitals Birmingham NHS Foundation Trust

Background: The demand for hospitals to provide work based learning is increasing due to a widening pool of pharmacy undergraduates. This heavily supervised learning relies on trained pharmacists for delivery but often gives little opportunity for the student to integrate into the ward environment.

Method: This study sought to explore a new method for learning that could lift the burden on staff time whilst enhancing ward engagement. All 3rd year pharmacy vacation students (n=8) at one UK hospital were enrolled to complete one week of ward engagement activities on a gastroenterology ward under remote supervision (where the pharmacist supervisor was available on the ward and contactable at all times) allowing integration into the daily ward operations and interaction with patients and healthcare professionals. The students were supported by a workbook of activities which included: shadowing professionals and ward rounds, bed space comparisons, intervention reviews, ward communication tool comparison and patient interviews. The strategy was evaluated by comparison of students’ attitudes pre and post participation via questionnaire and informal discussion. Impact on the ward was assessed by questionnaire that was completed by staff interacting with the students.

Results: The majority of workbook tasks were completed by the students (average 98%). All participants (100%, n=8) were satisfied with the level of supervision and felt the experience met their expected learning objectives. Feedback forms were completed by approximately half (50%, n=15) of ward staff that interacted with the students. These showed no adverse effect on their duties (76%, n=9), with approximately a quarter stating the presence of the students enhanced their normal duties (24%, n=6).

Conclusion: This study demonstrates that a variety of learning objectives and increased ward engagement could be delivered through remote supervision of students in a healthcare setting. Student experiences in hospital can occur without the associated cost of intense supervision.
Summer vacation placements – creating internships that work

Author: Natalie Lewis, University Hospitals Birmingham NHS Foundation Trust

Background: Unpaid pharmacy placements have recently come under fire from students who have found placements to be unfair with some providers not prepared to take on unpaid students due to a recent employment tribunal hearing. This has resulted in a reduction in the duration and number of vacation placements available; whilst demand for unpaid experience has spiralled.

Method: During summer 2013 one UK hospital expanded its vacation program and contracted 20 students for 4 week placements consisting of strict 50:50 split of provision of education and training activities in return for involvement in departmental activities. All placements were supported by a timetable, a mentor and a workbook with competency assessments for particular activities. Audit and project work was also provided. Those completing the placement to a satisfactory level were awarded a certificate.

Results: 96% of the contracted weeks were completed giving a total student input of approximately 2888 hours with 50% (1444 hours) directed to departmental work including audits and counselling checklist formation. The 4% not completed was due to sickness and interview attendance. The initiative was evaluated by informal student interview, feedback from pharmacy staff and review of student work.

100% of participants stated that the split of time was equitable, that audit and project work carried educational merit, and they would apply for future hospital placements or pre-registration positions. No staff declared any burden produced by the presence of the students in their areas in relation to student output. All work produced was seen to be at (30%) or above (70%) the level expected.

Conclusion: It is possible to produce equitable pharmacy internships which provide benefit to the trust and the student in a cost neutral manner. Students appreciate the opportunity to learn in a practical environment and can attach learning objectives to many types of departmental activity.
Using lonely hearts adverts and tweets to engage students in critical evaluation

Authors: Sarah Willis and Doug Steinke, Manchester Pharmacy School, The University of Manchester

Background: Core research skills such as analysis, critical evaluation and synthesis of new information, and attributes including ways of thinking about collecting and processing new information have been recognised as important for advancing the pharmacy profession and as enhancing the profession's ability to provide patient-centred care. Despite this, few studies examine how to engage students effectively in undergraduate research training to develop these skills and attributes.

Description of work: To develop critical reading skills we introduced a “journal club” to the third year Integrated Research Skills course. Prior to the journal club, lectures were delivered on the research design and interpretation of research findings to familiarise students with the research language being used during journal club. The journal club involved critical evaluation of research papers, discussion of research design, methods of analysis (both quantitative and qualitative) and assessment of the clinical significance of papers. Journal club discussions took place in a small group setting and were led by two experienced pharmacy practice researchers. At the end of the session the students were asked to work in teams to produce either a tweet or a lonely hearts advert about a paper discussed during journal club to practise summarising key findings in preparation for one of their assessments for the unit – a 500 word précis of a research article.

Proposed evaluation: While a systematic review of the effectiveness of journal clubs identified many features of best practice we adopted, we intend to evaluate the journal club using focus groups with 4th years to explore how effective our club was in developing the intended skills and attitudes. Based on findings from these focus groups we will then survey students to determine the extent to which the journal club was perceived as effective in relation to developing a number skills and attributes needed to support them in their 4th year projects.

References
The integration of scientific and professional skills into a non-credit bearing PaSS module

Authors: Dr T Webb, Dr M Wang and Dr P Taylor. Leicester School of Pharmacy, De Montfort University, Leicester

Background: When redesigning our MPharm we wanted to develop students’ academic and professional skills in parallel and to actively engage students in the integration of these skills. To facilitate this we have introduced a Professional and Scientific Skills module into each level of study (PaSS1 to PaSS4) which focuses on essential skills for a pharmacy graduate: numeracy, communication, reflection, professional development planning (PDP) and knowledge integration.

Description of the work: The PaSS modules have no formal teaching sessions, instead drawing on content delivered in other modules at the same, or earlier, levels in the course; this is intended to actively and explicitly encourage students to integrate and contextualise their learning across the course. Each PaSS module contains 4 “must pass” assessments: a reflective portfolio on learning experiences; the communication of information, and integration of knowledge, from across the MPharm disciplines; the ability to perform pharmaceutical calculations (for both science and practice) accurately; and the assessment of achievement against the students’ PDP. The assessments in each of these areas are based on a spiral design, so that students progressively improve essential practice skills as they proceed through the PaSS modules in order to meet the final outcomes for our course. The PaSS modules are non-credit bearing and are assessed using criterion based pass / fail marking schemes, we regard this as more appropriate than using a quantitative based assessment as students must reach a certain level of competence in the assessed skills before they can progress to the next level of study.

Proposed evaluation: Student performance in the assessments now embedded with the PaSS module will be compared with that achieved when the assessments were in credit bearing modules. The student perspective of the two deliveries of PaSS1 and the first delivery of PaSS2 module will be evaluated via a questionnaire.
A novel approach to teaching empathy to pharmacy students

Authors: Angela Macadam and S. Williams, School of Pharmacy and Biomolecular Sciences, University of Brighton, UK

Background: Empathy is an important factor in patient care however, studies suggest that pharmacists have lower empathy scores than GPs and pharmacy students have lower scores than medical students. It has been suggested that teaching empathy is difficult and is not being taught consistently to pharmacy undergraduates. The aim of this project was to teach empathy through workshops and evaluate their value.

Method: Two workshops were developed in consultation with trained actors to teach students how to get into another person’s role. All pharmacy students at this University were invited, by e-mail, to take part in the workshops. The workshops were attended by the students, two academic tutors and two actors who led the workshops. Following the workshops, everyone involved was interviewed about the project.

Results: Out of 367 students, eight students attended the workshops.
Tutors’ reflections: “This was a completely different way of approaching communications skills training.” Generally I believe that this type of patient modelling is a useful teaching tool.”
Students’ reflections: “I don’t think many students turned (up) because the workshops ran during the inter-semester break when many students had exams.” “The acting of the ‘worst patient in the world’ was a brilliant way of seeing how to deal with difficult patients.”
Actors’ reflections: “The Role-play and character development worked well – everyone engaged.” “The task of coming up with and playing a role on the spur of the moment was quite challenging for some students.”

Conclusions: This was an interesting novel approach to teach empathy to pharmacy students. The main limitation was the small number of participants. This could be addressed in the future by fitting the workshops into an existing module. Further work would be needed to establish if this form of teaching does enhance empathy among students.

References
An evaluation of clinical simulated encounters by pharmacy undergraduate students

Authors: Rick Adams¹, Dr.G.Barton², Dr.D. Bhattacharya¹, Prof. R.Holland², Prof. A.Howe², Prof. N.Norris³, Miss C.Symms⁴, Prof D. Wright¹

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Background: Pharmacy students are prepared for practice through workshops, placements and OSCEs¹[1]however, simulated clinical encounters (SCE) utilising actors in realistic practice environments, may provide better preparation. The aim of this research, therefore, was to evaluate the use of SCEs in preparing students to deliver medication reviews (MR).

Method: Students, actors (patients) and assessors received written and verbal briefings prior to SCEs within a busy clinical trials unit. Students collected actors from waiting areas, undertook MR in consultation rooms and then presented the results to a real GP. Assessors, actors and the GP provided feedback on student performance. Post-completion an on-line survey, using 5 point Likert scales and free text, was used to elicit students' opinions including overall experience, location, logistics, use of actors, and feedback.

Results: 17 of 42 students surveyed responded to the survey. Figure 1 displays generally positive opinions of responding students about SCEs.

Figure 1 Results of on-line student survey.
Free text comments provided additional support for realism of location and different characters in ‘patient’ scripts which, however, require refinement to mirror real patients. Students supported feedback provided to them. The GP’s abrupt manner was reported to reduce benefit. Students reported SCEs increasing their confidence and preparing them to meet real patients for MR.

Discussion: Low survey response rate, possibly due to sending it just before final exams, limits interpretation. Responses obtained largely provide support for utilising SCEs to prepare students for MR. Specific aspects of note are the use of realism such as location, logistics, actors and their scripts but these must fully mirror real life. Students want to ensure that they receive feedback on their performance to enable further improvement. Mixed results for the GP element of the session demonstrate some benefit but needs further investigation.

References
Critical analysis and communication: an alternative to the final year project

Authors: Jill Barber, Constantinos Demonacos, Leon Aarons, Douglas Steinke, Mary Tully. Manchester Pharmacy School, The University of Manchester

Background: The MPharm programme requires that students receive a training in research methods. This is normally achieved through the Research Project in which students conduct, evaluate and report a piece of original research. The Research Project is hugely valuable for some students, but others expecting to practise as health care professionals find the development of specialised practical or computational skills a distraction. They do, however, need other research skills. Critical Analysis and Communication focusses on those core research methods required by a healthcare professional serving the public.

Method: In developing this 30-credit module our objectives were:

- To train students to evaluate research data critically, whether presented in peer-reviewed journals, or in the news media.
- To train students to communicate their analyses clearly and with consideration of the patient’s needs. To enable students to develop confidence in their abilities regarding clinical decisions in an ethical framework.
- To create a module that rewards hard work by adapting a meaningful marking scheme.

In semester 1 the class was introduced to the possibility of bias in different settings e.g clinical trials, biological research, statistics, through lectures by experts. Oral and written analysis and communication were assessed. In semester 2, students prepared a protocol for a hypothetical research project, addressing ethical and statistical concerns at a level of detail that is not always possible in a research project that can occupy only two semesters.

Results: Students not only performed well in the module (final marks mean 69%, SD 6.7%), but exceeded expectations in other fourth year modules (6 of 23 students rising one degree class relative to the third year) and they developed skills very relevant to their future careers (14/20 students strongly agree, 6/20 agree).

Conclusion: Critical Analysis and Communication is not intended to replace the Research Project, but is an excellent alternative for many students.
A “clinical” trial of two marking protocols for multiple choice assessments

Authors: Jill Barber and Douglas Steinke. Manchester Pharmacy School, The University of Manchester

Background: Multiple choice questions are a staple of university, school and professional examinations. A problem with these assessments, however, is that a student who knows nothing and guesses the answer to every question achieves a raw mark of $\frac{100}{n} %$ where $n$ is the number of options per question. So in an examination where the questions have five possible responses, students are gifted 20%. Two common protocols exist to ensure that student who knows nothing gets 0%, and the student who knows everything gets 100%. In traditional negatively marked MCQs a correct answer attracts 1 mark, an incorrect answer $-\frac{1}{n-1}$ and a unanswered question 0. Alternatively, a “guessing correction” or normalisation is applied; this is mathematically equivalent to a correct answer attracting 1 mark, an incorrect answer $-\frac{1}{n-1}$ and a null answer also $-\frac{1}{n-1}$. The second protocol is thus mathematically less generous than the first but anecdotal evidence suggests that it is less unpopular.

Description of work: We will investigate the hypothesis that students are so risk-averse that they score less well on the mathematically more generous protocol. This is a cross-over trial, to be conducted during a first year assessment taken by all students. Students will be divided into two groups of equal ability and simultaneously tested on 10 questions, each with five possible answers. Group A will be told that they are marked by traditional MCQs; group B by the use of a guessing correction. Students will then be tested on a further 10 questions with the protocols reversed. For an 80% power with 5% representing a significant result, we require 16 questions and 100 students to achieve 95% confidence.

Proposed evaluation: Quantitative data will be collected as described above and qualitative data assessing students’ perceptions of the two protocols will also be gathered and analysed.
Borderline regression methods in standard setting for OSCE examinations

Authors: Jenny Hughes and Jason Hall. Manchester Pharmacy School, The University of Manchester

Background: Absolute standard setting methods have been used in UK medical education for some time and it has been highlighted as good practice that the pass marks for performance based assessments should not be predetermined, but differ between examinations based on standard setting.1 This study describes a pilot study which explored the impact of using the borderline regression method for standard setting in an OSCE.

Method: In the OSCE, students were assigned a mark (out of 50) using a checklist and a global feedback judgement (0=clear fail, 1=borderline, 2=clear pass, 3=excellent). The percentage grade was then plotted against the global judgement and a linear line of best fit produced. The pass mark is where this line crossed the borderline judgement.

Results: 177 students sat the OSCE (11 were excluded due to incomplete global judgements). According to this regression method the pass mark for this exam should have been set at 45% (rather than the standard university 40% pass mark) which would have resulted in two additional fails (21.7% versus 22.9%).

More work is required to determine why students assigned as ‘clearly failed’ have passed and those assigned as ‘clearly passed’ have failed. Several changes were made to the relative weightings of the OSCE assessment checklist following this study.

Discussion
This type of review can be used when reviewing the appropriateness of OSCE marking checklists. Further investigation is needed prior to introducing a variable pass mark using these regression methods.

References
1. PMETB. Developing and maintaining an assessment system – a PMETB guide to good practice. 2007
New OSCE’s for the new MPharm

Author: Jenny Hughes and Victoria Tavares. Manchester Pharmacy School, The University of Manchester

Background: General Pharmaceutical Council standard 10.2.2 requires undergraduate students to show how they ‘Instruct patients in the safe and effective use of their medicines and devices’ (10.2.2c) and how they ‘Communicate with patients about their prescribed treatment’ (10.2.2g) with regard to the supply of both prescribed and over the counter medication.¹ With these standards in mind a new third year module was developed, building on a previous OTC module and introducing more stations to assess a broader range of competencies.

Description of Work: The OSCE consisted of three stations covering minor ailment consultations, OTC advice on smoking cessation, malaria prophylaxis and Emergency Hormonal Contraception (EHC) and an oral examination on complimentary therapies. In previous years students had only undertaken one minor ailment station. Trained simulated patients were used for all stations requiring patient interaction. Although patients were invited to give feedback on student performance they were ultimately assessed by a qualified pharmacist who had been observing. Particular care was taken to integrate this module to others. Minor ailments covered were ordered to follow the order that the systems of the body were taught elsewhere.

Evaluation: The unit will be evaluated by students, staff and representatives of employers. Student evaluation of this module has been positive (overall module score of 4.29 out of 5, school average 4.02). The students particularly liked the relevance of this module to practice, and appreciated the improvement it made to their communication skills. Staff evaluation of the module identified the need to recognise and reward students who demonstrate a patient centred approach. A summary of the scenarios and the competencies assessed will be presented to an External Advisory Board of pharmacy employers to ascertain relevance to practice.

References
Integrating science and practice on placements

Authors: Jason Hall, Paul Buckley*, Joanne Hayes*, Ellen Schafheutle, Ruth Ledder, Gavin Humphries, Victoria Silkstone. Manchester Pharmacy School, The University of Manchester and *Stockport NHS Foundation Trust

Background: Providing an entire cohort of students with the opportunity to learn about manufacturing in a real life setting has always been a challenge for pharmacy schools. Helping them to apply this learning to patient care is equally challenging. This abstract describes an initiative where students visit manufacturing departments in a hospital and meet with patients to discuss how the medicines are used. This initiative aims to support integration by demonstrating the application of science to the preparation and testing of a range of formulations and appreciating the formulations from the patient’s perspective.

Description of work: Academic staff worked closely with colleagues from hospital pharmacy to produce a workbook to structure the student visit to the aseptic unit, manufacturing unit, quality control laboratories and pharmacy led outpatient clinics. Students attended the hospital in groups of eight and visited each unit/clinic in pairs. The activities in the workbook tied in closely with existing teaching sessions delivered in the University on microbiology, chemistry and law [manufacturing, independent prescribing] so the students could see how the science applies to practice to strengthen and underpin learning. The workbook was not assessed although material from the visit and the work book was examinable.

Proposed evaluation: Students had the opportunity to provide feedback at the end of the visit via an anonymous questionnaire and also back at the university using Turnitin® Response devices. Early analysis of this feedback has been very positive.

Conclusion: This visit allowed students to see how medicines are prepared, tested and used in real life situations. Its strengths lie not just in the exposure to experts working in the field of classical manufacture, aseptic manufacture, quality control and in the clinic but also in the integration of science and practice and integration of academic study with patient care and pharmacy practice.
Science-practice integration with Team Based Learning (TBL)

Authors: Jason Hall, Harsha Parmar, Alain Pluen and Sally Freeman. Manchester Pharmacy School, The University of Manchester

Background: Future healthcare professionals must be able to integrate their learning and apply it to patient care. Avoiding compartmentalisation of learning in modular programmes has challenged educators for many years. It is important to support students as they make the links between different parts of the curriculum and work towards becoming independent, critical thinkers.

Method: The units in the 1st year of the programme are assessed via a single integrated examination at the end of each semester. The programme started with an induction comprising of two TBL sessions on asthma and drug stability designed to set out the expectation of integrating science and practice and preparing students for the integrated examination. The pre-reading for the TBL sessions included relevant articles from the professional literature, pharmacy reference sources and patient information. Students (n=156) were asked to comment of the introduction of TBL in induction week using an online anonymous survey.

Results: All students prepared well, with very good sets of marks in the individual and team Readiness Assurance Tests (iRAT and tRAT). The iRAT means were 72% and 80% whilst the tRAT means were 96% and 97%. The TBL sessions involved case studies drawing on team discussions involving pharmaceutical chemistry, formulation science, metabolism, dispensing and drug-drug interactions. The discussions were facilitated by both science and practice staff, which promoted the importance of integration. 64 (41%) students completed the online survey. 80% of those students who responded felt it was useful to hear others opinions during the TBL discussions and 79% felt the application exercises were applicable to real life.

Conclusion: A majority of pharmacy students, who responded to the survey, thought TBL in the first year induction was a positive learning experience. The TBL sessions have set the expectation of pre-learning/preparation for all teaching sessions and science-practice integration throughout the programme.
Pharmacy students' knowledge on Human Papillomavirus, its implication in cervical cancer and the need for vaccination

Authors: Rosalind Wyatt, Cara Cully, Kay Marshall, Kaye Williams, Rebecca Elvey. Manchester Pharmacy School, The University of Manchester

Background: The United Kingdom (UK) has a National Human Papillomavirus (HPV) Vaccination Programme. To advise the public it is important that fourth year pharmacy students have sufficient knowledge on the HPV vaccine. The ultimate aim of this research was to develop a leaflet suitable for pharmacy students and pharmacists about the National HPV Vaccination Programme.

Method: The literature was reviewed to determine the basic science required by pharmacists to appropriately advise the public on the HPV vaccine, and to gain scientific knowledge in those areas. A questionnaire was produced to collect data from fourth year students attending one UK school of pharmacy. The data were analysed to assess the students' knowledge level on HPV. The leaflet was produced by considering areas of poor knowledge and the information required to advise.

Results: Questionnaires were distributed to 159 students and the response rate was 132/159 (83%). Overall knowledge was low, with a mean total score of 11.8/22. Out of the 15 questions assessing participants' knowledge on cervical cancer, HPV and the HPV vaccine, Gardasil®, 7 were 'well answered' (>60% of participants answered correctly), 4 were 'moderately well answered' (40-60% of participants answered correctly) and 4 were 'poorly answered' (<40% of participants answered correctly). Areas of low knowledge included prevalence and transmission of HPV, the recommended dosing schedule of Gardasil® and whether it confers cross-protection.

Conclusions: This study highlights the lack of sufficient knowledge held by fourth year pharmacy students at the studied school of pharmacy to appropriately advise the public. The leaflet developed aims to inform students and pharmacists to increase their knowledge on HPV vaccination, but the effectiveness of this tool is unknown. Pharmacy students need to be better informed on the National HPV Vaccination Programme so that they can advise the public appropriately and increase uptake of the vaccine.
Assessing final year pharmacy students’ knowledge on cervical cancer and the NHS Cervical Screening Programme

Authors: Cara Cully, Rosalind Wyatt, Professor Kay Marshall, Professor Kaye Williams, Dr Rebecca Elvey. Manchester Pharmacy School, The University of Manchester

Background: It has been long established that infection with specific types of human papillomavirus (HPV) has been associated with cervical cancer. Since the introduction of the NHS Cervical Screening Programme in 1988, UK mortality rates of the disease have decreased by almost two thirds. Recent years have witnessed an increase in cervical cancer incidence rates. In addition, screening rates are failing to reach the government’s target of 80%.

Method: A questionnaire was designed and developed to assess final year pharmacy students’ knowledge of HPV and cervical cancer screening. Students’ opinions regarding their current level of knowledge and whether pharmacists should have a role in the public awareness of cervical screening were also assessed. Questionnaires were distributed to final year students (n=159) during an attendance-recorded class.

Results: A total of 131/159 questionnaires were returned (response rate 82.4%). Knowledge based on 13 multiple-choice questions varied greatly between individuals (Mean score=6.15, SD=1.97). Background knowledge associated with HPV and cervical cancer was significantly greater than cervical screening knowledge ($P<0.001$). Students who studied an optional module, Microbial Disease and Immunisation, had significantly higher levels of cervical screening knowledge than those students who did not ($P=0.031$). Over 90% of respondents agreed that pharmacists should have a role in public awareness of cervical screening.

Discussion: Poor levels of cervical screening knowledge largely reflect deficits in direct teaching within the MPharm curriculum. This information is only provided by an optional module which is taught during the fourth year of study. Differences in performance between students who studied/did not study this module demonstrate its effectiveness in raising awareness of cervical screening among prospective pharmacists. Consideration should be given to the provision of this module’s content to all final year students.
Interprofessional v uniprofessional therapeutics and prescribing - A comparison of third year medical students working with other medical students or with pharmacy undergraduates

Authors: Dai John, Sion Coulman, Andy Jenkins, Anesha Premji, John P Thompson, Helen Sweetland, Jamie Hayes and Philip A Routledge

1Cardiff School of Pharmacy and Pharmaceutical Sciences, Cardiff University, 2School of Medicine, Cardiff University and 3Welsh Medicines Resource Centre, Cardiff.

Background: Interprofessional education (IPE) can develop an understanding of the roles and values of other health professionals. The aim was to compare views of third year medical students who worked as uniprofessional or interprofessional pairs on a new therapeutics and prescribing session.

Method: A two-hour session integrating communication skills with therapeutics was conducted with medicine students alone or with pharmacy undergraduates. The sessions required students to work in pairs, role-playing health-professional or patient in medicines history-taking, adverse drug reaction identification/reporting and prescription writing. An anonymous questionnaire, including 5-point Likert-scale questions, was used for evaluation. Mann-Whitney was used to compare responses. Ethics approval was obtained.

Results: In total, 231 medical students completed the evaluation, 168 having worked with a pharmacy student. Medics agreed/agreed strongly the session was useful (95%) and enjoyable (93%). 88% said there should be more IPE between medicine and pharmacy (4 disagreed). 84% medics working with medics agreed/agreed strongly they were sufficiently well-prepared for medicines-history taking, significantly higher (p<0.001) than medics working with pharmacy students (63%). Medics working with pharmacy students agreed more strongly they had learnt something by observing their partner's approach (p=0.001).

Discussion: In conclusion, this new therapeutics and prescribing IPE session was deemed useful and enjoyable by medical students, whether or not they had worked with a pharmacy student. The higher level of perceived preparedness for history-taking by medics working uniprofessionally in comparison with interprofessional pairs may be because they have not had the opportunity to observe a pharmacy student's approach to this skill. If this explanation contributes at least in part to the differences between groups, then this supports the value of IPE in this format. Additional IPE sessions between medicine and pharmacy have been arranged and more are planned.
Academic facilitators’ opinions of an integrated interprofessional therapeutics and prescribing session for undergraduate pharmacy and medicine students

Authors: Dai John, Sion Coulman, Louise Hughes, Efi Mantzourani, Rhian Deslandes, Pamela Bradley, Leanne Roberts, Simon Wilkins, Jamie Hayes, John Thompson, James Coulson, Helen Sweetland, Philip Routledge

School of Pharmacy and Pharmaceutical Sciences, Cardiff University, School of Medicine, Cardiff University and Welsh Medicines Resource Centre, Cardiff.

Background: A new interprofessional education (IPE) case-based session which integrated therapeutics, prescribing and communication was developed and piloted. Sessions involved year 3 medicine students working together with year 3 or year 4 pharmacy students. Students played the roles of prescriber and patient in medicines history-taking, adverse drug reaction reporting and prescription writing. Over 700 students and 12 faculty have participated in the academic years 2011/12 and 2012/13. Six cases have been used. The aim was to capture the views of faculty involved with facilitation of these sessions.

Method: Facilitators provided views using a feedback form which requested comments about the cases and the sessions, that is, what went well, suggestions for improvements and any other comments.

Results: Feedback was provided by all 12 facilitators. Positive aspects included the content and problems within the cases, the relevance to both pharmacy and medicine students, the enthusiasm of students and that the students recognised and appreciated each other’s strengths and limitations. Faculty were pleased students reported the session as interesting, useful and enjoyable. Areas for improvement include allocation of students to pairs, the venue and scheduling of sessions. Overall, the academics enjoyed facilitating and all wished to continue their involvement. Another benefit is the closer collaboration of some individuals from the different professions with regard to undergraduate learning, teaching and assessment. Furthermore, this new IPE initiative was highlighted as an example of good practice by the General Medical Council in their 2012 post-visit report.

Discussion: In conclusion, academics strongly endorsed the value of these IPE therapeutics and prescribing sessions and support further development of IPE between undergraduate pharmacy and medicine. The collaborative development and delivery of the IPE sessions has strengthened established links and created new relationships between colleagues from both professions. Additional IPE is currently being planned to include other professions.
The perceived benefits of integrated teaching of 2nd year pharmacy students

Authors: Aditi Puri. Manchester Pharmacy School, The University of Manchester

Background: The General Pharmaceutical Council highlights the importance of integration between Science and Pharmacy practice in undergraduate teaching to enhance learning and provide students with the foundation for a career in contemporary pharmacy and refers to Harden's ladder of integration to develop a stepwise progression to integration. To evaluate the views of second-year pharmacy students on the delivery of integrated microbiology lectures designed and delivered by microbiologists and pharmacists.

Method: A 10-item questionnaire was developed and informed by existing unit evaluation questionnaires and literature on integrated teaching. It was administered to all second-year pharmacy students in the final lecture of a series of four integrated lectures, and traditional non-integrated lectures using audience response software. Integrated lecture topics covered travel vaccines, malaria, human papillomavirus, sexually transmitted diseases and norovirus. The microbiologist discussed microbial disease and the pharmacist lectured on treatment guidelines and medicines optimisation. Eight questions on the perceived benefit of integrated lectures and impact on learning required a response using a 5-item Likert scale. Two open questions allowed students to describe the aspects of the integrated lectures that they liked and to offer suggestions for improvement.

Results: 52% (n=123) of students either ‘strongly agreed’ or ‘agreed’ with the statement ‘My understanding of the relevance between Microbiology and Pharmacy practice in non-integrated lectures could be improved’, with 76% (n= 113) ‘strongly agreeing’ or ‘agreeing’ that their understanding of the relationship between Microbiology and Pharmacy practice is better in an integrated lecture. 73% (n=114) of the cohort felt that their learning had been enhanced through integrated lectures.

Conclusion: The findings of this first cycle of innovation indicate that students feel that integrated lectures designed and delivered by microbiologists and practising pharmacists enhance their learning and help to link the science of microbiology with pharmacy practice.
Integrating Web 2.0 technology into the curriculum to promote constructivist learning

Author: Harsha Parmar. Manchester Pharmacy School, The University of Manchester

Background: Pharmacy students are required to become lifelong self-directed learners; as educators our role is to provide learning opportunities for students to develop this skill. Constructivist-learning environments can promote such opportunities.1, 2 As part of the assessment of first-year pharmacy students, a novel assessment was introduced which assessed knowledge and application of the role of the pharmacist in an allocated community-pharmacy service provision through production of a 60-second YouTube video, following a series of workshops on service provision. An evaluation of student’s views of the skills utilised in completion of this task, and the mode in which learning occurred, was undertaken.

Method: A 14-item questionnaire was developed to capture the skills that respondents felt they had utilised through completing this task, and, how they had developed their understanding of the allocated topic. The questionnaire was administered to all first-year students in an identified lecture slot using polling software.

Results: 71/152 students participated in the questionnaire. To ask respondents what skills they felt they utilised through completion of this task, a series of statements was listed that they responded to using a 5-point Likert scale. Table 1 summarises these responses;

<table>
<thead>
<tr>
<th>n</th>
<th>% who ‘agreed’ with statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Applied critical-thinking skills</td>
<td>28</td>
</tr>
<tr>
<td>Applied problem-solving skills</td>
<td>29</td>
</tr>
<tr>
<td>Applied principles of professionalism in an online environment</td>
<td>34</td>
</tr>
<tr>
<td>Learnt through discovery</td>
<td>25</td>
</tr>
<tr>
<td>Mediated my own learning</td>
<td>23</td>
</tr>
</tbody>
</table>

Table 1: Skills developed through completing the task

Conclusion: Previous research has focussed on integrating Web 2.0 technology to promote the pharmacist’s role.3 This study highlights how integration of Web 2.0 technology to assimilate knowledge and practice, could, in some students, promote a constructivist-learning environment which can help students develop higher-order thinking skills associated with becoming a self-directed learner.

References
Students’ views of patient led teaching

Author: Victoria Tavares. Manchester Pharmacy School, The University of Manchester

Background: The involvement of patients in the education and training of health professionals is considered essential for the delivery of patient centred services.¹ This view is reflected by the General Pharmaceutical Council who suggest using patients in class.² There are few studies that describe experiences of involving patients in the teaching of pharmacy undergraduates, however literature relating to other healthcare professions suggests that teaching by patients impacts on students’ communication skills, promotes learning about the patients' perspective and increases confidence.³

Method: A school of pharmacy worked with Self Management UK to deliver patient led teaching sessions to 1st year pharmacy undergraduate students in their first semester (October 2013). Between three and five patients worked with groups of twenty students with the aim of increasing students’ understanding of living with a long term condition. A focus group was carried out after the sessions to explore student reactions and learning. It was audio recorded, transcribed and subjected to a thematic analysis.

Results: Students described learning in relation to understanding a patient’s perspective. Development of empathy, understanding reasons for non-adherence and insights into how patients deal with illness were reported. Students reported a lack of confidence when asking questions during the sessions; reasons provided included group size (when working as twenty) and a fear of offending the patient. Students provided a number of suggestions to improve the sessions, which included reducing the group size, increasing time spent talking with the patients and managing students' expectations.

Conclusion: Implementation of the improvements suggested by the students may encourage participation of those students who felt less confident. Introducing patient led teaching sessions with 1st year pharmacy students early in their training may help them understand patients’ perspectives. This provides a grounding which can be spiralled upon throughout their studies to help develop a patient centred approach to their work.

References
Assessing numeracy skills of students entering pharmacy and medicine at one UK University – the potential for interprofessional learning

Authors: Sion Coulman, Rob Wilson, Nadia Higgi, Ffion Hawkins, Alex Speakman, Louise Woodgate, Matt Baker and Dai John. Cardiff University

Background: Basic numeracy skills are essential to undergraduate students entering pharmacy and medicine degrees, as there are potential patient safety implications. The aim was to use a contextualised medicines-based numeracy tool to determine the inherent numeracy skills of students entering the first year of pharmacy and medicine programmes at one UK university.

Method: Ethical approval was obtained. A tool consisting of twenty-five calculations to be completed in 45 minutes without a calculator, was administered in October 2011. The tool covered six principal numeracy domains, multiplication, division, percentages, fractions, ratios and unit conversion. On completion candidates provided demographic data and information regarding their mathematical education.

Results: 165/168 pharmacy and 274/284 medicine students sat the diagnostic test in October 2011, producing a completion rate of 97%. Pharmacy students achieved a mean test score of 20.4/25 and medicine students a mean score of 21.3/25. Medical entry students performed better than pharmacy entry students (Mann-Whitney U; p = 0.019), with 18% of medical students achieving full marks compared to 9% of pharmacy students. Competence was lowest when answering a long multiplication question involving decimals, with 84/168 Pharmacy and 97/284 Medicine students failing to answer the question or answering incorrectly. Twenty-one pharmacy (13%) and 17 medical (6%) students scored 15 or less in the diagnostic test and were thus identified at an early stage as needing additional support, provided by pharmacy and medicine.

Discussion: Although both the pharmacy and medicine faculty were involved in the development, implementation and evaluation of this diagnostic assessment, to date the learning has been uniprofessional. Now that the value of the assessment to both programmes has been established, it may be appropriate to conduct interprofessional sessions for students. There are further opportunities for IPE in medicines-based calculations in later years of the programmes, for example, aligned with medicine’s Patient Safety Assessment.
Characterising changes in the numerical competence and confidence of students between MPharm I and MPharm II

Authors: Sion Coulman, Farah Arikat and Dai John. Cardiff School of Pharmacy and Pharmaceutical Sciences, Cardiff University

Background: Diagnostic numeracy tools are valuable in testing inherent numeracy skills of incoming university students.¹ The study aims were to use a diagnostic numeracy tool to establish if the numerical competence and confidence of MPharm students at one UK school of pharmacy improved after one year in higher education and to determine the factors which govern numeracy skills.

Method: In October 2011, MPharm I students sat a contextualised diagnostic numeracy test and one year later (on entering MPharm II) sat exactly the same test. Students were not informed in advance of the test. Statistical analyses were conducted in SPSS on the data of 140 students. Ethics approval was obtained.

Results: Score (p<0.001) and confidence (p<0.001) significantly increased between Year 1 (score= 20.3/25±4.33; confidence= 18.2/25±6.17) and Year 2 (score= 22.2/25±3.36; confidence= 21.5/25±4.61). Students principally educated in Malaysia had higher scores and greater confidence. This was also true for students whose highest mathematics qualification was A level compared to those without A level. Scores and confidence did not differ significantly between males and females. The most frequent incorrectly/least confidently answered questions involved unit conversions and multi-step calculations.

Discussion: Feedback after the first year test and MPharm I pharmaceutical calculations teaching may have contributed to the improvement in numeracy skills. Different countries’ teaching methods² can impact on numeracy skills and MPharm students with A level mathematics have stronger numeracy skills³ than those without and so careful consideration of the MPharm entry requirements may be useful. The weakness in the numeracy domains identified should ideally be tackled prior to university entry. A limitation of the study is that students from only one university were involved. Future research could see the involvement of other schools of pharmacy.

References
Team-based Learning in Pharmacy: The Faculty Experience

Authors: Simon Tweddell\(^1\), David Clark\(^2\), Michael Nelson\(^3\)

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2. Department of Pharmacy Practice, Regis University Rueckert-Hartman College for Health Professions School of Pharmacy, Denver, CO.
3. Department of Pharmaceutical Sciences, Regis University Rueckert-Hartman College for Health Professions School of Pharmacy, Denver, CO.

Background: One U.S. School of Pharmacy introduced a new highly-integrated PharmD programme in 2009, delivered predominately by team-based learning (TBL). Given the increased pedagogical complexity of TBL relative to lecture-based learning, it is likely that the experiences of TBL implementation on pharmacy faculty differs from the experiences associated with more traditional learning models. This study uses qualitative research methodology to explore the faculty experience and lessons learned from a large-scale implementation of TBL in an integrated pharmacy curriculum.

Description: Following IRB approval, 19 faculty at one U.S. School of Pharmacy participated in a 30-minute one-to-one semi-structured interview. The interviewer explored faculty perceptions, experiences and lessons learned from introducing TBL as the main instructional method in the PharmD program. Interviews were transcribed and the data analysed with qualitative methodology (thematic analysis) using qualitative and mixed-method research software (NVivo).

Results: Faculty perceived TBL to be beneficial to student learning. Students came to class prepared and ready to and participate in and actively engage in problem solving through application exercises. TBL is helping students develop the softer skills needed in the workplace. There was some concern that students might rely too much on team-work and not be able to work as well independently.

Faculty perceptions were that TBL is more work for them than traditional methods, especially the first iteration. Areas faculty found most challenging were writing effective application exercises and the development of TBL facilitation skills. Faculty's understanding of pedagogical approaches and educational theory improved as a result of using TBL.

Conclusion: Despite the challenges there was resounding support for TBL among faculty, leading to the conclusion that the benefits of TBL far outweighing the challenges. The study identified a number of lessons learned that may be of benefit to other educators considering introducing TBL in pharmacy curricula.
Using team-based learning (TBL) to develop consultation skills

Authors: Simon Tweddell and John Purvis. Bradford School of Pharmacy, University of Bradford

Background: TBL was introduced into a year 4 Consultation Skills module designed to develop knowledge and skills to consult with patients presenting with minor ailments in community pharmacy. We knew TBL could be used to develop and apply knowledge, could it be used in an innovative way to develop consultation skills? To introduce and evaluate an engaging and interactive set of workshops, developed using TBL principles that aim to develop students’ consultation skills; ability to provide peer feedback; involvement in the setting of assessment criteria; skills in evaluating consultation skills.

Description: Students were allocated to teams of 5-6 students based upon experiences of community pharmacy. They worked together during the semester developing knowledge and understanding of the diagnosis and management of minor ailments. Towards the end of the semester, each student was recorded individually consulting with a standardised patient presenting in a pharmacy with a minor ailment. In teams, students reviewed recordings of team members and selected the best to put forward to the ‘final’ a week later. For the final, the year was divided in half. Teams initially developed the assessment criteria against which they would judge each consultation. This was followed by whole-class discussion, facilitated by tutors and the final criteria agreed. Students watched the recordings of the 8 team’s nominated consultation from the other half of the year group, assessed them against the agreed criteria and selected the ‘best of the best.’ Teams were asked to justify their choices. This was repeated with the other half of the year. The workshops were evaluated qualitatively via student and staff feedback through specific questions on the module evaluation questionnaire and by discussions with staff. Quantitative OSCE performance data was collected and compared with previous cohorts

Results: Students really enjoyed the recording and initial review and selection within their team. The class perceptions of the ‘final’ were also very positive. The course review forms and feedback received during the sessions demonstrated that both sessions were well received by students. We had to curb discussion and debate due to time constraints. More time will be dedicated to the final class in subsequent years. Comparison of assessment data showed a small increase in OSCE performance compared to previous cohorts.

Conclusion: Team-based learning principles can be used for developing Consultation Skills in pharmacy students.
Integration within the classroom: How to maximise effectiveness

Authors: Alison Harltey and Samantha McLean. Bradford School of Pharmacy, Bradford

Background: One UK School of Pharmacy designed a new curriculum launched in September 2012. Integration with the curriculum is both vertical and horizontal. Horizontal integration occurs at each stage of the programme within each ‘unit’ of study and this includes the co-facilitation of classroom based activities by academic colleagues of different disciplines. In a Stage 2 unit of learning, the subject of substance misuse is presented to MPharm students for the first time. In order to maximise the effectiveness of how we deliver this learning in an integrated manner within the classroom we will evaluate both the student and the academic experience.

Description of work: Academic colleagues from the pharmacological sciences, pharmaceutical sciences and pharmacy practice worked together to create a range of integrated learning resources for use by students. This included resources for independent study outside of the classroom as well as collaborative workshop-based material. Within the classroom the different disciplines worked together to co-facilitate a series of application exercise based sessions to ensure that students understood the relevance and application of scientific knowledge to pharmacy practice-based problems.

Proposed evaluation: We will analyse quantitative and qualitative data collated via student feedback questionnaires. Staff evaluation will be conducted by the completion and reflective discussion of two institutional tools; namely a ‘Peer Supported Review of Teaching Practice’ and a ‘Team Based Learning unit review’ document. Taken together these will aid academic team reflection on how to maximise subject integration and collaborative working across disciplines to better support student learning at the unit level. The findings will inform the development of a series of recommendations for the writing and delivery of integrated learning units for staff.
Bridging Bridges

**Authors:** Julie Letchford and Keith Brown. University of Bath

**Background:** Integration of pharmaceutical science with clinical practice is crucial to both the professional reaccreditation of our degree programme and to the pharmacy profession. This pilot aimed to identify how one subject area, namely microbiology, is cross-linked with other units of the pharmacy degree programme taught at one UK School of Pharmacy.

**Method:** Two final year undergraduate pharmacy students were recruited to generate learning materials intended for staff and students, which highlight how microbiology relates to both science and practice. Students were encouraged to use their own initiative and creativity by working independently of staff and kept a reflective log throughout the project. They began by producing a comprehensive mind map summarising how microbiology is linked vertically and horizontally with other units throughout the course (Fig 1) and then used this information to produce a learning resource for year one students.

**Results:** Students used Camtasia to produce a You-Tube video animation demonstrating how microbiology is integrated into year 1 of the pharmacy programme. Resources developed for this project are of benefit to staff, students and their peers; staff were able to exploit student perceptions of unit integration, and students recruited for the task improved their teamwork, digital presentation skills and employability. Furthermore, the animation was evaluated: The results indicate that it was well received by Year 1 students who stated that it provided them with a better understanding of the importance of microbiology, and how it fits with other units of the undergraduate MPharm curriculum.

**Conclusion:** The project demonstrates the power of student partnerships in promoting personal development and student learning. It also illustrates how an improved knowledge of unit integration benefits existing students, prospective students and academic staff. It is anticipated that this type of project can be applied to other units in the future in order to better illustrate the integration of science and practice throughout the MPharm curriculum.
Student self-assessment of submitted work as a form of feedback

Author: Katie Maddock, Keele University

Background: Feedback is an essential component of student learning; this is the mechanism through which they discover whether they are on track to meet expectations. For feedback to be effective, students must engage with it and use it to build upon for the future. A novel method of achieving engagement is through student self-assessment.

Aim: To determine the value to students of self-assessment of coursework in terms of feedback potential.

Method: Third year students completed an integrated case study on the use of drugs used to treat eczema. 50% of the marks were awarded by academic staff and 50% by student self-assessment. A detailed model answer and mark scheme were provided. Students were required to provide a written justification of the marks they awarded themselves; if this was absent the tutor mark stood as the only mark.

Results: 102 students completed the work. The mean tutor mark was 62% (SD = 8.4). The mean student mark was 71% (SD = 15.5). There was a weak positive correlation between tutor and student marks. 86 students completed an evaluation questionnaire consisting of 10 statements assessed using a 5-point Likert scale and a free-text question for further opinions to be recorded. 70% of respondents agreed that they were able to give themselves valuable feedback. 70% of respondents liked having responsibility for their own marks. 88% agreed they gained an insight into how their tutors mark their work. 83% of respondents agreed that marking their own work showed them how they could improve their work in the future.

Discussion: Student self-assessment of work was found to be valuable as a form of feedback and as a method to reinforce learning. “Forcing” students to reflect upon their work in detail appears to have been appreciated by many. A number commented that they had learned more about the subject area as they compared their work with the model answer. There is a risk of grade inflation with student self-assessment of work; this did happen, but not to any significant degree. Peer assessment will be incorporated in 2014 to find a balance.
Setting the Scene – development of a longitudinal simulation to integrate clinical communications and professionalism into a new MPharm programme

Authors: Jonathan Ward, Anthony Cox, Christine Hirsch and Connie Wiskin. University of Birmingham

Background: One UK Pharmacy School received its first cohort in October 2013. An innovative, highly novel, evidence based and creative simulation was designed to improve the development of communication abilities and professional identities. Design of the course revolves around the concept that all of the professionalism teaching relates to a single, complex simulation evolving over the entire programme, which will impact on the students’ competence and confidence in professional practice teaching and clinical placements.

Description of work: In Year 1 students were introduced to ‘Wood Brooke’, a fictitious (but plausible) inner city pharmacy servicing a GP surgery and community-hospital, with central ‘families’, pharmacy, staff and population demographic. Teaching methods include panel-interviews, group and one-on-one role plays with simulated-patients, lectures and small group cases. New characters are ‘fed in’ by live role play or video links.

Proposed evaluation: Pre-teaching, students (n=80) completed a validated CSAS (Communication Skills Attitude Scale), which will be repeated in May 2014 to identify shifts in perceptions related to students’ fundamental attitudes and values relating to the importance of good communication for pharmacists and their feelings about how clinical communication is taught at this school. A series of mini focus groups with first year Pharmacy students in their second semester will provide qualitative feedback on positive and negative attitudes towards clinical communication learning and its integration within the wider MPharm programme, including the first year clinical placements. The aim of the study is to evaluate pharmacy students’ attitudes towards a new communication curriculum at this school of pharmacy. Findings from both methodologies will be used to develop the communication curricula and complex simulation for subsequent years and to refine the first year teaching interventions and clinical placements.
Evaluating the impact of an instructional resource in pharmaceutical calculations for final year pharmacy students

Authors: Cleopatra Branch and Ruth Rodgers. Medway School of Pharmacy, Universities of Kent & Greenwich

Background: The ability to perform pharmaceutical calculations accurately and competently is an essential skill that every pharmacist must possess to ensure patient safety. It is therefore vital that undergraduate students are taught the necessary calculation skills from tertiary level entry. More importantly, students should retain these skills as they matriculate through the curriculum, to ensure competency in calculations at the point of graduation and in actual practice.

Aim: To pilot and evaluate an instructional resource developed to motivate final year students’ learning in pharmaceutical calculations.

Method: The learning resource consisted of formative assessments, a face-to-face tuition session and a novel weekly ‘online text’ assignment with an interactive discussion forum, via the University learning and teaching platform (Moodle). Students completed a post-module satisfaction questionnaire.

Results: A total of 113 final year students completed questionnaires, yielding a response rate of 96%. The instructional resource, especially the Moodle-based interactive tuition (Moodle Thursday), was well accepted by students, with 93% strongly agreeing or agreeing that it was helpful, and 61% felt that it contributed most to their learning. ‘Moodle Thursday helped to develop and improve my understanding, logic and confidence in pharmaceutical calculations’ Students appreciated the individual feedback on each Moodle Thursday assignment and the fact that they were able to practise calculations in their ‘own time’ and learn at their ‘own pace’. They opted for the weekly Moodle based tuition to be continued but suggested that the number of calculation questions in the weekly problem set be increased.

Conclusion: The instructional resource, appeared to have increased students’ understanding and confidence in performing pharmaceutical calculations, and encouraged self-directed learning. The positive students’ feedback subsequently led to its implementation in the final year curriculum.
Mobile eLearning and technology (MeLT)

Authors: Keith Brown and Julie Letchford. University of Bath

Background: Although mobile devices are widespread, the full potential for teaching and learning has yet to be exploited. A recent survey (n~1200) indicates that:

- 92% of undergraduates have a mobile phone and around 36% have a tablet.
- Mobile apps are strongly desired by students. This includes apps for library services, past-papers, lectures, e-books, timetable and quizzes.

Method:

1. Identify apps desired by students
2. Build apps for phone/tablet delivery on Android and iOS platforms
3. Trial apps with undergraduates

Results: A number of ‘app-store’ type apps have been developed and evaluated with Pharmacy students. This includes a timetable app, campus map and apps for two first-year units - Introduction to Microbiology and Pharmaceutical Analysis. These unit-apps include lecture slides and interactive quizzes together with note-taking facilities for annotating the lecture slides. The Timetable app was released for Android in April 2013 and trialled with students (n~67) from all year groups. Results indicate that it is accurate, easy-to-use, and popular with users. The app ‘Introduction to Microbiology’ was released for Android in November 2013 and trialled with a small number of first-year students (n~15). The evaluation results indicate:

- 93% find the app useful
- 93% find the app easy-to-use
- 100% would use the app for private study

Recently, a private app-store capability for both iOS and Android has been implemented. This facility will enable roll-out and evaluation to all first-year pharmacy students next semester.

Conclusion: Apps help to provide an integrated educational experience: Learning is available anytime, anywhere, even when there is no wi-fi or mobile connection. By integrating apps into the MPharm degree, it is hoped to deliver learning materials in a way that is both intuitive and effective for students.
Integration through practice: Do students integrate and apply their first year knowledge to practice as evidenced in an ePortfolio?

Authors: Christine Hirsch¹, Parbir Jagpal¹, Asma Yahyouche¹, Nick Butler², Hayley Pearson², Asif Sarwar⁴, Anthony Cox¹

1. University of Birmingham
2. Gloucester Royal Infirmary
3. Russells Hall Hospital, Dudley
4. Queen Elizabeth Hospital Birmingham

Background: General Pharmaceutical Council (GPhC) Standard Outcome requirements for the initial training and education of pharmacists require students to develop a reflective approach to their personal and developing professional practice in order to: review and monitor their performance; create and implement personal development plans. Integration of science into practice is a key aspect of recent changes to pharmacy education. Training in these reflective skills at an undergraduate level fosters good practice, and may help in student integration of science and practice.

Description of work: The new MPharm course at one U.K. school of pharmacy adopted PebblePad as their ePortfolio. Learning outcomes, linked to GPhC Standard 10 learning outcomes, are addressed over nine reflections (4 x 250 words and 5 x 800 words) in Year 1. Three reflections are linked to student placement experiences in primary care (1 day), and hospital and community environments (3 days each).

Two first year learning outcomes include:

- Demonstration of professionalism showing awareness of the relevant codes of professional conduct
- Application of areas of learning from course modules within their professional experience placements.

Proposed evaluation: We aim to explore the extent to which the ePortfolio reflections can demonstrate students’ engagement in the reflective process against their learning outcomes and show spontaneous integration of course material. Focussing particularly on the application of learning from course modules within their professional experience placements, we will explore how the students’ view integration and apply their course material during their first year. We are seeking to thematically analyse the aspects of integration by examining the reflections submitted to the ePortfolio for each of the nine reflective submissions, with a focus on course content themes applied to placement experiences.
A Patient-centred Approach to the Teaching of Pharmacology; Small Group Sessions at one UK School of Pharmacy

Authors: Jane Dixon, Phyllis Navti, David Newby, Leicester School of Pharmacy, De Montfort University

Background: At the Leicester School of Pharmacy we have adopted a novel, patient-centred approach to the teaching of pharmacology, integrated with pharmacy practice. Clinical topics, introduced in lectures, are explored further in small group sessions (SGS) where students complete a workbook in which they are introduced to a fictional patient, suffering from a related health issue. A background story is given linking together related workbooks, encouraging students to engage with the characters as they follow their story.

Description of work: In the workbooks, students are presented with details of the patient’s lifestyle together with relevant medical information. As the story unfolds, questions are posed which are designed to test the student’s understanding of the underlying physiological processes and mechanisms of drug action. In addition, practice-related questions such as drug side effects and contra-indications are explored, whilst the focus remains fully on the patient in question. Students, working together in groups of up to 6, are encouraged to critically evaluate, and comment on, the treatment received. Reference is also made where applicable, to guidelines and technological appraisals from the National Institute of Clinical Excellence. The storyline is developed in further SGS with related individuals requiring treatment for different ailments, encouraging students to connect with the characters, and to regard them as real individuals.

These sessions are staffed by members of both pharmacology and pharmacy practice teams and form an integral part of pharmacology-based modules in years 1-3 of the programme. They begin with a formative assessment composed of MCQs.

This approach to patient-centred teaching of pharmacology was developed alongside the textbook, Pharmacology for Pharmacy and the Health Sciences, Boarder, Newby and Navti (Oxford University Press). With its enclosed workbooks and additional online resources this book perfectly complements our teaching method.

Proposed evaluation: To review comments and feedback obtained over the past 8 years, since the introduction of this teaching method.
Teaching pharmacy law: How to engage students in the context of large group lectures

**Author:** Ellen I Schafheutle. Manchester Pharmacy School, The University of Manchester

**Background:** The teaching of legal requirements underpinning pharmacy practice is a core requirement in MPharm degrees. Learning of medicines related activities is commonly applied in ‘practice of pharmacy’ practicals, with theoretical background taught in large group lectures. Lectures are a widely used and efficient form of delivery, but they are passive and student attention can wane. The redesign of law lectures aimed to increase interactivity and student engagement; evaluation aimed to assess student acceptability and satisfaction.

**Method:** TurningPoint® polling software (‘clicker’ questions) were integrated throughout every law lecture. Students were encouraged to use ‘Medicines, Ethics and Practice’ (MEP) by leaving large blanks of core requirements in student handouts. Following key topics, such as prescription requirements, controlled drugs and fitness to practise (ftp), a lecture was dedicated to support application through interactive revision questions, prescription examples or ftp cases. Online tests with automated written feedback supported student revision and exam preparation. TurningPoint® was used for the end-of-semester evaluation of two year 2 and one year 3 cohort of about 160 students between 2011/12-2012/13.

**Results:** Per cohort 80-93 students responded. Almost all (93%-98%) appreciated the importance of a good understanding of law. With increasing interactivity incorporated into lectures over time, the proportion of students agreeing they enjoyed law lectures increased from 42%-56%-74%. Thirty-nine to 46% appreciated the importance of the MEP and accepted gaps in handouts, 22-30% being neutral. Most (90-98%) found interactive prescription examples useful, and 76-92% thought an interactive revision lecture was valuable. About a third of students accessed the formative tests during term-time; the majority completed these nearer the final exam. Of those who accessed the tests, most (86%-96%) found the instant written feedback valuable.

**Conclusion:** ‘Clicker’ questions during law lectures, supported by online formative resources, increase interactivity and support student learning, making a relatively dry subject engaging and enjoyable.
Pharmacy students’ evaluation of an interprofessional prescribing workshop with final year medical and pharmacy students

Authors: Nicola Brown¹, Kurt Wilson², Ali Esmai³, Farhana Patel³.

1. Manchester Pharmacy School
2. Manchester Medical School
3. Undergraduates at Manchester Pharmacy School, University of Manchester

Background: 54 fourth year pharmacy students enrolled on a patient safety optional module attended one prescribing day component with 5th year medical students. The compulsory prescribing day prepared medical students for a summative prescribing safety assessment to address prescribing safety and ability typical of foundation year 1 doctors. This assessment is a pass / fail requirement for the final year medical students. Pharmacy students were required to apply their medication safety knowledge to the interdisciplinary seminars and workshops and contribute to the case discussions. Interactive morning seminars on the BNF, fluids, controlled drugs and anticoagulation prepared students with knowledge to contribute to mix-group case-based workshops on prescribing, prescription review, calculations, adverse drug reactions and drug monitoring. The workshops involved individual and group analysis of cases facilitated by tutors from a wide range of clinical specialties and disciplines.

Description of work: Two final year project students observed the first workshop, performed a literature review and created a questionnaire to evaluate the interprofessional prescribing day. The readiness for interprofessional learning questionnaire was adapted and combined with open questions to identify what students learnt from the experience, from other healthcare professionals and their perceived confidence in knowledge and interdisciplinary interaction. The questionnaire was retrospectively distributed. Data was entered into Excel for quantitative analysis. Open questions were thematically analysed to identify trends in responses.

Proposed evaluation: The response rate for pharmacy students was 38/54. The evaluation will evaluate the pharmacy students learning experience and allow the department to map the workshop outcomes onto the School interprofessional education strategy. The results will shape the future preparation ensuring intended prior knowledge and skills are tailored for students to optimally engage in the interprofessional learning experience.
Examining the disconnect between education theory and education practice in the design of pharmacy education programmes- A case study.

Authors: Banan Mukhalalati¹ and Andrea Taylor²

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². Department of Pharmacy and Pharmacology, University of Bath

Background: The Qatari Government established a College of Pharmacy in Qatar University (QU) (2006) to comply with the Qatar National Vision 2030¹. A five year BSc and one year PharmD were established. The PharmD is a one-year post BSc degree that qualifies graduates to practice advanced clinical pharmacy. The curriculum is based on international accreditation standards, best practices² and Qatar needs. While the curriculum and instruction of the BSc programme contains off campus internships, the PharmD is designed almost completely for work-based learning.

Education Theory and Education Practice: Behind educational practices lie educational philosophy and theory³. Therefore, there a need to develop an understanding of the role education theory plays in evidence based educational practice. This study aims to examine the potential disconnect between education theories and practice in the QU PharmD programme.

Method: A Case Study approach⁴ entailing comprehensive document analysis and semi structured interviews with pharmacy education scholars, policy makers and program designers is used to examine the theory practice disconnect.

Results: Pedagogical concerns regarding the theory-practice disconnect were identified. Stakeholders argued the importance of basing pharmacy programmes on educational theory. Programme designers commonly lack knowledge about theory, and hence theory does not emerge in programme designs. Stakeholders indicated that this lack of understanding of the importance of theory is evident among faculty and preceptors, making it difficult to consistently align their teaching strategies, and hence the learning experience of the students, to the programme’s educational theories.

Discussion: It is vital that designers and teachers in pharmacy programmes understand the role of educational theories in improving overall programme consistency, aligning theory and practice in areas of curriculum, instruction and assessment, to improve the student experience.

References
Students’ attitudes to shared decision making

Author: Tim Harrison. Manchester Pharmacy School, The University of Manchester

Background: Shared decision making (SDM) is considered a basic requirement for patient care and the ability for undergraduate pharmacy students to demonstrate competency in this area is a GPhC requirement. This exploratory study looked at two interventions to assess the attitudes of first year pharmacy students to SDM.

Method: The interventions were organised early in semester 1 of year 1 in 2013/2014. The first intervention was to re-design four communication lectures, to focus on patient-centred communication, and the use of videos, from HealthTalkOnline1. The videos depicted patients discussing their experiences and perspectives of communication with healthcare professionals. The second intervention was a patient-led workshop, focusing on the patients’ perspective of managing their health needs. To evaluate the interventions a validated instrument, the updated Leeds Attitude to Concordance Scale (LATConII)2, was used, with students answering the questions using TurningPoint®, before the first lecture (T1), after the fourth lecture (T2) and after the workshop (T3).

Results: Of 154 1st year students, 68, 39 and 16 responded at T1, T2 and T3 respectively, answering all of the 20 LATConII questions. A positive shift in attitude was seen between T1 and T2, from 37.5 to 43.4 out of 60, however the small response rate at T3 made detection of a further shift in attitudes meaningless.

Discussion: The shift in attitude at T2 was encouraging, however, the use of the LATConII instrument via TurningPoint® introduced some limitations, as students must answer all of the questions for the results to be valid, the process was time consuming and the reason for non-response to questions was not apparent. Introduction of a neutral answer into the LATConII instrument may increase response rate, but would mean that results could not be compared with other studies.

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Helping 4th year MPharm students prepare for practice through shadowing members of the hospital pharmacy team

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Background: In March 2014, the opportunity arose to develop and deliver clinical tutorials which would allow MPharm4 students to shadow a member of the hospital pharmacy team. The aim of the session was to provide the students the opportunity of experiencing the role of different members of the pharmacy team. From the sessions it is hoped that the students would be able to identify communication and team working skills which they can go on to develop during their pre-registration year.

Method: Students were allocated to shadow a member of the pharmacy team including pharmacists and support staff and spent up to three hours with that team member. During the session the students were asked to identify examples of communication and team working which they witnessed and relate them to GPhC pre-registration standards for these areas. Following the session the students were de-briefed by their Clinical Tutor and experiences were shared as a group. Students were then asked to complete a Feedback questionnaire.

Results: Table 1 shows the number of students at each of the base hospitals who answered yes to the questions asked. Students were also able to add comments to justify their answers and further work needs to be carried out to identify the key themes from their responses.

<table>
<thead>
<tr>
<th>Question asked</th>
<th>CMFT (total 52 responses)</th>
<th>SRFT (total 51 responses)</th>
<th>UHSM (total 46 responses)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did the session help you to:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Understand the role of the pharmacy team member?</td>
<td>96%</td>
<td>92%</td>
<td>100%</td>
</tr>
<tr>
<td>• Identify the communication skills you will need to develop and demonstrate during your pre-registration year?</td>
<td>71%</td>
<td>88%</td>
<td>98%</td>
</tr>
<tr>
<td>• Understand the team working skills you will need to develop and demonstrate during your pre-registration year?</td>
<td>85%</td>
<td>92%</td>
<td>100%</td>
</tr>
<tr>
<td>Do you think it would be useful to offer this opportunity to students in the future?</td>
<td>96%</td>
<td>96%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Discussion
Preliminary analysis of the feedback questionnaires was very positive showing that the majority of students found the session useful and felt that it should be offered to students in future years. Students were also able to identify communication and team working skills which they can go on to demonstrate and develop in their pre-registration year. Students written comments suggested that it would be more useful if these sessions were ran earlier in their course as it could help with decision making when applying for vacation experience and pre-registration training, which is something as a Clinical Tutor team we can look to implement in the 2014 / 15 academic year.
Professional Practice Placements – an opportunity for integration?

Authors: Victoria Silkstone and Jenny Silverthorne. Manchester Pharmacy School, The University of Manchester

Background: The GPhC’s Standards for the initial training and education of pharmacists (2011) require MPharm degree courses to provide learning opportunities where relevant science is integrated with practice and where theory and practice are integrated. Harden (2000) describes 11 steps on a ladder of integration, from subject based to truly integrated teaching. At the top of the ladder is trans-disciplinary, where integration occurs in the minds of students, in the real life setting of clinical care.

Description of Work: Manchester Pharmacy School (MPS) have previously described their hospital practice placements (Hanning et al, 2002; Silverthorne et al, 2005) where students apply taught material to real-life practice scenarios in a series of structured tutorials in the clinical setting. MPS are currently developing a series of community pharmacy based practice placements to complement this experience. Together these professional practice placements are ideally placed to facilitate the integration of science and practice in the real life setting of clinical care, as described by Harden (2000). Therefore, the practice placements will become the ‘pillars of integration’ throughout the MPharm. Academic staff will work with practitioners to identify relevant learning opportunities relating to all academic modules in each practice placement and students will demonstrate their integrated learning through a series of real-life task-based coursework exercises.

Proposed Evaluation: We will review student coursework to assess whether students have met the intended learning outcomes as well as conducting student focus groups to seek the students view on the integrated practice placements. Furthermore, feedback from clinical tutors in the practice setting will be evaluated to identify if students are able to integrate the relevant pharmaceutical sciences to the practice of pharmacy.

References
4. Silverthorne, J; Mackellar, A; Thomas, S; Cantrill, J (2005). Problem-based learning in the fourth year of the MPharm at Manchester. Pharmaceutical Journal; 274: 117 - 120
Integration; the 2nd year MPharm student perspective on interprofessional teaching

Authors: Esnath Magola, Aditi Puri, Harsha Parmar and Andrew McBain, Manchester Pharmacy School, The University of Manchester

Background: The General Pharmaceutical Council (GPhC) standards for the initial education of pharmacists require a teaching/learning strategy that provides balanced integration between the science and practice in the curriculum [1]. As part of the new MPharm, integrated lectures/workshops are co-delivered by a microbiologist and practising pharmacist.

Method: A questionnaire based on relevant literature and module review feedback was designed to explore student’s views on integrated teaching. The survey was conducted using Turning Point technology [an interactive response technology that offers students real-time feedback to questions answered using hand-held clickers] and with the sample population of 161 second year MPharm students. Response rates ranged from 73 (45%) to 91 students (56%).

Results: 96.67% of students agreed/mostly agreed that they valued the integrated lectures with 42.7% of these students preferring/mostly preferring the integrated to traditional lecture format. Integrated teaching was valued most because it linked theory to practice and it had the most significant impact on clinical decision-making skills.

![Figure 1. The Impact of integrated learning](image)

<table>
<thead>
<tr>
<th>1. enhances motivation to learn</th>
<th>2. develops clinical decision-making</th>
<th>3. develops problem-solving</th>
<th>4. develops application</th>
</tr>
</thead>
<tbody>
<tr>
<td>agree</td>
<td>mostly agree</td>
<td>neutral</td>
<td>mostly disagree</td>
</tr>
<tr>
<td>disagree</td>
<td></td>
<td>disagree</td>
<td></td>
</tr>
</tbody>
</table>

Conclusion: Almost all students identified integrated teaching as a valuable tool for linking theory to practice and the application of knowledge to contextual learning. Attitudinal changes [such as increased motivation to learn] and attributes [such as problem-solving] were perceived outcomes of the integrated teaching; this supports the development of clinical decision-making. The integration in this course equates to Step 7 of Harman’s Integration Ladder [2], and can be used as a precursor to inter/trans disciplinary integration (Steps 10 and 11) in the latter two years of the MPharm degree.

References