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Education Research Oral

ERO1. CanMEDS role performance in a two-year postgraduate workplace-based community pharmacist specialisation programme

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Keywords: Competences, Performance Based Assessment, Workplace learning

Objective: In The Netherlands, pharmacists have to complete a two-year postgraduate specialisation programme to become registered as community pharmacist specialist (Westein, 2018). Performance of trainees in predefined Entrustable Professional Activities (EPA's) is assessed every three months by their supervisors using the seven roles of the CanMEDS-competency framework (Tromp *et al*., 2012; van der Vleuten *et al*., 2012). This research aims to find out how the CanMEDS-roles of trainees develop during the two-year programme.

Methods: Performance was assessed by the trainees' supervisors at six intermediate time points (T1 – T6) using a grading form (1=insufficient, 2=moderate, 3=adequate, 4=good) for each of the seven roles (see Results). The desired final level of performance is 'good' (score 4) for each role. Performance scores were extracted from the portfolios of trainees who entered the programme between January 2012 and September 2015. SPSS v.24 was used for analysis.

Results: Data for all six time points were available for 265 pharmacists in the programme. Performance improved on all CanMEDS-roles. The mean score (±SD) for the role of Pharmaceutical Expert increased from 3.23±0.53 to 3.90±0.30 between T1 to T6. Scores for other roles increased from 3.05±0.66 to 3.70±0.47 (Communicator), from 3.26±0.62 to 3.81±0.41 (Collaborator), from 3.16±0.59 to 3.79±0.43 (Scholar), from 3.10±0.56 to 3.74±0.44 (Health Advocate), from 2.81±0.67 to 3.59±0.55 (Manager), and from 3.18±0.57 to 3.80±0.43 (Professional). The percentage of trainees with 'good' performance at T1 ranged from 13.4% (Manager) to 35.5% (Collaborator). At T6, the percentage of 'good' performance ranged from 61.1% (Manager) to 90.1% (Pharmaceutical Expert).

Conclusion: The three-monthly performance evaluations confirm trainees' individual progress on all CanMEDS-roles. On average, the performance of trainees was lowest for the role of Manager, and highest for the role of Pharmaceutical Expert. Near the end of the specialisation programme, the majority of trainees performed as desired on each of the roles.

References

Tromp, F., Vernooij-Dassen, M., Grol, R., Kramer, A. & Bottema, B. (2012). Assessment of CanMEDS roles in postgraduate training: The validation of the Compass. *Patient Education and Counseling,* **89**, 199-204

Van der Vleuten, C.P.M., Schuwirth, L.W.T., Driessen, E.W., Dijkstra, J., Tigelaar, D., Baartman L.K.J. & van Tartwijk, J. (2012). A model for programmatic assessment fit for purpose. *Medical Teacher*, **34**, 205-214

Westein, M.P.D., de Vries, H., Floor, A., Koster, A.S. & Buurma H. (2018). Development of a postgraduate workplace-based curriculum for specialization of community pharmacists using CanMEDS competencies, entrustable professional activities and programmatic assessment. *American Journal of Pharmaceutical Education,* **83**(6), Art. 6863. doi:10.5688/ajpe6863

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ERO2. Experiential education outcomes as determined by using the CUGH competency statements

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Keywords: Global Health, Experiential Learning, International Education

PWDGs: WDG5 - Competency Development; WDG8 - Working with Others; WDG12 - Workforce Intelligence

Objective: To examine global health outcomes of students who participated in international clinical rotations utilising the Consortium of Universities for Global Health (CUGH) competency framework.

Method: A mixed-methods, prospective study assessed final year Doctor of Pharmacy students participating in an international clinical rotation (N=81) between 2017-2018 and a matched cohort who did not at the University of North Carolina at Chapel Hill, Purdue University, or the University of Colorado. Students took a retrospective pre-post-survey evaluating self-perceived CUGH competency growth for 13 statements using a 5-point Likert scale. Students who completed an international clinical rotation were invited to participate in a focus group. Quantitative survey data analysis utilised paired and independent *t*-tests and multiple linear regression. Qualitative survey and focus group data followed a two-cycle open coding process using conventional content analysis to map knowledge, skills and attitudes themes.

Results: International clinical rotation students had significant growth across all statements compared to those who did not participate (mean total score increased 10.25 (7.00) vs. 2.44 (6.00), $p<0.001$). International clinical rotation participation was the only significant predictor of CUGH growth in the logistic regression model ($\beta=7.87$; $p<0.001$). A global health learning progression model emerged from qualitative analysis, illustrating the utilisation of new knowledge and skills to make meaning of cultural and patient care differences. Students increased their self-efficacy and transformed personal and professional perspectives.

Conclusion: International clinical rotations led to significant growth across all CUGH competencies and learning outcomes, such as cultural sensitivity development, may be applicable to other health professions.

ERO3. Candidate attributes considered in the appointment of intern hospital pharmacists in Australia – a comparison of recruiter preferences and student perceptions

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Keywords: Recruitment, Employment, Graduates

PWDGs: WDG1 - Academic Capacity; WDG2 - Foundation Training; WDG12 - Workforce Intelligence

Objective: Australian pharmacy graduates are required to undertake a one-year paid internship prior to general registration. In recent years, student preferences for hospital employment has increased (Paola, 2017). Little is known about the preferences of Australian hospital recruiters when appointing graduates, and anecdotally, students lack understanding of recruiters' consideration when making decisions. We aimed to assess factors which contribute to intern selection within Australian hospital pharmacy departments, to assess pharmacy students' perspectives of these factors and to compare the differences between the two groups.

Design: Ethics approval was obtained from Alfred and Barwon Health. Surveys were designed for hospital pharmacy recruitment decision-makers and students. Surveys were distributed *via* known networks and the results analysed using SPSS (v.23 IBM).

Results: Eighty-two pharmacists and 162 students responded. The most important factors for recruiters were professionalism (93.3%), communication skills (89.5%), team-oriented attitude (92.1%), reliability (88%) and command of English language (82.9%). Recruiters generally had broad agreement, with some variance depending on size of hospital, number of interns and states. Students' perceived the most important factors considered by recruiters were professionalism (96.2%), patient-centric attitude (92.5%), reliability (89.9%), team-oriented (86.2%), command of English language (85%). Students also had broad agreement, variances were seen depending on state, year level, previous hospital placement experience and students' preference for internship. Comparing recruiter and student responses, students perceived having a community pharmacy job ($p<0.001$), clinical knowledge ($p<0.001$), command of second language ($p< 0.001$) and GPA ($p=0.005$) as more important. Hospital recruiters placed more value on prior publication/poster presentation ($p=0.004$).

Conclusion: Generally, there was broad agreement between hospital recruiters and students on the most important factors considered when employing interns. However, there was significant variance in the perception of students, amongst their own peers and in comparison to hospitals. These findings will provide guidance to prospective hospital interns and their universities.

References

Paola, S. (2017). Student survey highlights hospital pharmacy interest, remuneration concerns (online). *AJP*. Available at: https://ajp.com.au/news/student-survey-highlights-hospital-pharmacy-interest-remuneration-concerns/. Accessed 21 December, 2018

ERO4. Where to go and how long to stay?

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Keywords: Global Education, Experiential Learning, International Education

PWDGs: WDG5 - Competency Development; WDG7 - Service Provision and Workforce Education & Training; WDG8 - Working with others

Objective: To determine the impact of country income classification and rotation duration on learning outcomes for students participating in an international APPE.

Method: A mixed-methods, prospective study evaluated fourth-year pharmacy students participating in an international advanced pharmacy practice experiences (APPE) (N=81) at the University of North Carolina, Purdue University, and University of Colorado. A pre-post survey was administered retrospectively to evaluate self-perceived growth across 13 Consortium of Universities for Global Health (CUGH) competencies using a 5-point Likert scale with additional open-ended questions and focus groups. Quantitative data were analysed using paired and independent *t*-tests and multiple linear regression. Qualitative survey and focus group data underwent a two-cycle open coding process using conventional content analysis to map themes across sub-groups.

Results: Students who went to a low to middle income country (LMIC) had greater growth in all CUGH statements compared to those who went to a high-income country. Rotation location in a LMIC and prior travel for non-vacation purposes were the only statistically significant predictors of growth in the regression model. Qualitative analysis presented three major themes across each income group and no significant themes across APPE duration. Comments from students who went to a LMIC demonstrated cultural progression, altered patient care perspective, and skill development. Comments from students who went to a high-income country displayed increased knowledge regarding healthcare system differences, pharmacy practice and education, and an appreciation for alternative care approaches.

Conclusion: Learning outcomes differed between high and LMIC APPE locations, with both providing valuable educational opportunities that contributed to students' personal and professional development.

ERO5. Addressing student pharmacist stigma related to mental health through a mental health elective

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Objective: Utilise a mental elective to decrease self-reported stigma related to mental illness.

Method: A 15-item pre- and post-class survey were administered to second and third-year student pharmacists enrolled in a mental health one-credit elective course. The survey consisted of 15 items from the Opening Minds to Stigma Scale for Heath Care Providers (Modgill *et al*., 2014), including 1) attitudes of health care providers towards people with mental illness; 2) disclosure and help seeking behaviour; and 3) social distance. During the course, student pharmacists received Mental Health First Aid training certification (Mental Health First Aid, 2019) and engaged in activities to gain additional insight about individuals living with a mental illness.

Results: The pre- and post-course surveys resulted in 51 paired responses for a 93% (51/55) response rate. When comparing each individual's pre- to post- responses, significantly less stigma was reported in five of the 15 question items following completion of mental health elective ($p<0.05$). The greatest change was observed with the survey item, "Despite my professional beliefs, I have negative reactions towards people who have a mental illness," where 29/51 (56%) and then 44/51 (86%) answered disagree or strongly disagree during the pre-course and post-course surveys, respectively. When asked, "I would be reluctant to seek help if I had a mental illness" respondents agreed or strongly agreed 17/51 (33%) pre-course and 11/51 (22%) post-course. Statistically significant changes were observed in the following domains: attitudes of health care providers ($p<0.0001$), disclosure or help seeking behaviour ($p=0.0008$), and social distance ($p=0.044$).

Conclusion: Results indicate respondents' willingness to support and treat individuals living with a mental illness. The same group displays hesitancy when seeking out care for their own mental health. Post-class survey results indicate the course was effective with increasing self-reported help seeking behaviours and decreasing stigma related to social distance and healthcare provider attitudes.

References

Modgill, G., Patten, S., Knaak, S., Kassam, A. & Szeto, A. (2014). Opening Minds Stigma Scale for Health Care Providers (OMS-HC): Examination of psychometric properties and responsiveness. *BMC Psychiatry*, **14**(1)

Mental Health First Aid. (2019). Mental Health First Aid USA. (online). Available at: https://www.mentalhealthfirstaid.org/ Accessed 8 January, 2019

ERO6. Pharmacy students' motivation challenges and motivation regulation strategies in collaborative project-based learning

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Keywords: Student Motivation, Problem Based Learning, Cooperative Learning, Learning Theories, Qualitative Research

PWDGs: WDG8 - Working with Others

Objective: To characterise how pharmacy students' motivation is challenged in collaborative project-based learning and what types of strategies students use to motivate themselves, their peers, and the small group.

Method: In a pharmacy entrepreneurship course in the United States, groups of four to five pharmacy students worked on a collaborative project to propose a solution to an authentic ill-defined healthcare problem (*e.g.*, medication adherence). We selected two extreme cases of voluntary student project groups; a group that rated their motivation high and a group that rated their motivation low. We collected ten video observations of group meetings paired with weekly student ratings of their current motivation level and perceived group challenges. We conducted a directed content analysis (Hsieh & Shannon, 2005) of transcribed student statements for the occurrence of different types of motivation challenges and motivation self-, co-, and socially shared regulation strategies (*i.e.*, how they motivated themselves, their peers, or the group) (Järvelä & Järvenoja, 2011). Two researchers independently coded 20% of the data. Since a high inter-coder reliability was reached (Cohen's *kappa*=0.8), the remaining data were independently coded by one researcher with auditing. Code types were organised into categories and characterised using exemplary and representative student quotes.

Results: Twenty different types of motivation challenges were categorised under 1) learning events (*e.g.*, poor grade); 2) differences between group members' motivation (*e.g.*, differences in standards); and 3) low group member(s) motivation (*e.g.*, low task interest). When students attempted to control for these motivation challenges, they enacted 55 different types of motivation regulation strategies (*e.g.*, establishing a group expectation).

Conclusion: As literature regarding pharmacy student motivation in collaborative project-based learning is sparse, this study was a necessary first step towards increasing researchers' and educators' understanding of the types of motivation challenges students face and how they might overcome these challenges.

References

Hsieh, H.F. & Shannon, S.E. (2005). Three approaches to qualitative content analysis. *Qualitative Health Research*, **15**(9), 1277-1288

Järvelä, S. & Järvenoja, H. (2011). Socially constructed self-regulated learning and motivation regulation in collaborative learning groups. *Teachers College Record*, **113**(2), 350-374

ERO7. A study to investigate how undergraduate pharmacy students develop integrative knowledge about pain

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Keywords: Curriculum Integration, Transdisciplinary Curriculum

PWDGs: WDG1 - Academic Capacity; WDG2 - Foundation Training

Objective: Pain and its management requires complex understanding of human biological, chemical and practical concepts. Undergraduate students from a Masters of Pharmacy programme in one school of pharmacy in England are taught this topic within educational activities aligned to the interdisciplinary level of integration (Harden, 2000). This study explores if and how these students develop integrated knowledge as they experience the curriculum on pain.

Method: Undergraduate students were invited to participate in a set of longitudinal activities during the five-week teaching course on pain. Consenting students produced weekly concept maps to illustrate what they knew and understood about pain and its management. Each participant concept map was analysed for cognitive progression using a framework assessing for: organisation, integration and concepts. Within weekly interviews, students described what they aimed to illustrate in their concept map. The interviews were transcribed *verbatim* and transcriptions qualitatively analysed using thematic coding to identify the common themes.

Results: Ten students agreed to participate, contributing 50 concept maps and 50 interviews. As the study progressed, the concept maps demonstrated increased complexity, organisation, integration and knowledge. The singular hierarchies decreased for the majority of participants (n=8), also confirming increased knowledge integration. Students illustrated concepts across all areas of clinical and pharmacy practice, and the pharmaceutical sciences, apart from microbiology, despite being taught this within the context of pain. During the interviews, students reported an integrated approach to learning and over the five weeks, were populating a scaffold of interlinking concepts, e.g. pathophysiology, pharmacology, *etc*., with more detailed knowledge of pain.

Conclusion: Undergraduate students learning about pain within an interdisciplinary integrated curriculum appear to have developed a road map for integrated thinking before having being taught all the material. Further work is required to investigate if the spiral nature of the programme facilitates the development of this cognitive network.

References

Harden, R.M. (2000). The integration ladder: a tool for curriculum planning and evaluation. *Medical Education*, **34**(7), 551-7

ERO8. An evaluation of pharmacy undergraduate student well-being

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Keywords: Mental Health, Emotional Health, Wellness, Student, Well-being

PWDGs: WDG1 - Academic Capacity; WDG3 - Quality Assurance; WDG10 - Gender and Diversity Balances

Objective: To create a snapshot of undergraduate pharmacy student well-being and explore students' perceptions of well-being at university

Method: A mixed methods study:

- All pharmacy students were asked to complete a well-being questionnaire (ESP, 2018) at the mid-point of autumn term 2018. The questionnaire listed 34 statements relating to study, finance, physical health, family and friends, work-life balance and emotional health. Students could agree, disagree or choose 'not applicable' for each statement. Each statement's response corresponded to a score of 0 or 1, with 34 (100%) being the highest well-being score. On completing the questionnaire, students were given their score and information on university well-being support services.
- Peer-led focus groups were undertaken with Year 1, 3 and 4 pharmacy students.

Results: Sixty-two percent of students completed the well-being questionnaire (n=295). The average well-being scores for each year were:

Year 1: 64% (range 12-97%) n-101/136

Year 2: 56% (range 12-88%) n=87/99

Year 3: 60% (range 27-94%) n=61/133

Year 4: 55% (range 24-82%) n=46/107

The section with the lowest well-being score was work-life balance (average 2.6/6) and the highest was family and friends (average 4.4/6).

Seventeen students attended focus groups (Year 1=five, Year 3=five, Year 4=seven). Students reported high levels of academic stress, anxiety, extreme fatigue and disappointment in missing extracurricular activities due to the intense curriculum. Students repressed their emotions, feeling unable to talk to peers or academics, either due to stigma, not burdening others or lack of time.

Conclusion: Overall well-being scores were moderate, although some students' well-being was as low as 12%, leaving much room for improvement. This study is an important step towards understanding which aspects of university life most affect student well-being and how we can best support them. The results are non-generalisable as limited to one school of pharmacy, but do warrant future collaborative research.

References

ESP [Education Support Partnership]. (2018). Wheel of Wellbeing Test (online) Available at: https://www.education supportpartnership.org.uk/resources/online-tools/wheel-well being-test. Accessed 24 September, 2018

ERP1. An exploration of pharmacy education researchers' perceptions of and experiences conducting qualitative research: Challenges and benefits

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Keywords: Qualitative Research, Educational Research, Assessment

PWDGs: WDG1 - Academic Capacity; WDG3 - Quality Assurance; WDG4 - Advanced and Specialist Development; WDG7 - Service Provision and Workforce Education and Training

Objective: To investigate pharmacy education researchers' experiences conducting qualitative research (QR) and their perceptions of qualitative research in pharmacy education.

Method: One-time, in-depth interviews were conducted with 19 participants across 12 schools/colleges of pharmacy. Faculty represented the largest numeric subgroup in the sample, followed by graduate students, postdoctoral fellows/scholars, and residents. Interview transcripts were coded, and emergent themes were identified using a modified form of the Sort and Sift, Think and Shift method.

Results: This study revealed that pharmacy education researchers have varying levels of training in conducting qualitative research or none at all. On average, participants had either led or contributed to three qualitative projects. Salient findings include: 1) Pharmacy educators' lack of training and exposure to QR serves as a barrier to entry to conducting QR; 2) Perceptions that the lack of understanding and value of QR in pharmacy education impacts acceptability of QR projects; 3) QR offers several benefits to advance pharmacy education and answer complex research problems (*e.g.,* exploratory attributes, rich data, holistic view of a problem).

Conclusion: The application of rigorous QR in pharmacy education clearly holds great potential in addressing complex and evolving healthcare problems. However, findings from this study suggest that increased opportunities for training and exposure to QR are needed to enhance preparation and appreciation. This work provides empirical evidence to an anecdotal dialogue that has long existed in pharmacy education concerning why some researchers are hesitant to conduct QR, the challenges encountered by those who employed qualitative approaches, and the benefits qualitative approaches provide.

ERP2. Laptop versus longhand note-taking: Implications for primary language and foreign language speakers

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Keywords: Examination Performance, Note-taking, Limited English Speaking

PWDGs: WDG1 - Academic Capacity; WDG10: Gender and Diversity Balances

Objectives: (1) Determine the relationship between longhand note-taking versus laptop note-taking on pharmacy students' examination performance; (2) identify differences in test performance between native English speakers and students for whom English is a foreign language (EFL); and (3) describe differences in attitudes and behaviours in note-taking among these students enrolled in a health systems course.

Method: Following the first of three examinations, students volunteered to be part of an intervention group (n=11) to utilise only paper and pencil (longhand) to take notes and be devoid of electronic personal devices during class. Student performance on the subsequent examinations were compared across the two groups (n=75 laptop note-takers) and against performance on the first examination. English primary language students (n=49) were compared on performance across all three examinations versus those self-designating as EFL (n=37). Students completed a self-administered survey of note-taking and studying strategy behaviours derived from an extensive literature review after completing the course and answered several open-ended questions about their note-taking and study habits.

Results: The difference between subsequent examinations was approximately 3.5% in favour of the longhand note-takers (p=0.1). English primary language students scored 7.18% higher than EFL students across all three exams, a difference holding across various racial groups. Longhand note-takers reported taking fewer notes, being less easily distracted, and more likely to attempt encoding their notes during class. EFL students were less satisfied with the quality of their notes and reportedly less likely to have students borrow their notes. Thematic analysis of answers to open-ended questions saw students attempting to adjust during the semester and longhand note-takers recommending this method to other students.

Conclusion: Faculty and administrators can consider these results when designing pedagogical delivery and assessments for a diverse classroom of students.

References

Crawford, T. & Candlin, S. (2013). Investigating the language needs of culturally and linguistically diverse nursing students to assist their completion of the bachelor of nursing programme to become safe and effective practitioners. *Nurse Educ Today*, **33**,796-801

Eason, T.E. (2017). Various methods of note-taking and how they compare in terms of information retention. Master's Thesis. East Carolina University.

Hansen, E. & Beaver, S. (2014). Faculty support for EFL nursing students: action plan for success. *Nurs Educ Perspectives*, **33**, 244-250

Harrison, J. & Shi, H. (2016). English language learners in higher education: An exploratory conversation. *J Intl Stud*, **6**,415-430

Hembrooke H. & Gay, G. (2003). The effects of multitasking in the classroom. *J Computing Higher Educ*, **15**, 44-64

Holm, A. & Dodd, B. (1996). The effect of first written language on the acquisition of English literacy. *Cognition*, **59**, 119-147

Sandblom, N. Active-learning techniques for improving note taking skills. University of Calgary. doi:http://dx.doi.org/10.5072/PRISM/10275. Accessed on 3 May, 2018

ERP3. Assessment of Mental Health First Aid skills through simulated role-plays with mental health consumers: Rubric development and reliability testing

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Keywords: Suicide, Communication Skills, Scoring Rubric, First Aid, Consumer Education

PWDGs: WDG2 - Foundation Training; WDG3 - Quality Assurance; WDG5 - Competency Development; WDG7 - Service Provision and Workforce Education and Training

Objective: Mental Health First Aid (MHFA) training teaches participants to provide initial support to people experiencing mental health crises. MHFA evaluations show improvements in self-reported confidence (Kitchener & Jorm 2006), but rarely are MHFA skills assessed (El-Den *et al*. 2018). This study aims to explore the reliability of a rubric developed to assess MHFA skills during simulated role-plays.

Method: MHFA is integrated into the B.Pharm. curriculum at The University of Sydney. Between 2016-2018, consumers with lived experience of mental illness participated in simulated patient role-plays post-MHFA training. Six cases were developed based on DSM-V criteria. A rubric was developed using the MHFA Action Plan. Each student who participated in the role-plays was assessed using the rubric by three raters (self, consumer and tutor). Inter-rater reliability of the rubric was measured in relation to overall pass/fail marks (Fleiss *kappa*), item scores (Intraclass Correlation Coefficient - ICC) and overall scores (ICC). Audio-recordings of the role-plays (2017-2018) were re-assessed

at two time points, four weeks apart, by a separate rater to calculate test re-test reliability (Pearson's correlation).

Results: Ninety-six complete records were used in data analysis, including 58 audio-recordings. Fleiss *kappa* for combined cases was 0.571 (p<0.001), ranging from -0.038-0.822 for each case. The ICC for individual items ranged from -0.552 to perfect agreement. The ICC for overall scores for combined cases was 0.703 (CI: 0.577-0.795). Test re-test reliability was high for the four audio-recorded cases (0.774, p<0.001; 0.815, p=0.093; 0.868, p<0.001; 0.955, p<0.001) and for combined cases (0.868, p<0.001).

Conclusion: Inter-rater and test re-test reliability of the rubric were sound for combined cases. Variations in inter-rater reliability across cases and items informed modifications to rubric items to improve consistency among raters and ensure reliability. Assessment of observed MHFA skills post-training should accompany self-report evaluations to allow for comprehensive assessment.

References

Kitchener, B.A. & Jorm, A.F. (2006) Mental health first aid training: review of evaluation studies. *Aust N Z J Psychiatry*, **40**(1), 6-8

El-Den, S., Chen, T.F., Moles, R.J & O'Reilly, C.L. (2018). Assessing Mental Health First Aid Skills Using Simulated Patients. *Am J Pharm Educ*, **82(**2), 6222

ERP4. A systematic review to investigate the impact of integrated curriculum on undergraduate healthcare students

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Keywords: Curriculum Integration, Transdisciplinary Curriculum

PWDGs: WDG2 - Foundation Training; WDG3 - Quality assurance; WDG5 - Competency Development; WDG7 - Service Provision and Workforce Education & Training; WDG11 - Workforce Impact; WDG12 - Workforce Intelligence

Objective: Integrated curriculum implementation is a recommended strategy for bringing together the teaching and learning of basic sciences and clinical practice in undergraduate healthcare programmes. Curriculum integration proposes to facilitate development of students' capability to apply fundamental scientific concepts in problem-solving and to support clinical decision-making (Harden, 2000). This anticipated outcome, however, is currently empirically unsubstantiated. This systematic review aims to investigate the reported impact of integrated curricula experienced by undergraduate healthcare students.

Method: This work was conducted in adherence to the Preferred Reporting Items for Systematic review and Meta-Analysis Protocols. Six electronic databases: Medline, Embase, Scopus, the Cumulative index to nursing and Allied Health Literature (CINAHL), Web of Science and PsycINFO were searched in September 2018. Studies in English reporting how students learn, perceive or perform after experiencing integrated teaching and learning were included. Methodological quality was assessed using the Joanna Briggs Institute, Critical Appraisal of Evidence Effectiveness Tool.

Results: Twenty-two studies were identified from an initial search of 42,551, which reported integrated curricula used across healthcare programmes in institutions all over the world. Most studies, (n=19) adopted surveys to capture student feedback, four studies employed student interviews or focus groups, and 11 assessed student performance. Some studies used a mix of these approaches. Generally, students responded positively to integrated educational activities, reporting that they facilitate understanding and application of knowledge to enable critical thinking and problem solving. There is some indication of improved performance in assessments, when exposed to integrated curricula, but this is limited.

Conclusion: Students are generally receptive of integrated teaching and learning and report developing key cognitive skills. However, the low number of well-designed studies and highly specific educational interventions used in included studies means that generalisability is reduced and more empirical evidence is required.

Reference

Harden, R.M. (2000). The integration ladder: a tool for curriculum planning and evaluation. *Medical Education*, **34**(7), 551-557

ERP5. Workforce development in the Commonwealth: Progress, challenges and needs

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Keywords: Workforce, Global, Pharmacy, Commonwealth

PWDGs: All

Objective: To examine the current state of workforce development throughout the Commonwealth, identify relevant needs to further progress the workforce, and establish recommendations for future workforce development projects.

Method: A mixed-method approach was used. A systematic literature search of electronic databases was conducted in order to obtain research articles relevant to

pharmacy workforce development. A survey was sent to pharmaceutical organisations within the Commonwealth in 2018, intended to identify country-level progress towards implementing the International Pharmaceutical Federation (FIP) Pharmaceutical Workforce Development Goals. The surveys were sent to members of the FIP and the Commonwealth Pharmacists Association (CPA).

Results: A total of 31 full text research papers were screened against inclusion criteria, with nine papers identified for inclusion. The articles identified a number of key domains including supply of workers, education and training, migration, professional identity, and recruitment and retention. Completed surveys from 14 country responses received so far were analysed thematically and summarised in order to identify current status of workforce development and establish further workforce development needs.

Conclusion: There is a dearth of current literature and evidence on the state of the pharmacy workforce across the Commonwealth's 53 member states. The FIP-CPA survey, a work in progress, aims to be the most comprehensive study on pharmacy workforce development in the Commonwealth. Preliminary results from collected date so far indicated a wide variation of progress and needs across the Commonwealth, particularly between high-income and low- & middle-income countries.

ERP6. Understanding professionalism and the tenets of a pharmacy professional

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Keywords: Professionalism, Pharmacy, Professional Standards, Health Personnel

PWDGs: WDG2 - Foundation Training; WDG5 - Competency Development; WDG6 - Leadership Development

Objective: To develop a framework that will provide clarity and definition to our understandings of professionalism and what it means to be a pharmacy professional.

Method: The Alberta College of Pharmacy is implementing a strategic goal to establish a Culture of Professionalism (FIP, 2014). The professionalism embodied and demonstrated by pharmacy professionals is pivotal to the person-centred care they provide. A qualitative research approach (Merriam, 2009) was utilised to construct an understanding of professionalism and what it means to be a pharmacy professional. Data were collected using a variety of methods including focus group, small group discussions, popular culture artefacts, meetings with internal and external stakeholders, a survey, word clouds, and research notes. A comparative analysis technique (Merriam, 2009) was used to code and categorise data. Categories arose from the analysis of coded data and literature review. Member checking was used to refine the categories.

Results: Three categories constructed professionalism: values, profession, and individual. The values category had the largest presence, in terms of the number of descriptors provided for pharmacy professionals. The data in the three categories were sub-categorised into six tenets: person-centred, use good judgement, collaborator, leader, values, and active learner. A definition of professionalism was constructed through the categorisation process.

Conclusion: This research approach produced a framework constructed from the various understandings and experiences of our stakeholders as to what professionalism is, what it means to be a pharmacy professional, and the characteristics of a pharmacy professional. This definition and the tenets form the foundation for professional and educational programmes to build consistency in the professionalism framework across the learning continuum, from students to experienced pharmacy professionals.

References

FIP [International Pharmaceutical Federation]. (2014). Pharmacist ethics and professional autonomy: Imperatives for keeping pharmacy aligned with the public interest. Reference paper presented in Bangkok, Thailand. Available at: https://www.fip.org/file/1368. Accessed May 2017

Merriam, S.B. (2009). Qualitative research: A guide to design and implementation. San Francisco, CA: Jossey-Bass

ERP7. The qualities of an effective work-based pharmacist tutor

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Keywords: Education, Training, Supervisors, Tutors

PWDGs: WDG1 - Academic Capacity; WDG2 - Foundation training; WDG5 - Competency Development; WDG8 - Working with Others

Objective: To identify some of the key qualities of an effective Work-Based Pharmacist Tutor (WBPT).

Method: A literature review was conducted which informed the questionnaire design. The e-questionnaire consists of quality statements grouped under three clusters: educator, practitioner, and personal qualities. The experts were selected from the three major pharmacy sectors namely hospital, academia and community based on their level of experience. A modified Delphi technique

was selected based on literature review. These experts were asked to rank their top qualities from the listed quality statements. The demographics of the experts were captured. Consensus was deeded to be met when 80% or more of the experts found a statement to be necessary

Results: Agreement by these 16 experts identified 36 qualities of a WBPT after a Delphi round using a Likert scale. A second Delphi round, of the 36 qualities identified 20 necessary qualities for an effective WBPT. The top qualities ranked by experts were:

1) Be a good communicator
2) Encourage trainees to reflect on their practice
3) Display honesty, trustworthiness and integrity
4) Be able to consult effectively with patients
5) Possess the appropriate knowledge and skills to practise
6) Be a role model and practise ethically.

This coheres with other Health professions

Conclusion: Effective WBPT are necessary for the development of competent pharmacists. This study identified 20 necessary qualities which mapped appropriately with the Advanced Pharmacy Framework of the Royal Pharmaceutical Society. Our key stakeholder the General Pharmaceutical Council can incorporate these qualities in the various WBPT training programmes and career pathways. The qualities identified will assist all stakeholders to raise the standard of tutoring in the profession. A future large-scale research will provide data to validate the identified qualities in this study

ERP8. Half empty or half full: Assessors' perspectives on interpretation of aggregated narrative assessment data

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Keywords: Educational Assessment, Decision Making, Evaluative Thinking

PWDGs: WDG1 - Academic Capacity; WDG3 - Quality Assurance

Objective: Assessors' idiosyncrasies in judgement and decision-making may be beneficial for understanding student performance but may also potentially threaten assessment validity. The use of narrative assessment comments has been purported to aid assessment decisions by accounting for idiosyncrasies, yet the interpretation of this data is inherently complex and relies on human (expert) judgements. The purpose of this study was to explore how assessors give meaning to aggregated narrative data when interpreting narrative assessment comments obtained from a summative Objective Structured Clinical Examination (OSCE).

Method: Narrative assessment comments of student communication skills and communication scores were obtained for 24 students across six stations of a summative OSCE. Aggregated narrative data across all stations was sampled for nine students (three good, three average, and three poor performers). For each of the students, ten expert assessors reviewed the aggregated set of narrative evaluations. Cognitive (information) processing was captured through think-aloud procedures and verbal protocol analysis.

Results: Assessors primarily made use of two strategies to interpret the narratives, namely comparing and contrasting and visualisation. Furthermore, the overarching theme identified through the analysis was that assessors interpreted comments using three different perspectives: a student perspective, an examiner perspective, or a professional practice perspective. In other words, assessors interpreted comments by placing themselves in the shoes of the student taking the exam, the examiner in the room, or by imagining the scenario as a representation of real-life practice.

Conclusion: Findings add to the understanding of assessors' interpretation of rich performance data by identifying different perspectives that assessors use to frame and bring meaning to narrative comments. These findings support the notion that assessors' interpretation of narrative comments may be the result of many factors working collectively during the assessment task. Results have implications for competency-based decision-making and formation of clinical competency committees within professional pharmacy programmes.

ERP9. Same destination, different journey: A conceptual framework exploring underrepresented racial minority students' experiences to become pharmacists

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Keywords: Diversity (Faculty), Student Diversity, Ethnic Diversity, Minority Groups

PWDGs: WDG2 - Foundation; WDG10 - Gender and Diversity Balances; WDG11 - Workforce Impact

Objective: To explore the social and academic experiences of students identifying as underrepresented racial minorities (URMs) in pharmacy, how they made meaning of their experiences, and the strategic actions they took to navigate towards degree completion.

Method: Twenty students from schools/colleges of pharmacy (S/CoP) within a research-intensive institution participated in semi-structured interviews. Data were analysed through several rounds of open coding. Trustworthiness procedures included the use of multiple coders, a dependability audit, and analytic memos to promote reflexivity.

Results: The study yields a conceptual model depicting the results of the explored phenomenon. Pre-pharmacy school experiences such as pipeline programmes, work experiences, family, and URM health professionals impacted participants' interest in and encouragement to attend pharmacy school. Students reported experiences including a lack of diversity, feeling unwelcome, and concerns about cultural competency and group work challenges were expressed. Students were motivated by URM faculty, belief in themselves, and a sense of purpose beyond "just being a pharmacist" and inhibited by mental impact of social events, pressures of representing their race, and feeling inferior. Several actions were taken to navigate the S/CoP including code-switching, finding solace and support with other URMs, seeking cultural competence experiences, and strategically remaining silent or speaking up during group work.

Conclusion: This exploratory study provides a roadmap to better understand URM students' journey to pharmacy school and experiences thereof. Findings from this study should be used by S/CoPs to create a more inclusive environment for URM students and provide future directions for scholars pursing diversity related research agendas in health professions education.

ERP10. Gender distribution in the global pharmacy workforce

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Keywords: Gender, Workforce, Global, Pharmacy

PWDGs: WDG10 - Gender and Diversity Balances; WDG12 - Workforce Intelligence

Objective: Around 70% of the current global health workforce is female (ILO, 2017). The International Pharmaceutical Federation (FIP) has previously conducted global surveys of the pharmacy workforce in 2009, 2012 and 2016 (FIP, 2018). The objective of this paper was to extract and identify current trends in global female pharmacist participation in workforce and potential impact on equity and education challenges.

Method: Pharmacy workforce data collected by FIP was accessed to identify country-level gender participation data at two or more of the time points from 2009 to 2016. Analysis of association between female pharmacist participation in a country over time and country-level variables such as income level was identified using a quantitative mixed model approach.

Results: Over the time period under investigation, the proportion of female pharmacists in the global workforce increased from 58% in 2009 to 62% in 2016. There was a significant association between the percentage of female pharmacists over time with World Bank income classification (p=0.026) and an association with WHO region (p=0.03). Europe and the Americas, and higher-income countries, showed larger percentages of female pharmacists. Africa and South-East Asia, and lower-income countries had smaller proportions of female pharmacists at each time point. However, all countries sampled showed an increase in female participation in the pharmacy workforce but at different rates. Low-income countries showed the greatest rate of change in female participation over the time period covered by this data.

Conclusion: There is an acceleration in the proportion of female pharmacy workforce globally. Higher-income countries currently have a significantly larger percentage of female pharmacists compared with lower-income countries. The impact of a growing female proportion in the pharmacy workforce now needs to be investigated, in particular for the impact related to CPD and education, support for career breaks and equity in career progression.

References

FIP [International Pharmaceutical Federation]. (2018). Pharmacy Workforce Intelligence: Global Trends Report. The Hague: International Pharmaceutical Federation.

ILO [International Labour Organisation]. (2017). Improving Employment and Working Conditions in Health Services: Report, Tripartite Meeting on Improving Employment and Working Conditions in Health Services. Geneva. International Labour Office.

ERP11. Are we getting the big picture? Pharmacists' understanding of risk factors and absolute risk in screening and monitoring

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Keywords: Pharmacy, Professional Continuing Education, Content Analysis, Decision Making Skills, Vignettes

PWDGs: WDG5 - Competency Development

Objective: To identify pharmacists' educational needs for monitoring people's risk factors and absolute cardiovascular risk.

Method: Three vignette case studies asking pharmacists to describe their clinical reasoning and advice to people without known cardiovascular disease, who present for cholesterol and blood pressure testing at a pharmacy, were sent to the work email addresses of 329 practicing community pharmacists. Cases provided necessary information for absolute cardiovascular risk assessment. Free-text responses in the advice and reasoning sections for each vignette were analysed using content analysis. The coding framework assessed the appropriateness of decisions and advice and underlying reasoning for decision making. The analysis categorised responses on a continuum, from identification and consideration of one risk factor to all risk factors, which allowed calculating absolute cardiovascular risk.

Results: Twenty-nine pharmacists returned complete responses to all vignettes. Pharmacists predominantly focused on the isolated risk factor of total cholesterol instead of assessing overall cardiovascular risk in the context of the case person's age, gender and smoking status. They would provide advice in regards to appropriate lifestyle measures, but none based their recommendations overtly on application of a risk calculator. Their reasoning and decision making showed an anchoring to total cholesterol levels, which resulted in recommendations of inappropriate referrals and pharmacotherapeutic options in relation to absolute cardiovascular risk.

Conclusion: When screening and monitoring people with risk factors for cardiovascular or metabolic illnesses future and practicing pharmacists may benefit from educational strategies which support their decision making skills in overall risk assessment. Although the response rate was low, the richness of data on decision making and reasoning informed the design of an education package to assist pharmacists in assessing the risk of chronic disease, which will be offered to all initially invited pharmacists and will be implemented in the undergraduate pharmacy curriculum at a university.

ERP12. Observation of activities undertaken by undergraduate pharmacy students on ward-based hospital placements

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Keywords: Placement, Student Placement, Pharmacy, Experiential Learning, Clinical Experience

PWDGs: WDG7 - Service Provision and Workforce Education and Training; WDG8 – Working with Others

Objective: Pharmacy undergraduate students undertake hospital-based placements with defined learning objectives during each year of their undergraduate M.Pharm. degree at King's. This work sought to understand how time on placement is spent.

Method: Using an approach drawing on ethnography, a final year pharmacy student observed the placement activities undertaken by three pairs of Year 3 M.Pharm. students. All were attending placements with the surgical pharmacy team at a London teaching hospital. Supervisors were qualified pharmacists undertaking their normal clinical duties. In total students spent six hours on placement: three hours on two consecutive afternoons. Data were collected using activity checklists derived from the pre-defined learning outcomes, and in the form of field notes. Data were analysed using a narrative approach.

Results: Students were focused on finding a patient suitable for their university-based assessment within the first hour of their placement commencing. During the six hours on placement, students spoke with either one or two patients. Each pair of students spent over an hour noting down biochemical test results: at least double the length of time spent speaking with patients. Across all three pairs of students, there was consistently more time spent on the second day directly with their supervising pharmacist than on the first. In two cases students were asked to look further in to specific topics (gentamicin use, and management of Atrial Fibrillation) between the first and second day of placement. Logging on to IT systems, and disambiguation of medical abbreviations, were frequently noted as barriers to progressing with clinically-orientated tasks.

Conclusion: Structuring placements over two days gave students an opportunity to look further into relevant topics between the first and second day. This was associated with a longer duration of time spent directly with the supervisor, allowing an opportunity for professional socialisation and embed contextual learning.

ERP13. Evaluation of a novel Clinical Learning in Practice (CLIP) model in UK teaching gospitals for undergraduate pharmacy students

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Keywords: Clinical Teaching (Health Professionals), Educational Methods, Impact Evaluation, Health Care

PWDGs: WDG3 - Quality Assurance; WDG5 - Competency Development

Objective: To evaluate the impact of a Clinical Learning in Practice (CLIP) model on the confidence of M.Pharm. students in a clinical environment

Design: The University of Bath M.Pharm. programme was redesigned in 2016, with the aim to produce healthcare professionals with a strong grounding in pharmaceutical science and increased clinical exposure. Four Practice Educator posts were created to bridge the gap between academic study and professional practice, with the responsibility for designing, developing and implementing CLIP (Clinical Learning in Practice) in four teaching hospitals in the United Kingdom (UK). Key to CLIP design was the use of Miller's Pyramid of Clinical Competence (1990) and professional GPhC Graduate Outcomes (2011) to design learning which moves from 'knows how' to 'shows how'. Students attended sessions in local teaching hospitals and undertook patient facing learning activities. As part of the evaluation process, a specifically designed self-administered evaluation tool was applied, to determine if self-reported confidence had grown in key areas. Two time points were examined: prior to the first CLIP session and on completion of the first CLIP year (2017/18).

Results: Eighty-seven percent of students (n=63) were aged 20 or under with 63% of students being female. The evaluation tool demonstrated a good level of internal consistency (Cronbach's *alpha*), with strong evidence that CLIP significantly improves confidence across all GPhC Graduate Outcome themes (2011) (n=63; $p<0.05$) summarised as: Communication; Professionalism; Medication Counselling; Treatment Review; Information Application; Monitoring; Evidence-Based Medicine; Multidisciplinary Team Working; Consultation Conclusion and Continued Professional Development.

Conclusion: The inclusion of CLIP within the curriculum demonstrates a statistically significant improvement in students' confidence in a clinical environment and their progression towards GPhC Graduate Outcomes. The developed programme meets a number of FIP Workforce Development Goals including the use of competency frameworks to support the translation of pharmaceutical science into professional practice.

References

GPhC [General Pharmaceutical Council]. (2011). Future Pharmacists: Standards for the Initial Training and Education of Pharmacists. London: General Pharmaceutical Council.

Miller, G.E. (1990). The assessment of clinical skills/ performance. *Academic Medicine,* (Suppl.), **65**, S63-S7

ERP14. A-level biology as a positive predictor for Year 1 success in the UCL M.Pharm. degree

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Keywords: Pharmacy Education, Biology, Chemistry

PWDGs: WDG1 - Academic Capacity; WDG3 - Quality Assurance

Objective: To evaluate the first-year academic performance of M.Pharm. students at University College London (UCL) admitted with and without a background in secondary school biology. All students entering with A-level qualifications are required to have chemistry but not biology. The performance of students in chemical and biological modules in Year 1 will be compared to their A-level entry qualifications.

Method: Statistical analysis of examination performance in the Chemistry of Medicines (chemistry) module, and Body Systems and Therapeutics (biochemistrty/ pharmacology) module, in Year 1 of the M.Pharm. was assessed for 353 students that entered UCL School of Pharmacy in 2013 and 2014. This analysis was compared for students who entered with Chemistry and Biology A-levels (C+B, N=304) and those with Chemistry alone (C-B, N=49).

Results: The performance of both student groups in the chemistry examination was not significantly different with C+B achieving a mean score of 69.8 ± 0.6 % and the C-B group achieving a mean score of 66.0 ± 2.1%. However, there was a significant difference between the scores for the biochemistry/pharmacology module with the C-B group (43.3 ± 2.51%) scoring lower than the C+B group (54.7 ± 0.8%, $p<0.01$). This poorer performance was supported by regression analysis of the performances in the two examinations within each group. There was no difference between the distribution of marks between the two groups in the chemistry examination, but in the biochemistry/pharmacology examination there were fewer C-B students than C+B students in the upper quartile and more C-B students in the lowest quartile.

Conclusion: A background in secondary school biology is an advantage in the study of biologically relevant subjects in the UCL M.Pharm. programme. Given the increasing importance of clinical aspects of the pharmacy degree there should be some consideration of the advice given to prospective pharmacy students when choosing subjects in their secondary education.

References

Allen, R.E., Diaz Jr, C., Gant, K., Taylor, A. & Onor, I. (2016). Preadmission predictors of on-time graduation in a doctor of pharmacy program. *American Journal of Pharmaceutical Education*, **80**(3), 43

Bush, J. (2012). Entry characteristics and academic performance of students in a master of pharmacy degree program in the United Kingdom. *American Journal of Pharmaceutical Education*, **76**(7), 126

Chisholm, M.A., Cobb, H.H., DiPiro, J.T. & Lauthenschlager, G.J. (1999). Development and validation of a model that predicts the academic ranking of first-year pharmacy students. *American Journal of Pharmaceutical Education*, **63**(4), 388-393

Foy, J.M. & Waller, D.M. (1987). Using British school examinations as a predictor of university performance in a pharmacy course: A correlative study. *Higher Education*, **16**(6), 691-698

Shulruf, B., Li, M., McKimm, J. & Smith, M. (2012). Breadth of knowledge vs. grades: What best predicts achievement in the first year of health sciences programmes? *Journal of Educational Evaluation for Health Professions*, **9**

Windle, J.M., Spronken-Smith, R.A., Smith, J.K. & Tucker, I.G. (2018). Preadmission predictors of academic performance in a pharmacy program: A longitudinal, multi-cohort study. *Currents in Pharmacy Teaching and Learning* (available in advance before publication). doi:10.1016/j.cptl.2018.04.018

ERP15. An evaluation of a Certificate in Business Administration (CBA) programme for M.Pharm. students

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Keywords: Business Administration Education, Pharmacy, Programme Evaluation, Student Experience

PWDGs: WDG2 - Foundation Training and Early Career Development; WDG6 - Leadership Development

Objective: In 2015, The University of Reading School of Pharmacy launched an innovative PGCert. in Business Administration (CBA) for students to undertake alongside their M.Pharm. It provides practical business skills for early-career pharmacist roles. Henley Business School run the programme as three summer school modules over two to three years. The objective of this research was to evaluate student perceptions of the programme and identify reasons for enrolment.

Design: A mixed methods approach was utilised. Using a validated student experience questionnaire (Wilson *et al*., 1997) all enrolled CBA students (n=24) were sent an online survey. CBA graduates (n=4) were invited to telephone interviews. Enrolled M.Pharm. students (n=497) were invited to peer-led focus groups. Ethics approval was received.

Results: Nineteen out of 24 (79%) completed surveys were received. Students were satisfied with the course (n=13) and agreed their business skills had improved (n=16). The majority agreed their analytical, team-working, organisational and written communication skills had improved (range n=12-16). One graduate agreed to be interviewed (25%), describing key learning in understanding financial reports and leadership styles. Eight students (1.6%) attended focus groups; people management and leadership skills were highlighted as key topics that might encourage enrolment. The interview and focus groups reported students felt the dual qualification helped them "stand out from the crowd". All three methods reported student fees were the principal barrier to enrolment.

Conclusion: CBA students reported perceived benefits of the programme. A proposal to include some workshops in the M.Pharm. so all students benefit from the core skills have been well received; this overcomes part of the barrier of fees. The option to submit for the full PGCert. will be retained for those who want to "stand out from the crowd". This was a small evaluation, with very low focus group attendance, and evaluation following integration into the M.Pharm. is needed.

References

Wilson, K.L, Lizzio, A. & Ramsden, P. (1997). The development, validation and application of the Course Experience Questionnaire. *Studies in Higher Education*, **22**, 33-53

ERP16. Pharmacy student characteristics associated with successful acceptance into a pharmacy post-graduate training programme

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Keywords: Post-graduate Training, Characteristics, Placement, Pharmacy Student

PWDGs: WDG2 - Foundation Training and Early Career Development

Objective: Acceptance into pharmacy post-graduate training residency programmes has become increasingly competitive. Consequently, a significant amount of resources are spent screening applications and interviewing applicants to assess the best fit for post-graduate training programmes, thus, creating a need to streamline the application process. The objectives of this study were to identify characteristics associated with successful invitation to interview and final applicant ranking at a post-graduate training programme.

Methods: Bi-variable analyses were performed for planned stratifications of applicants according to whether applicants were offered an on-site interview and final rank among applicants interviewed. Advanced regression modelling was performed to identify predictors of applicants offered an on-site interview.

Results: Applicants who were offered interviews had a higher pharmacy school GPA [3.63 (3.46–3.79) vs. 3.35 (3.2–3.49); $p<0.001$] and received a higher number of scholarships [2 (1–3) vs. 1 (0–2); $p=0.002$]. Additionally, applicants with prior work experience as a hospital

pharmacy intern (70% vs. 37.8%; p=0.001), prior experience presenting a poster at a national meeting (80% vs. 60%; p=0.02), and prior experience in a national pharmacy organisation leadership position (41.4% vs. 20%; p=0.03) were more likely to be offered an interview. The only characteristic found to be associated with final applicant ranking was pharmacy school GPA [3.68 (3.51–3.8) vs. 3.48 (3.23–3.7); p=0.003]. Pharmacy school GPA, total scholarships awarded, and prior work experience as a hospital pharmacy intern were shown to be modelling predictors of being offered an interview.

Conclusion: Objective criteria within the realms of academic performance and prior work experience may be useful to streamline the application screening process for post-graduate training programmes. Pharmacy school GPA was the only objective characteristic found to be associated with applicant final ranking. If pharmacy schools trend towards implementing pass/fail curricula, it will be imperative to realise other indicators of academic performance.

ERP17. A study to investigate undergraduate pharmacy students' experience of an integrated curriculum

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Keywords: Curriculum Integration, Integrative Thinking

PWDGs: WDG1 - Academic Capacity; WDG4 - Advanced and Specialist Development; WDG5 - Competency Development; WDG7 - Service Provision and Workforce Education & Training; WDG12 - Workforce Intelligence

Objective: Curriculum integration in pharmacy undergraduate programmes is being increasingly adopted. The extent and form of integration between and within programmes varies across the steps of Harden's integration ladder. (Harden, 2000) This study aims to investigate how undergraduate students experience an integrated Master of Pharmacy (M.Pharm.) programme at one school of pharmacy in England.

Method: The M.Pharm. programme is constructed as an integrated, spiral curriculum, generally achieving the interdisciplinary step of the integration ladder (Harden, 2000; Husband *et al*., 2014). Undergraduate students in Stages 1-3 were invited to participate in focus groups to investigate their learning experience. Modified grounded theory provided the framework for data collection and analysis (Glaser & Strauss, 1967). Subsequent semi-structured interviews were undertaken with individual students across these cohorts to explore the themes derived from focus groups. Focus group discussions and interviews were audio-recorded with written consent, transcribed *verbatim* and thematically analysed.

Results: Twelve students participated in two focus groups and a further eight in semi-structured interviews. Four themes identified from the thematic analysis included; preparing for the role of a pharmacist; learning strategies in an integrated programme; adjusting to an integrated curriculum; and becoming an 'integrative thinker'. Overall, students enjoyed integrated teaching, explaining that it allows development of crucial problem-solving skills and knowledge and competencies required for the role of a pharmacist. Students in the later stages of the programme described the difficulties in adjusting to an integrated curriculum during the first year, but suggest integration came 'naturally' by the third year, after their experience of teaching and learning in the second year.

Conclusion: Students require time to adjust to the less fragmented teaching characterised by an integrated curriculum. However, there is an appreciation that the integrated educational activities facilitate the development of key cognitive skills that will prove valuable in the provision of patient care.

References

Harden, R.M. (2000). The integration ladder: a tool for curriculum planning and evaluation. *Medical Education*, **34**(7), 551-7

Husband, A.K., Todd, A. & Fulton, J. (2014). Integrating science and practice in pharmacy curricula. *American Journal of Pharmaceutical Education*, **78**(3), 63

Glaser, B.G. & Strauss, A.L. (1967). The discovery of grounded theory: strategies for qualitative research. London: Weidenfeld and Nicolson

ERP18. A structured approach to the use of videos and reflective practice in preparing for OSCEs

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Keywords: Reflection, Video, Learning Strategies

PWDGs: WDG1 - Academic Capacity; WDG2 - Foundation Training; WDG6 - Leadership Development; WDG8 - Working with Others

Objective: To explore the influence of the Objective Structured Clinical Examination (OSCE) preparation activities that involved video reflective practice in preparing first year pharmacy students for OSCEs.

Method: First year pharmacy students participated in structured OSCE preparation activities that involved students: (1) self-recording a video simulating the role of a pharmacist responding to a simple primary care problem; (2) reflecting on their performance in the video using a structured approach; (3) participating in a workshop involving peer feedback on the videos in a small group setting; and (4) reflecting on their OSCE performance in the video provided after the exam.

To investigate the influence of these activities in preparing students for OSCEs, a mixed methods design was employed. The quantitative component included multiple regression analysis of the data from: (1) pre- and post-workshop surveys of the student participants; and (2) learning analytics in terms of student attendance and completion data of activities and OSCE marks. The qualitative component involved a thematic analysis of students' reflections of their self-recorded video and their OSCE video.

Results: More students (54%, n=179) reported feeling confident for the OSCEs after the workshop than before workshop (13%, n=181). There was a significant correlation between the video/reflection submission and overall OSCE mark (standardised *beta* coefficient 0.208, p=0.007). The qualitative findings show, in agreement with previous research (Baecher *et al.,* 2013), that video-based reflective practice enabled students to identify gaps in their own learning and initiate a variety of learning strategies to direct their future learning towards the learning goal.

Conclusion: The use of video-based reflective practice correlated positively with student OSCE performance. Video-based reflective practice helped enhance students' awareness of their learning and stimulated them to consider various learning strategies according to their own learning needs for OSCEs.

References

Baecher, L., Kung, S.C., Jewkes, A.M. & Rosalia, C. (2013). The role of video for self-evaluation in early field experiences. *Teaching and Teacher Education*, **36**, 189-197

ERP19. Development and evaluation of a Situational Judgement Scenarios (SJS) Tool for the faculty of Pharmacy & Pharmaceutical Sciences at Monash University

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Keywords: Professional Development, Student Development, Empathy, Teamwork

PWDGs: WDG1 - Academic Capability; WDG3 - Quality Assurance; WDG5 - Competency Development; WDG7 - Service Provision and Workforce Education and Training; WDG8 - Working with Others

Objective: Following the success of a pilot Situational Judgement Scenarios (SJS) in 2016, Monash University's Faculty of Pharmacy and Pharmaceutical Sciences have implemented an SJS in 2017 and 2018, with the objectives of providing students with feedback on their performance on the SJS, to inform their personalised learning plan, and to provide an appropriate metric to monitor and evaluate the level of progression of the non-academic attributes of pharmacy students.

Design: This study describes the design, implementation and analysis of an SJS, utilising best practice methodology, to help to identify specific development areas. The scenarios target four non-academic domains deemed important for pharmacy students including integrity and empathy. Subject Matter Experts (*e.g.,* lecturers, tutors) were involved throughout, to develop the scenario content and answer key, ensuring it was realistic, relevant and fair. The tool was sat by all cohorts of students across the Australia and Malaysian campuses.

Results: Across 2017 and 2018, students from across the four cohorts completed the SJS. The tool demonstrated excellent levels of internal reliability, with a close to normal distribution of total scores. The results indicate the SJS is capable of differentiating between students, thus providing a sufficient spread of scores to support identification of students that may benefit from additional support. Results showed a significant difference in SJS scores across year levels, indicating that students further through training are more likely to achieve a higher score. Native language explained some variation in students' SJS scores, however the campus a student was studying at appeared to contribute the most to the variation in SJS score.

Conclusion: An SJS developed, validated and implemented with a cohort of undergraduate pharmacy students was able to differentiate students requiring additional support with skill development. Individual feedback to students on specific skills encouraged reflection and development of a personalised learning plan.

ERP20. Exploring how Pharm.D. students identifying as underrepresented racial minorities experience cultural competence instruction

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Keywords: Cross Cultural Training, Cultural Awareness Diversity (Faculty), Student Diversity, Ethnic Diversity, Minority Groups

PWDGs: WDG2 - Foundation Training; WDG10 - Gender and Diversity Balances; WDG11 - Workforce

Objective: Schools/Colleges of pharmacy (S/CoP) have acknowledged the rapid diversification of the United States (US) population and the rise of health disparities. To ensure future pharmacists are prepared to serve all constituents, accreditation bodies are mandating the inclusion of cultural competence (CC) content in curricula. The experiences of students self-identifying as underrepresented racial minorities (URMs) receiving CC instruction at predominantly/historically White Institutions are relatively under-explored though important for enhancing the experiences of URM students and improving curricula. The purpose of this phenomenological study was to explore how Pharm.D. students identifying as URMs perceived CC instruction at a S/CoP. This study employs components of the graduate and professional student socialisation process (Weidman *et al*., 2001), notions of agency (O'Meara, 2011), and anti-deficit perspective (Harper, 2010).

Method: Twenty students from a S/CoP enrolled at a research-intensive institution in the Southeastern region of the US participated in semi-structured interviews.

Results: Major finding suggests that the URM students did not see themselves reflected in the curriculum. They expressed that the overall pharmacy school curriculum lacked a CC emphasis and that CC was considered to be an optional component to students' learning. Further, students sensed that the responsibility to gain CC knowledge and awareness had been placed upon them as opposed to integrated within the curriculum. Thus, students often supplemented didactic CC instruction with co-curricular activities and intentionally sought immersion experiences in culturally diverse communities.

Conclusion: This work provides insight into how URM pharmacy students reflected on CC instruction, provides strategies to bolster student and faculty engagement, and demonstrates how co-curricular experiences may be employed to advance CC delivery.

References

O'Meara, K., Campbell, C. & Terosky, A. (2011). Living Agency in the Academy: A Conceptual Framework for Research and Action. In *Association for the Study of Higher Education.* Charlotte, NC.

Weidman, J.C., Twale, D.J. & Stein, E.L. (2001). Socialization of graduate and professional students in higher education : a perilous passage? *ASHE-ERIC High Educ Rep*, **28**(3), 118. Accessed 13 December, 2018

Harper, S.R. (2010). An anti-deficit achievement framework for research on students of color in STEM. *New Dir Institutional Res*. **148**, 63-74. doi:10.1002/ir.362

ERP21. To learn, pharmacy students need to do - a pilot on learning asthma first aid

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Keywords: Active Learning, Computer Assisted Learning, Education, Simulation, Skills

PWDGs: WDG2 - Foundation Training; WDG5 - Competency Development; WDG7 - Service Provision and Workforce Education and Training

Objective: The study aimed to evaluate the impact of a bimodal learning experience (online-assisted and simulation by role-play) on the development of technical competence by pharmacy students to perform asthma first aid (AFA) as the skill investigated.

Design: Pharmacy students from Amman, Jordan completed an online module on AFA and participated in hands-on role-play exercises to handle different patients suffering from an episode of asthma exacerbation. Students were either assigned to receive online training or role-plays as their first learning exposure, after which they were subsequently switched to experience the other learning modality. Student ability to perform AFA was evaluated by the role-playing scenarios using a checklist instrument, and were provided immediate formative feedback and coaching. Students' preferences on methods of learning, opinions and thoughts of the workshop were qualitatively investigated by focus group discussion and semi-structured questionnaire.

Results: Performance in the role-played scenarios was not significantly correlated to whether or not students received the online training prior to assessment. Whilst students unanimously valued the innovation of combining learning methods, hands-on training was perceived beneficial and realistic to consolidate knowledge to perform such a skill.

Conclusion: Hands-on learning was an effective way to train novice pharmacy students in AFA. Essential learning of technical skills such AFA was facilitated by immersing learners in experiences that provides practice and feedback to hone skills considered pertinent to patient care.

ERP22. "I've enjoyed it…I'd choose to do it again…": Evaluation of an innovative multi-sector pre-registration pharmacist training programme in Wales

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Keywords: Qualitative Research, Evaluation, Training, Programme, Pharmacy

PWDGs: WDG1 - Academic Capacity

Objective: To evaluate a unique pharmacist pre-registration training programme, whereby trainees are exposed to hospital, community and primary care pharmacy environments on a rotational basis of varying durations/structures.

Method: The focus of the evaluation was on the 12-month multi-sector training programme, 2017-18. Following Ethics Committee approval, semi-structured one-to-one interviews were conducted with both multi-sector pre-registration trainees themselves, and their tutors/primary care pharmacist supervisors. A broad topic guide with prompts and probes was used in order to explore participant experiences of pre-registration training/supervising pre-registration training and opinions towards programme structure. Interviews were audio recorded, transcribed *verbatim* and thematically analysed (Braun & Clarke, 2006).

Results: Twenty-six participants were interviewed. However one withdrew consent and so data from twenty-five interviews were analysed (nine multi-sector pre-registration trainee pharmacists and sixteen supervising pharmacists) in order to evaluate the multi-sector pre-registration training programme. Four themes were identified, namely: 1) importance of tutor and trainee factors for programme success; 2) the added value of the multi-sector pre-registration programme; 3) lack of consensus on 'ideal' programme structure; and 4) suggestions for improvement.

Conclusion: This study provides an insight into the perceptions of multi-sector pre-registration pharmacists and their tutors towards the multi-sector training programme in Wales. Participants reflected upon the benefits of the programme in comparison with a single sector scheme including the opportunity to shadow a range of pharmacists and other healthcare professionals, develop a 'well-rounded' knowledge, an appreciation of transfer of patient care between settings and a better understanding of all sectors of pharmacy in order to make an informed career choice. Areas for improvement, such as the need to introduce trainees to the hospital ward environment from an earlier time point as well as improve communication between tutors, were highlighted.

References

Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, **3**(2),77-101

ERP23. Entrustment decisions in undergraduate hospital pharmacy placements – Influences and Opportunities

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Keywords: Pharmaceutical Education, Experiential Learning, Competence, Decision Making

PWDGs: WDG5 - Competency Development; WDG7 - Service Provision and Workforce Education and Training; WDG8 - Working with Others

Objective: To describe entrustment decisions during placements in the hospital pharmacy workplace and evaluate factors that influence these.

Method: All 3rd year M.Pharm. students at the University of Bath undertook a week placement in a hospital setting. Students completed an online survey to investigate the tasks they undertook on placement and factors associated with their perceived level of confidence and competence. Students were asked specifically to describe the level they performed set tasks at, using a defined set of criteria, and were then asked to comment on the level of entrustment given by the supervisor on placement. Students were asked to describe the factors that they thought influenced this. Results were analysed using SPSS.

Results: Students described their performance over a range of 25 tasks. Nineteen (76%) tasks showed a significant difference between students perception of their level of competence and that of their supervisor and that they felt they were capable of performing the task under less supervision. Students understood the rationale for entrustment decisions in the workplace but described a range of factors that influenced this in the hospital setting.

Conclusion: Supervisors often find it difficult to judge trainees in the placement setting (Choo, 2014; ten Cate, 2016). This study showed that students were frequently given higher levels of supervision than they thought necessary for their perceived level of competence. It identifies a range of influencing factors from student and supervisor factors to those related to the environment, workload and curriculum. Designing tools to support entrustment decisions and associated assessments in the workplace is key to supporting the development of skills in situations where multiple short placements exist. The structured use of Entrustable Professional Activities (EPA) is as a result, now being introduced for 2nd and 3rd year M.Pharm. undergraduate students.

References

Choo, K.J., Arora, V.M., Barach, P., Johnson, J.K. & Farnan, J.M. (2014). How do supervising physicians decide to entrust residents with unsupervised tasks? A qualitative analysis. *Journal of Hospital Medicine*, **9**, 169-175

ten Cate, O. (2016). Entrustment Decision-Making in Competency-Based Teaching and Assessment in Health Professions Education. *Medical Science Educator*, **26**, 5-7

ERP24. Integrated curricula: An investigation of the espoused, enacted and experienced curriculum

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Keywords: Integrated Curriculum, Pharmacy

PWDGs: WDG2 - Foundation Training

Objective: Internationally, pharmacy educators are adopting integrated curricula to create connections between knowledge disciplines and support students' integrative learning (Pearson & Hubball, 2012). However, few studies have investigated how integrated curricula are conceptualised or operate. This study aimed to explore how educators conceptualise and enact integration and how integration is experienced by learners within a four-year integrated Master of Pharmacy curriculum.

Method: With consent, educators (n=8) took part in individual semi-structured interviews exploring their understanding of integration. Learners (n=51) participated in focus groups (n=8) where they identified examples of pedagogic strategies promoting integration and discussed how an integrated curriculum shaped their learning.

Results: Educators conceptualised integration as involving learner-centred, correlated disciplines organised to promote subject integrity and interrelation, consistent with an espoused integrated curriculum. However, they reported difficulty in enacting integration in their teaching practice and described integration as creating tension between faculty members - both of which have the potential to restrict integration at a cognitive and operational level (Mawdsley & Willis, 2017). Learners recognised integration as a positive, higher-order pedagogic strategy that was particularly valued when it explicitly supported integrative learning through the application of knowledge to pharmacy practice. In contrast to educators who did not perceive assessment as a feature of an integrated curriculum, learners experienced a contradiction between teaching that supported integrative learning and the methods used for assessment, which supported rote learning of unitary disciplines.

Conclusion: Educators and learners shared an understanding of the espoused curriculum. However, educators' difficulties in enacting integrated teaching, together with assessment methods that failed to support integrative learning, suggest that the pedagogic potential for a curriculum to promote integrative thinking may not have been realised. Educators must develop parity between how material is taught and how it is assessed to ensure constructive alignment within integrated curricula.

References

Pearson, M.L. & Hubball, H.T. (2012). Curricular Integration in Pharmacy Education. *Am J Pharm Educ*, **76**(10), 204. doi: 10.5688/ajpe7610204

Mawdsley, A. & Willis, S. (2017). Exploring an integrated curriculum in pharmacy: Educators' perspectives. *Curr Pharm Teach Learn*, **10**(3), 373-381. doi:10.1016/j.cptl.2017.11.017

ERP25. 'Who wants to be Millionaire' as a game for Pharmacy curriculum

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Keywords: Games, Group Activities, Competition, Student Engagement

PWDGs: WDG5 - Competency Development; WDG8 - Working with Others

Objective: In response to Stage 1 undergraduate pharmacy students reporting difficulty with particular topics of biology, educators at a School of Pharmacy in England developed seminar sessions to support students' learning. To assess the optimal teaching strategy, an experimental design was adopted. Half the cohort experienced seminars requiring students to work in groups to answer open questions on the topic [Seminar 1: S1], whilst the other half of the cohort experienced a seminar adopting elements of the game 'Who wants to be a Millionaire' [Seminar 2: S2]. Students played competitively in small teams. The hypothesis is that the competitive interactivity of the educational game would improve student knowledge retention.

Method: Eleven open questions were designed to test student knowledge and used for S1. Three sets of 15 multiple-choice questions (MCQs) were designed and used for S2. Prior to both sets of seminars, students undertook a pre-test of 12 MCQs to assess their knowledge, and then a post-test, using six of the same pre-test MCQs and six new MCQs, to capture knowledge attainment. Results were compared within and between groups and a *t*-test used to assess for difference. A feedback form including five 5-point Likert scale questions, was distributed requiring students to rate components of the session, including the level of engagement and team-work.

Results: Students attending the game sessions [S2] showed a statistically significant (p=0.03) improvement between pre-test and post-test scores. Conversely, the difference for students attending S1 was not statistically significant. In the feedback form, students who played the game found the session more engaging and valued team-work as more important to stimulate their learning, compared to students who attended the seminar session.

Conclusion: The competitive and engaging nature of the game appears to facilitate knowledge retention. Wider adoption of this strategy may augment student learning further.

ERP26. Making expert thinking visible: Cognitive Apprenticeship in pharmacy education

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Keywords: Teaching Skills, Teaching Methods, Apprenticeships, Health Sciences, Faculty Development

PWDGs: WDG1 - Academic Capacity; WDG3 - Quality Assurance

Objective: The purpose of this study was to identify aspects of Cognitive Apprenticeship framework that pharmacy educators use in their teaching practice. In doing so, we aimed to describe strategies for explicating expert thinking (*i.e.* apprenticing students cognitively) within didactic environments. Schools of pharmacy are exploring new curriculum structures to meet increasing demands from the healthcare system and to better align with evolving roles of pharmacists (Crass & Romanelli, 2018). To ensure that these changes are successful, it is imperative that we better understand and promote the use of effective teaching practices. Research suggests that Cognitive Apprenticeship (CA) theory (Collins *et al*., 1991), which is rooted in making expert thinking visible to learners, is an effective framework for the health professions; yet few studies clearly describe the types of teaching activities that align with the framework (Lyons *et al*., 2016).

Method: This observational study used qualitative methods to analyse the instructional practices of pharmacy educators. Video recorded didactic class sessions were viewed and coded for instances of the CA framework. Codes for each CA dimension (*i.e.* content, methods, sequencing, sociology) and sub-dimension (*e.g.*, content-heuristics, methods-modelling) were adapted from Ahn (2016) and used to characterise teaching practice.

Results: Preliminary results suggest that a variety of CA dimensions and sub-dimensions are used in pharmacy teaching practice. In one session, for example, an educator demonstrated all four dimensions of the CA framework. For instance, the Sociology dimension was apparent as the educator used active learning strategies that involved the sub-dimensions of collaboration and situated learning to engage students with content knowledge.

Conclusion: The study provides insight into the aspects of CA theory that pharmacy educators are currently using in their didactic classrooms. Further research could help us to identify and characterise pharmacy educators' teaching practice through the lens of CA theory.

References

Ahn, B. (2016). Applying the Cognitive Apprenticeship theory to examine graduate and postdoctoral researchers' mentoring practices in undergraduate research settings. *International Journal of Engineering Education*, **32**(4), 1691-1703

Collins, A., Brown, J.S. & Holum, A. (1991). Cognitive Apprenticeship: Making thinking visible. *American Education*. **15**(3), 6-11

Crass, R.L. & Romanelli, F. (2018). Curricular reform in pharmacy education through the lens of the Flexner Report of 1910. *American Journal of Pharmaceutical Education*, **82**(7), 6804

Lyons, K., McLaughlin, J.E., Khanova, J. & Roth, M.T. (2016). Cognitive Apprenticeship in health sciences education: A qualitative review. *Advances in Health Sciences Education,* **22**(3), 723-739

ERP27. Describing the use of capstone assessments within pharmacy education

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Keywords: Capstone, Assessment, Education, Readiness

PWDGs: WDG1 - Academic Capacity; WDG2 - Foundation Training; WDG5 - Competency Development

Objective: Assessment of student progress and practice readiness is an important aspect of student and curricular development. Formal assessments designed to evaluate students' ability to connect the multiple components of their academic experiences, also known as capstone assessments, are increasingly common in health professions education. The objective of this study was to describe the current state of capstone assessments within pharmacy education.

Methods: A literature review using the search terms [capstone, "pharmacy education"] was performed within the PubMed database. Articles that described the institution's capstone assessment experience were included. Information pertaining to capstone purpose, utility, incentive, consequences, logistics, assessment strategy, and resource requirements were extracted from each relevant article.

Results: Fifteen articles from 13 different institutions were found describing the institution's capstone assessment experience. The articles were published between 2007 and 2017. Most capstones were used to evaluate clinical rotation readiness, assess student ability to synthesise content from multiple courses, and identify areas of student weakness. Capstone results were used for targeted student feedback and remediation as well as curriculum development and optimisation. The majority of capstones were implemented as a course within the institution's curriculum and were resource intensive in relation to faculty hours required for development and execution. Variability between the capstone experiences was found within the content evaluated during the capstone assessment, the student incentives and consequences associated with the assessment, and the outcomes used to define the capstone experience.

Conclusion: A variety of capstone designs are utilised within pharmacy education to evaluate student readiness for clinical rotations and provide specific feedback for student and curriculum development. This review identified gaps in the literature regarding the use of capstones as a threshold for student progression within the curriculum, identifying a standard definition of clinical rotation readiness within pharmacy education, and determining the cost effectiveness and sustainability of executing a capstone experience.

ERP28. Peer-assisted learning - a learning opportunity and a life hack?

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Keywords: Peer Tutoring, Evaluation, Individual Development, Peer Teaching, Student Development, Student Participation, Teaching Models, Classroom Techniques, Educational Methods, Student Centred Learning

PWDGs: WDG1 - Academic Capacity; WDG5 - Competency Development; WDG6 - Leadership Development; WDG9 - CPD strategies

Objective: To describe the implementation of a peer-assisted learning (PAL) (Topping 1996; Packham & Miller 2000) pilot scheme and report the findings of its evaluation, conducted at a pharmacy school in the United Kingdom (UK).

Design: Pharmacy academics worked collaboratively with a PAL trainer to design and implement the pilot scheme within the pharmacy curriculum. Evaluation included questionnaires and one-to-one interviews with PAL learners and a focus group with PAL leaders.

Results: PAL sessions (n=35) took place, focussing on assisting learners with cognitively challenging topics (pharmaceutical calculations and navigating key reference sources), and enhancing leaders' employability. Findings from the evaluation revealed that the majority of learners had a good knowledge of PAL and found the sessions fun and interactive. They liked the collaborative learning format and actively contributed to sessions; sessions were less formal and provided a relaxed atmosphere, increasing learners' confidence to ask questions and reducing pressure to answer correctly. Learners found sessions helpful in increasing their understanding and ability in topics covered and better prepared them for summative assessments. Learners also positively rated PAL leaders' abilities in the subject area. Some learners were, however, less comfortable with a less structured collaborative learning experience. PAL leaders were unanimous in the benefits of being a trained leader. They considered the experience a milestone in their personal development and a valuable addition to their curriculum vitae (CV). Skills and practical experiences in aspects including leadership, teamwork, facilitation, inter-personal relations and communication were enhanced. Leading PAL sessions enabled leaders to consolidate their learning. Leaders suggested additional subject-specific support and sharing of experiences from previous leaders would be beneficial.

Conclusion: The successful pilot provided an evidence base for future implementation of the scheme within the pharmacy curriculum with relevance to other countries. There is scope to extend the topic areas covered within PAL.

References

Topping, K.J. (1996). The effectiveness of peer tutoring in further and higher education: A typology and review of the literature. *Higher Education (Historical Archive)*, **32**, 321-345

Packham, G. & Miller, C. (2000) Peer-Assisted Student Support: a new approach to learning. *Journal of Further and Higher Education*, **24**, 55-65. doi: 10.1080/030987700112318

ERP29. Can implementing a feedback framework lead to improved written reflections by pharmacy interns?

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Keywords: Pharmacy, Reflection, Feedback (Response), Educational Assessment

PWDGs: WDG2 - Foundation Training; WDG9 - CPD Strategies

Objective: To evaluate the feasibility and effectiveness of tutors providing targeted formative feedback using a structured framework for continuing professional development (CPD) reflections written by pharmacy interns.

Method: This was a pilot study comparing different styles of tutor feedback and its impact on pharmacy intern written CPD reflections. Pharmacy intern reflections were assessed against an evaluation rubric at baseline and over the course of the year to assess how feedback impacted on their reflective abilities.

Results: Tutors providing structured feedback took significantly longer giving feedback than those providing feedback in their own style. Time taken to provide structured feedback decreased significantly over time compared to providing feedback in the tutor's own style.

Pharmacy interns who received structured feedback demonstrated a significant improvement in reflective abilities over time compared to those receiving feedback in the tutor's own style.

Perceptions of both pharmacy interns and tutors were overall positive. Interns perceived feedback to be meaningful and all but one tutor agreed that they would participate in providing feedback to pharmacy interns on their CPD reflections again. All tutors agreed that the time it took them to provide feedback was reasonable.

Conclusion: Implementing structured feedback for pharmacy intern CPD reflections is perceived to be feasible by tutors. Results show that the intervention group tutors became more efficient at providing feedback over time.

Structured feedback led to significantly improved pharmacy intern CPD reflections over time compared to receiving feedback in the tutor's own style.

Perceptions of both tutors and pharmacy interns were positive overall, indicating that implementation of structured feedback would be feasible.

ERP30. Associations between pharmacy prerequisites and OSCEs at the University of Saskatchewan

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Keywords: Pharmacy, Education, Prerequisites, Career Readiness

PWDGs: WDG1 - Academic Capacity; WDG2 - Foundation Training

Objective: To identify academic prerequisites associated with interactive and non-interactive Objective Structured Clinical Examination (OSCE) performance in the undergraduate pharmacy programme at the University of Saskatchewan (UoS).

Method: Retrospective data consisting of prerequisite grades and OSCE scores of 1,183 students admitted to the undergraduate pharmacy programme of the UoS from 2003 to 2017. Interactive and non-interactive OSCE scores from four sets of OSCEs in years 3 and 4 of the pharmacy programme (Phar 465 and Phar 565) were calculated. Associations between OSCE scores and prerequisites were analysed using Pearson correlation and stepwise linear regression. Students excluded from the analysis if one or more prerequisite courses completed at another university.

Results: Few significant correlations seen between the BSc. in Pharmacy prerequisites and OSCE scores. Although a large number of statistically significant correlations found with the Pharm.D. prerequisites, the strength of the correlations was uniformly weak (0.10 to 0.20). Courses in Nutrition, Physiology, and Microbiology showed the strongest association with interactive OSCEs. Weak associations with non-interactive OSCEs seen with Nutrition and Microbiology.

Conclusion: OSCEs assess a range of clinical skills including verbal communication, professional judgement, application of knowledge, and problem solving ability; thus, OSCEs might serve as an important proxy for measuring future clinical success (McLaughlin *et al.*, 2015). Our previous research identified a number of prerequisites associated with academic success in all four years of the pharmacy programme at the UoS (Krol, Dobson & Adesina, 2017). While the significant correlations found in this study were consistent with our previous research, the strength of the associations between prerequisites and OSCEs were weak and consistent with other findings in the literature (McLaughlin *et al*., 2015).

References

Krol, E., Dobson, R. & Adesina, K. (2017). The Association between Academic Success in a Professional Pharmacy Program and Performance in BSP and Pharm D Prerequisites at the University of Saskatchewan. *American Journal of Pharmaceutical Education*. doi: 10.5688/ajpe6491

McLaughlin, J., Khanova, J., Scolaro, K., Rodgers, P. & Cox, W. (2015). Limited predictive utility of admissions scores and objective structured clinical examinations for APPE performance. *American Journal of Pharmaceutical Education,* **79**(6), 1-7

ERP31. The Global Health Experience Learning Progression (GHELP) model

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Keywords: Global Education, Experiential Learning, International Education, Transformative Learning

PWDGs: WDG 5 - Competency Development; WDG 8 - Working with others

Objective: Develop a model to contextualise global health learning for student pharmacists completing international advance pharmacy practice experiences (APPEs).

Method: Students from University of North Carolina at Chapel Hill, Purdue University, and the University of Colorado completed a retrospective pre-/post-survey evaluating self-perceived Consortium of Universities for Global Health (CUGH) competency growth and answered open-ended questions about knowledge, skills, and attitudes after completion of an international APPE. Students were also invited to participate in a focus group. Qualitative data from the survey and focus groups were coded in a two-cycle open coding process by investigators. Code mapping and analytic memo writing from the qualitative analysis were analysed to derive to a model.

Results: All 81 students international APPE participants completed the open-ended survey items and 22 of these students contributed in focus group discussions. The Global Health Experience Learning Progression (GHELP) model was derived to help explain the process of student learning while on global health experiences. This progression model has three constructs that students may experience with influence and learning from external and internal influences. Cultural and patient care differences trigger exploration leading some students to progress from cultural awareness to cultural appreciation. As students reflect on these differences and question their own values and beliefs, some students progress to cultural sensitivity and plan to incorporate newfound knowledge and skills into their future practice.

Conclusion: The Universities plan to utilise this model as part of more comprehensive pre-departure training to help student pharmacists better prepare for and conceptualise their global health experience. The GHELP model needs to be further validated to determine whether student learning progresses as outlined and whether students apply their learning back into a local context. Additional research is also necessary to determine if the model can be applied to trainees in other healthcare disciplines.

ERP32. Assessment of Jordanian student competence in medication reconciliation simulation

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Keywords: Pharmacy, Health Education, Simulation, Experiential Learning

PWDGs: WDG3 - Quality Assurance; WDG5 - Competency Development; WDG7 - Service Provision and Workforce Education and Training

Objective: To investigate the impact of a medication reconciliation course utilising in-classroom simulation, observation and immediate feedback.

Method: In 2016, over a three-day course, fourth- and fifth-year pharmacy students from a private university in Jordan were assessed by role-play on their ability to conduct a Best Possible Medication History (BPMH) and reconcile it against a medication chart. Students received immediate feedback after assessment, and observed peers undergo the assessment process. Comparison of student scores *via* one-way ANOVA was performed to detect difference in scores across the three days of training. Pre- and post-simulation questionnaires and supplementary focus groups enabled collection of quantitative and qualitative data pertaining to student self-perceived confidence and competence (paired *t*-tests), perceptions, experiences and usefulness of the course (qualitative).

Results: Assessment-based competence scores from 95 students demonstrated significant improvement in student performance between day 1 and day 2 ($p<0.001$) and day 1 and day 3 ($p<001$). Self-perceived confidence scores also significantly improved after the intervention (3.9 v 4.46; $p<0.001$). Self-perceived competence also significantly improved ($p<0.05$). Focus group content analysis yielded positive responses, such as: students valued receiving feedback on performance, and provided valuable recommendations for future training.

Conclusion: Simulation with feedback was a useful tool to teach pharmacy students medication reconciliation skills in Jordan.

ERP33. Applicant preferencing of training programmes in a national pre-registration pharmacist recruitment scheme: profile and factors affecting decision making

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Keywords: Competitive Selection, Pharmacy, Preferences

PWDGs: WDG10 - Gender and Diversity Balances; WDG12 - Workforce Intelligence

Objective: To analyse how applicants to a national pre-registration pharmacist recruitment scheme preference available programmes and identify factors that influence this.

Design: This study involved: a) analysis of applicant preferencing data from the 2017/18 recruitment cycle; b) an online survey; and c) focus groups with applicants to identify factors that influenced preferencing of prospective training placements. An invitation to participate in the survey and focus groups was sent to all eligible students across UK. Ethical approval was obtained from University of Birmingham.

Results: Preferencing data from all applicants (n=2694) was available. The majority (86%) of applicants preferenced pre-registration programmes across both hospital and community pharmacy sectors. Eighty-three percent of applicants ranked hospital pre-registration programmes as their first ranked preference compared with 16.1% applicants who ranked community pharmacy programmes. There were significant variations in preferencing patterns across gender groups, ethnic categories and schools of pharmacy.

A total of 307 responses were obtained from the survey. Long-term career aspirations for working in a particular sector was the most highly influential factor rated by respondents affecting their preferencing decisions, followed by proximity to the respondent's permanent home or where they would like to live long-term. A total of nine factors were identified as being key to participant preferencing decisions including knowledge about the training programmes gained from employers and perceived opportunity for skills development.

Conclusion: The findings highlight the need for community pharmacy employers to enhance the marketing and quality of information about their programmes. All applicant data used for behavioural analysis reflects the strengths of the study, however the low response rate may limit the generalisability of survey findings. Further in-depth research to identify the reasons for high preference for hospital pre-registration programmes may explain variations in patterns observed.

ERP34. A comparison of graduate-entry and undergraduate-entry pharmacy student performances in final year oral verses written examinations

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Keywords: Undergraduate Students, Graduates, Communication Skills, Exit Examinations, Competence

PWDGs: WDG1 - Academic Capacity; WDG2 - Foundation Training; WDG3 - Quality Assurance

Objective: To compare oral vs. written examination performances of graduate-entry (GE) vs. undergraduate-entry (UE) pharmacy students in their final year capstone unit.

Method: We performed retrospective analysis of oral (Objective Structured Clinical Examination [OSCE]) and written examination results of final year students (2015-2017 cohorts) over three years.

Results: Both GE (n=135) and UE (n=500) groups performed better in clinical case study-based written examination compared with oral examination (OSCE). UE students performed better in written examination (mean scores 81% for UE vs. 78% for GE students) whereas GE students scored higher in OSCE (mean scores; 70% vs. 69%) showing better performances in verbal and non-verbal communication with higher proportion receiving top scores ≥80%. Approximately 60% of UE students got ≥80% in their written examination compared with 44% for the GE group. In comparison, <20% of students from both groups achieved ≥80% in their oral examination. A weak positive correlation between written and oral examinations was seen for both groups: Pearson's r=0.2 and 0.3 for UE vs. GE groups.

Conclusion: Overall, both the mature GE students and younger UE students performed similarly in their final year exit examinations, but with different strengths, likely related to their learning and life experiences. Not all the students who achieved high scores in written examination performed at the same level in oral examination which could be partly attributed to differences in the levels of Miller's pyramid of competence assessed in these examinations. Oral examination such as OSCE presented to be a more robust and authentic assessment at pharmacy final year level. Teaching and assessment design and support activities catering for mixed learner groups need to be more complex but also present interesting opportunities for peer learning. Findings from this study contributed toward the design of graduate-entry pathway for our new Vertically Integrated Master's curriculum.

References

Miller, G. (1990). The assessment of clinical skills/competence/performance. *Academic Medicine*, **65**(9 Suppl), S63–S67

ERP35. An evaluation of pharmaceutical workforce and pharmacy education using the International Pharmaceutical Federation's Workforce Development Goals: A case from Qatar

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Keywords: Labour Force Development, Capacity Building, Sustainable Development, Delphi Technique

PWDGs: WDG5 - Competency Development; WDG12 - Workforce Intelligence; WDG13 - Workforce Policy Formation

Objective: The United Nations (UN) launched the Sustainable Development Goals in 2015. One of these goals describes achieving a Universal Health Coverage by 2030. This signifies workforce planning in healthcare professions (UN, 2015).

The International Pharmaceutical Federation (FIP) published reports about pharmacy workforce planning in several countries. However, data about Qatar was not included in these reports. In 2017, FIP developed a transformational roadmap of pharmaceutical workforce and education. One component of the roadmap is the Pharmaceutical Workforce Development Goals (PWDGs) (FIP, 2016).

This research aims to conduct a self-assessment of the pharmaceutical workforce and education in Qatar in relation to the FIP's PWDGs. This will be followed by prioritisation of the identified gaps and recommendation of measures to address them.

Methods: Three rounds of conventional Delphi technique (Hasson *et al*., 2000) are conducted with expert panels in the College of Pharmacy at Qatar University and the Ministry of Public Health, utilising the FIP's self-assessment survey. Content analysis is used to analyse and prioritise the identified gaps.

Results: The lack of competency framework (PWDG5), workforce data (PWDG12), and workforce policy formation (PWDG13) are the three major gaps in the provision of pharmaceutical workforce and pharmacy education in Qatar, influencing other PWDGs. These gaps need to be addressed by the formation of Qatari Pharmaceutical Association through which academic, practice, and policymaking sectors can work together in developing a health workforce intelligence system.

Conclusion: The results indicated that PWDGs are interrelated and a gap in one goal can negatively influence others (Bruno *et al*., 2018). Results and recommendations of this research will facilitate the implementation of strategic plans across leading pharmacy sectors to meet health needs in Qatar and achieve the third pillar of the Qatar National Vision 2030 'A Healthy Population: Physically and Mentally' (General Secretariat for Development, 2008)

References

Bruno, A., Bader, L., Bates, I., Brock, T., Galbraith, K., Anderson, C., Larson, I., Paulino, E., Rouse, M. & Tofade, T. (2018). Structured Multi-Stakeholder Workshops to Advance a Global Transformative Roadmap for Pharmaceutical Workforce. *INNOVATIONS in Pharmacy*, **9**

General Secretariat for Development. (2008). Qatar national vision 2030. Doha, Qatar.

Hasson, F., Keeney, S. & Mckenna, H. (2000). Research guidelines for the Delphi survey technique. *Journal of Advanced Nursing*, **32**, 1008-1015

FIP [International Pharmaceutical Federation]. (2016). Transforming pharmacy and pharmaceutical sciences education in the context of workforce development. The Hague: International Pharmaceutical Federation

UN [United Nations]. (2015). Transforming our world: The 2030 agenda for sustainable development. Resolution adopted by the General Assembly.

ERP36. Supporting pharmacy students to reflect on teamwork using LEGO creative play

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Keywords: Active Learning, Educational Games, Teamwork, Reflection

PWDGs: WDG8 - Working with Others

Objective: A LEGO creative play building challenge aiming to support students to reflect on teamwork was implemented and evaluated

Design: A building challenge was given to first year pharmacy undergraduate students; naturally occurring teams were asked to build a robot using only two colours of LEGO bricks, within a certain time (Buckley, 2015). A bag with mixed coloured bricks was provided to each team, and teams were asked to negotiate obtaining desirable colour bricks with each other. Final creations were judged by the class, and the team with the best robot, built within the restrictions, won a prize. Students noted barriers and facilitators to the process, such as time restraints and limited resources, which were then contextualised with daily practice of healthcare professionals. After the workshop they were asked to complete a survey evaluating the teaching activity. Quantitative data was analysed with descriptive statistics and deductive thematic analysis of free-text comments identified factors related to teamwork.

Results: A 46% response rate was achieved (n=47/102). Forty-five students agreed that the activity was beneficial in order to understand differences in ways their peers work in a team. Students identified a range of behaviours or issues that are representative of real-life scenarios (Nerantzi & Despard, 2014). Speed of decisions was mentioned as a challenge, whereas aligning tailored actions to the goal was noted as helpful. Students appreciated peers coordinating the team's actions, volunteering for tasks they felt competent for, and keeping calm under pressure, whereas they were frustrated with peers trying to force their own opinion or losing interest and not contributing to the team.

Conclusion: Decision-making and roles within a team were the most prominent factors contributing to student performance. The activity was successful in supporting students to experience first-hand how different factors enable or hinder teamwork.

References

Buckley, C. (2015). Conceptualising plagiarism: using Lego to construct students' understanding of authorship and citation. *Teach Higher Educ*, **20**(3), 352–358

Nerantzi, C. & Despard, C. (2014). Perspectives in Applied Academic Practice Do LEGO® Models Aid Reflection in Learning and Teaching. *J Perspect Applied Acad Pract,* **2**(2), 31–36

ERP37. What were you thinking? Student and pharmacist situational judgments about empathy

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Keywords: Empathy, Situational Tests, Interviews, Validity, Response Style

PWDGs: WDG1 - Academic Capacity; WDG2 - Foundation Training; WDG8 - Working with Others; WDG12 - Workforce Intelligence

Objective: To describe the features of the response process (*i.e.*, what participants think about) when completing a situational judgment test (SJT) intended to measure empathy.

Method: Thirty participants - 15 students and 15 pharmacists - completed a 12-item SJT that was designed to measure empathy. Each SJT item included a case scenario and participants ranked five possible responses to the scenario in order of appropriateness. Each participant engaged in a think-aloud interview during the SJT in which they spoke about their thought process while they completed the test. Then, they participated in a cognitive interview that included specific questions about their decision-making processes. Interviews were audio-

recorded and transcribed for qualitative analysis. Salient themes were identified and used to create a model to describe the SJT response process while elaborating on the specific features of SJT items that can influence the decision-making process.

Results: The overarching SJT response process can be described by a four-component model: comprehension, retrieval, judgments, and response selections. Each component was influenced by multiple factors. For example, comprehension was influenced by the task to be completed. Job-specific knowledge and experiences comprised a substantial portion of the retrieval process. Moreover, there was evidence that SJTs were highly contextual and that item characteristics such as setting, actors, or relationships influenced judgements. Lastly, there was evidence that individuals utilised specific strategies when selecting their final responses, such as an ordered approach and guessing.

Conclusion: This study provides a comprehensive evaluation of SJT response processes, which has not been extensively documented in the literature. SJT use is becoming popular in health professions education, therefore, individuals who use or design SJTs should be aware of how individuals approach these instruments. Overall, design of these instruments must be attentive to items' characteristics and the perspective of the test-taker that may relate to answer selections.

References

Patterson, F., Zibarras, L. & Ashworth, V. (2016). Situational judgement tests in medical education and training: Research, theory, and practice: AMEE Guide No. 100. *Medical Teacher*, **38**(1), 3-17

Wolcott, M.D, Lupton-Smith, C., Cox, W.C. & McLaughlin, J.E. (2018). A 5-minute situational judgment test to assess empathy in first year student pharmacists. *American Journal of Pharmaceutical Education*. doi.org/10.5688/ajpe6960.

ERP38. Students' expectations and perceptions of web-based pharmacy education and pharmacy profession

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Keywords: Pharmacy, Education, Online Courses, Expectations

PWDGs: WDG1 - Academic Capacity; WDG3 - Quality Assurance

Objective: The objective of this study is to describe first year pharmacy students' expectations and perceptions of a web-based pharmacy programme and of their future pharmacy profession.

Method: A study questionnaire was developed based on the results of focus group interviews with students admitted to pharmacy programmes at Umeå University in Sweden. The questionnaire was distributed to all first-year students admitted to these programmes in 2017 (n=66). The students ranked different factors according to their importance when choosing the education. Open-ended responses were analysed using a modified thematic analysis, which involved an open coding technique. The response rate was 71%.

Results: The most important factors to the students when choosing their education were that the education is interesting, leads to an interesting job and is web-based. Other factors of importance were "personal development" and "a university degree". From the analysis of the question "What are your expectations concerning your education?" two broad themes were identified: learning skills, and being prepared for the future profession. One comment was "that I'll learn a lot and feel competent when I'm looking for a job". From the analysis of the open-ended responses to the question "What are your expectations concerning the future profession?" three broad themes were identified: helping other people, professional development, and employment related issues.

Conclusion: For the students, educational choice seems to be associated with personal interests and motivations. Their expectations of their future pharmacy profession are related to helping people rather than a getting a high salary and making a career. Knowledge about students' expectations and perceptions of their pharmacy education and future pharmacy profession is important for seeking strategies for educational development.

ERP39. Characteristics of students admitted to a web-based pharmacy programme – a comparison between 2003 and 2017

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Keywords: Pharmacy, Education, Online Courses

PWDGs: WDG1: Academic Capacity; WDG3: Quality Assurance

Objective: To compare characteristics of students enrolled on a web-based pharmacy education programme over time, *i.e.* to compare the first cohort of students admitted in 2003 with those admitted in 2017.

Method: A questionnaire was distributed to all first-year students admitted to the Bachelor of Pharmacy programme at Umeå University, Sweden in 2017 (n=29). The results were compared with results from a previous questionnaire distributed to students admitted in 2003

(n=109). The response rates were 69% and 99%, respectively. The surveys contained questions about the students' background, living conditions, choice and expectations of the education, and expectations of the future work setting.

Results: Compared to the 2003 cohort, students admitted in 2017 were younger (27.8 vs. 32.4 years) and a lower proportion were female (83% vs. 95%). Of those answering the questionnaire in 2017, a lower proportion had dependant children (25% vs. 55%) and lived to a lesser extent in the northern part of Sweden (50% vs. 83%). In 2003, more students were employed at time of admission compared to 2017 (70% vs. 33%), and had previously studied at a university (44% vs. 25%). A majority of students (70%) admitted in 2017 stated that they would not have applied to the programme if it had not been offered as a distance education. In the 2003 cohort, this was not as pronounced (43%). Students were also asked where they wanted to work after graduation and most respondents, both in 2003 (82%) and 2017 (80%), wanted to work at a community pharmacy.

Conclusion: Student characteristics have changed over the years suggesting that the web-based pharmacy education attracts other groups of students today compared with when the programme started. Exploring who enrols on a web-based pharmacy programme may be helpful when it comes to curriculum planning, recruitment strategies and retention.

ERP40. The use of a polling system to reinforce health outcomes principles

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Keywords: Outcome Measures, Student Surveys, Teaching, Reinforcement

PWDGs: WDG1: Academic Capacity; WDG3: Quality Assurance

Objective: Enhance understanding of basic health outcomes principles by using polling software (Poll Everywhere) based on findings by Brown *et al.* (2014).

Method: Students were surveyed in the classroom with either a smartphone or laptop. Polling software was implemented in the second offering of the course. Students were asked to provide feedback on the perceived impact during final course evaluation. Analysis consisted of a comparison of the mean and median grades of the final exam between the intervening year and the previous non-intervention year.

Results: Students performed better in the intervention year that used polling software than the session that did not: 81.8% (7.47) versus 78.8% (11.63) (mean (SD)). Given unequal variances a two sided *t*-test Satterthwaite with *t*-value of -3.36. Confounding factors that were not considered included variability in a number of factors including educational background of the students in each of the years, and lecture attendance rates.

Conclusion: Use of polling during lecture delivery improved exam scores and resulted in more positive qualitative comments from students in the final course evaluation for the session

Reference

Brown, A.E., Thomas, N.J. & Thomas, L.Y. (2014). Students' willing ness to use response and engagement technology in the classroom. *J. of Hospitality, Leisure, Sport & Tourism Education*, **15**, 80-85

ERP41. Professionalism in the pre-registration pharmacist placement: An exploratory stakeholder study

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Keywords: Professionalism, Trainees, Patients, Transformative Learning, Pharmacy

PWDGs: WDG3 - Quality Assurance; WDG7 - Service Provision and Workforce Education and Training

Objective: What approaches to the learning of professionalism are experienced during the pre-registration pharmacist placement? How are judgements made on a trainee's achievement of professionalism in the placement year? This study explores the General Pharmaceutical Council (GPhC), service users', pre-registration pharmacist trainees' and pre-registration tutors' from the South West of England insights into these questions. Representation of these four groups within one study is a novel design.

Methods: An interpretative paradigm approach was adopted, involving a semi-structured group interview, focus groups and qualitative e-questionnaire. An active thematic interpretative analysis approach was used to identify, evaluate and consider patterns and meaning across all data sets.

Results: A shared definition of professionalism was elusive. However, many participant groups used similar terms to describe professionalism. Trainees and tutors provided insights into transformative moments that happened during the training year to potentiate professionalism development. The first moment being the issuing of the title 'pre-registration trainee'. All groups

reported constructive and meaningful interactions with patients in the work place throughout the placement as aiding professionalism maturation from a 'self-centred student' to becoming an 'outwardly looking and responsible professional'. Although no tutors reported that patients formally provided direct feedback on the trainees' professionalism, service users wanted to be involved in the assessment. Tutors indicated the rate of professionalism development may be different across different sectors of pharmacy practice, with community pharmacy practice facilitating faster professionalism maturation due to increased trainee autonomy.

Conclusion: This study proposes the existence of transformative moments and maturation periods during the pre-registration year. We recommend the formal and consistent involvement of patients in how judgements are made on a trainee's achievement of professionalism in practice. Our study suggests careful planning of training placements to enable different rates of professionalism development in different sectors of pharmacy practice to be considered.

ERP42. Embedding a written communication skills diagnostic into the curriculum: Enhancing student access to support services

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Keywords: Language Proficiency, Diagnostic Tests, Communication Skills, Reflection, Consciousness Raising

PWDGs: WDG5: Competency Development

Objective: At enrolment, student communication skills vary with regards to English language proficiency (ELP), but the demands of an active learning environment and the requirement for graduates with advanced and nuanced communication skills has promoted the explicit addressing of English language communication skills within the curriculum.

Design: We have implemented a three-stage approach. Step 1: all first year commencing students receive a detailed, baseline diagnosis of written communication skills (*via* the validated Diagnostic English Language Writing Assessment for Pharmacy students; Step 2: students are trained in reflective practice and the use of support services in the development of strategic action plans; Step 3: multiple opportunities for practice and assessment are provided to facilitate a cycle of improvement.

Results: Attendance at Peer Support, an extracurricular English Connect programme in which linguistics experts review the grammatical structure of a piece of written work, jumped from one student in 2016, to 30 registrations in 2017, to 108 consultations with linguistics experts in 2018. Interestingly, the student demographics revealed a broad distribution of students were seeking feedback on their ability to clearly communicate their understanding of a topic (52% of attendees were domestic students). Library learning skills advisors also noted a spike in attendance at sessions designed to provide assistance with organisational structure, linking and the logical progression of arguments within a written piece of work.

Conclusion: Students are leaving a secondary school environment where relationships between the teacher and student are often established, and support mechanisms can be more easily identified and accessed. For the first time in our faculty, this application shows that every student gets detailed feedback on their baseline written communication skills, and uses that feedback to develop a strategic plan for improvement.

ERP43. Thinking while doing - simulation-based dispensing practice integrating complex cognitive skills

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Keywords: Pharmaceutical Education, Simulation, Problem-based Learning, Clinical Experience

PWDGs: WDG1: Academic Capacity; WDG4: Advanced and Specialist Expert Development

Objective: Pharmacists are expected to practice a high level of professional competence in performing the dispensing process. This includes integrating complex clinical knowledge-based cognitive skills into the dispensing process. This study explored the ways in which a simulation-based dispensing programme, MyDispense, can facilitate the learning of this integration by students.

Design: Simulated patient scenarios for MyDispense were designed and developed, specifically to integrate a hierarchy of cognitive skills into the dispensing process. The scenarios were assessed by pharmacy educators to determine the level of cognitive skills required for their successful completion after which some were reworked following feedback from educators. The scenarios were then piloted with a group of 3rd year pharmacy students. A focus group was then used to explore the students' experience of the capability of MyDispense to facilitate the integration of clinical knowledge into the dispensing process.

Results: The scenarios assessed by the pharmacy lecturers were proven to require high levels of cognitive skills as described by Bloom's revised taxonomy (Anderson & Krathwohl, 2001) and necessitated that the students plan, construct, design and generate information to complete the scenarios. The pharmacy students successfully practiced the MyDispense scenarios as an adjunct to a clinical module and reported that the scenarios had assisted them with learning for the clinical module. The students acknowledged that they were required to apply their clinical knowledge and make clinical decisions while completing the scenarios. Students also reported that they found the integration of clinical skills promoted by MyDispense useful for general professional practice.

Conclusion: This study demonstrates that simulation-based education can be used as a beneficial educational tool for teaching the application of complex clinical knowledge-based cognitive skills to the dispensing process. It provides a valuable means of preparing students for professional work-based pharmacy practice.

References

Anderson, L. & Krathwohl, D.R. (2001). A Taxonomy for Learning, Teaching, and Assessing: A Revision of Bloom's Taxonomy of Educational Objectives. Boston, MA: Allyn & Bacon

ERP44. Impact of test anxiety on pharmacy students' performance in Objective Structured Clinical Examination: A cross-sectional survey

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Keywords: OSCE Performance, Test Anxiety, Assessment

PWDGs: WDG5: Competency Development

Objective: To assess the association between test-related anxiety and pharmacy students' performance in the Objective Structured Clinical Examination (OSCE).

Method: A cross−sectional survey was conducted among Year 5 Doctor of Pharmacy (Pharm.D.) students enrolled at a public university in Saudi Arabia. Students completed Test Anxiety Inventory (TAI), a 20−item validated questionnaire used to assess test-related anxiety, prior to the commencement of a summative OSCE. TAI has two sub-scales: TAI−Emotionality (TAI-E) and TAI-Worry (TAI-W). The overall maximum possible total score (TAI-T) is 80, with a minimum possible score of 20. Higher scores indicate higher levels of test anxiety.

Results: All 25 students, 10 males and 15 females completed the survey. The overall mean scores for TAI-E, TAI-W and TAI-T were 20.2, 19.6 and 50.2, respectively. There were no statistically significant differences between males and females with respect to the TAI-E score (p=0.43), TAI-W score (p=0.25) and TAI-T score (p=0.34). Females had higher marks in the OSCE compared with males (p=0.01), however. After adjusting for gender, multiple linear regression analysis showed a statistically significant negative association between TAI-W score and marks obtained in OSCE (p=0.02; 95% CI= -0.42, -0.03).

Conclusion: Assessment-related worry may negatively affect students' scores in performance-based examination and could lead to overall underperformance. Therefore, formative assessments should be frequently included in the courses wherever possible. Course coordinators should encourage 'at risk' students to seek short-term psychological strategies or help to overcome test-related anxiety.

ERP46. The design of preceptor development programme for health cluster in Qatar: 'The Practice Educators Academy'

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Keywords: Capacity Building, Experiential Learning, Mixed Methods Research, Professional Development

PWDGs: WDG3: Quality Assurance, WDG5: Competency Development; WDG9: CPD Strategies

Objective: Experiential learning involves supervised practical placement experiences facilitated by preceptors; practitioner educators. Preceptors are usually not familiar with best practices in teaching-learning and experiential education, because they are not trained as teachers (Boyle *et al*., 2009). To address that, preceptors should be oriented to their respective educational curricula, teaching methods, students' assessment, and to considering students' needs and expectations (Paravattil, 2012; Dornblaser *et al*., 2016). This research aims to assess the educational needs of preceptors at Qatar University's Health Cluster (composed of Pharmacy, Medicine and Health Sciences Colleges), and then develop and validate an educational professional development programme called: 'Practice Educators Academy'.

Methods: This research applies a convergent mixed-methods triangulation study design (Creswell & Clark, 2017), whereby both qualitative and quantitative data are complementary during data collection, analysis, and interpretation. The data representing preceptors' educational needs are used in designing 'The Practice Educators Academy'.

Results: Understanding adults' learning principles, developing learning objective and planning teaching strategies suitable for practice placements, assessing students, and providing them with feedback are the most expressed educational needs of preceptors. Other needs involve learning how to deal with difficult students and with cultural diversities. The developed syllabus is designed to address those needs, while benchmarking it with other preceptors' educational development programmes, and validating it by health professional education experts.

Conclusion: The 'Practice Educators Academy' is the first intervention nationally and regionally to develop the educational skills of preceptors considering their needs, while benchmarking with other programmes available internationally. The development of academy aligns with the third pillar of the Qatar National Vision 2030 (General Secretariat for Development, 2008) on human capital development, and with the Pharmaceutical Workforce Development Goals related to professional development (FIP, 2016). This alignment is key in workforce planning and capacity building, nationally and globally.

References

Boyle, C.J., Morgan, J.A., Layson-wolf, C. & Rodriguez de Bittner, M. (2009). Developing and implementing an academy of preceptors. *American Journal of Pharmaceutical Education*, **73**, 34

Creswell, J.W. & Clark, V.L.P. (2017.) Designing and conducting mixed methods research. Sage Publications.

Dornblaser, E.K., Ratka, A., Gleason, S.E., Ombengi, D.N., Tofade, T., Wigle, P.R., Zapantis, Z., Ryan, M., Connor, S. & Jonkman, L.J. (2016). Current practices in global/international advanced pharmacy practice experiences: preceptor and student considerations. *American Journal of Pharmaceutical Education,* **80**, 39

General Secretariat for dDevelopment. (2008). Qatar National Vision 2030. Doha, Qatar

FIP [International Pharmaceutical Federation]. (2016). Transforming pharmacy and pharmaceutical sciences education in the context of workforce development. The Hague: International Pharmaceutical Federation.

Paravattil, B. (2012). Preceptors' self-assessment of their ability to perform the learning objectives of an experiential program. *American Journal of Pharmaceutical Education*, **76**, 169

ERP47. Customised learning platform enables active, formative learning in large classrooms: Students' perceptions of online assessment impact using their own devices

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Keywords: Educational Assessment, Active Learning, Student Centred Learning, Computer Assisted Testing

PWDGs: WDG1: Competency Development; WDG2: Foundation Training

Objective: The prevalence of personal mobile devices (phones, tablets, laptops) in health professional classes provides an opportunity for formative learning. Exploration of students' attitudes to a new environment for comprehensive digital pedagogy for teaching should be explored.

Method: In 2018 The University of Toronto launched Quercus as a new web-based learning platform to enhance teaching and foster interactivity with students. A pilot study in two therapeutics courses of 242 and 188 pharmacy students was conducted to evaluate the effectiveness of teaching *via* digital pedagogy using students' live access to personal (own) devices. Random polling tests were conducted throughout each session as prior or formative learning to test understanding and give feedback. One hundred percent of responses were recorded weekly. Perceptions were elicited from web-based surveys, interviews, focus groups and observations for each cohort.

Results: Students in both cohorts reported that Quercus provides a safe and anonymous space for active, stimulating participation; they were able to maintain their concentration during the teaching sessions; it is an effective supportive pedagogy which helps them better understand subject matter. It allows instant feedback on knowledge gaps as the facilitator was able to summarise important issues. No major resistance or hurdles were encountered however speed of access for polling tests varied with locations.

Conclusion: Positive perceptions focused on learning enhancements, *e.g.,* reinforcement and feedback and practical features such as enjoyable, engaged participation. Learning dynamics changed, solidifying retention. Speed of access to quizzes with large numbers of synchronous users was the primary limitation. Polling on a comprehensive learning platform with personal devices is recommended by students as facilitative pedagogy. Students feel safe to participate actively in large size environments and appreciate instant feedback on their understanding. This effective all-inclusive learning space includes online polling without cost or participant restrictions of commercial digital or hand-held responses systems.

ERP48. Assessing reflective writing using a rubric: An international follow-up reliability study

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Keywords: Reflection, Educational Assessment, Interrater Reliability

PWDGs: WDG1: Academic Capacity; WDG3: Quality Assurance

Objective: To further test the reliability of using a previously tested reflective rubric (Lucas *et al*., 2017) as a strategy for assessing student reflective writing, taking into account a range of academic backgrounds and differences in educational contexts around the globe.

Method: A combination of convenience and randomised sampling was used to select forty-three reflective accounts from a cohort of 105 second year pharmacy undergraduate students, after attending experiential placements. Four assessors derived from Australia, USA and the UK used a reflective rubric to score reflective accounts for students' reflective capacity as demonstrated in the student writing. The interrater reliability (IRR) for each of the seven stages in the rubric and overall was measured utilising the intra-class correlation coefficient (ICC), using a two-way random effects model with absolute agreement, to determine the level of agreement between the raters' absolute scores. The closer the ICC is to 1.0, the higher the reliability of agreement and lower the error variance.

Results: Even though variations were observed in the scoring of the individual stages of the rubric by assessors, an 'almost perfect' agreement was calculated for the overall score of the reflective account (ICC=0.96, $p<0.001$).

Conclusion: This is a follow-up study expanding the pool of assessors to include multiple cultural sensitivities and differences in curricula of educators across three continents. We propose that the rubric in our study can be used as a reliable tool to assess student reflective writing.

References

Lucas, C., Bosnic-Anticevich, S., Schneider, C.R., Bartimote-Aufflick, K., McEntee, M. & Smith, L. Interrater reliability of a reflective rubric to assess reflective thinking. (2017). *Currents in Pharmacy Teaching and Learning*, **9**(6), 989-995

EFO1. Defining preceptorship: A job analysis to describe the role of the pharmacy preceptor

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Keywords: Job Analysis, Job Development, Clinical Teaching (Health Pofessions), Role Perception, Expertise

PWDGs: WDG4: Advanced and Specialist Development; WDG5: Competency Development; WDG7: CPD Strategies; WDG12: Workforce Intelligence

Objective: To conduct a job analysis to identify and describe the roles and responsibilities of pharmacist preceptors.

Method: A task inventory questionnaire was created in collaboration with pharmacist preceptors, which included 92 tasks divided among nine domains related to the job of preceptors. The task inventory questionnaire was distributed to expert pharmacist preceptors, which were those who have been recognised in the United States (US) for excellence in precepting by a national organisation. Participants evaluated each task and determined if they were responsible for the task, as well as the importance, difficulty, and frequency of each task. A composite score for each task was calculated based on a unique combination of these ratings. Descriptive statistics summarised the findings for each task and across the domains.

Results: Nineteen pharmacist preceptors completed the task inventory questionnaire. The three most salient domains were: professionalism [41.9 (12.9)], communication [37.0 (11.7)], and interpersonal skills [37.0 (10.3)]. The three most critical tasks related to professionalism: maintaining professional composure in stressful situations, demonstrating a commitment to service and the profession, and engaging in sound ethical and moral decision-making.

Conclusion: This was the first attempt of using a job analysis to define the pharmacist preceptor roles and responsibilities. The job analysis helped categorise tasks based on their importance, difficulty, and frequency - this information can be used in future work to prioritise professional development activities and to find alternative management strategies for tasks that are less impactful or desirable. Overall, this was a significant contribution to understanding and charactering the role of the pharmacy preceptor.

References

DeAngelis, J.T. & Wolcott, M.D. (*in press*). Defining preceptorship: A job analysis to describe the role of the pharmacy preceptor. *American Journal of Pharmaceutical Education*

Brannick, M.T., Levine, E.L. & Morgeson, F.P. (2007). Job and work analysis: Methods, research, and applications for human resource management. Thousand Oaks, CA: Sage

EFO2. Improving health outcomes for Aboriginal and Torres Strait Islander peoples: The Australian Pharmacy Council journey of social accountability

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Keywords: Accreditation Institutes, Cultural Awareness, Culturally Relevant Education, Indigenous Knowledge, Interpersonal Competence, Pharmaceutical Education

PWDGs: WDG1: Academic Capacity; WDG3: Quality Assurance; WDG7: Service Provision and Workforce Education and Training; WDG 8: Working with Others

Objective: The Australian 'Close the gap' strategy aims for equity in health status and life expectancy between Aboriginal and Torres Strait Islander peoples and non-Indigenous Australians. Despite ten years of commitment, the gap remains: the Aboriginal and Torres Strait Islander population have, on average, 2.3 times the disease burden of non-Indigenous people (AIHW, 2016).

By setting the standards for education and training of health practitioners' accreditation contributes to practitioners acquiring the skills, knowledge and attitudes to improve outcomes for indigenous Australians. Our Australian Pharmacy Council (APC) 2014 pharmacy programme Accreditation Standards reference this area, but this year's Standards review provides an opportunity to reframe the standards within a social accountability paradigm (Murray, 2012).

Design: As the accreditation authority for pharmacy education, the APC promotes pharmacy as a socially accountable profession, and is committed to the Close the gap strategy, through four active initiatives; publicly committing to a Statement of Intent with other health professions, participating in a cross-profession survey of regulated health professions education providers, training all our people in cultural safety, and reviewing pharmacy education standards with an emphasis on social accountability (Lindgren, 2011).

Results: APC commenced cultural safety training for all staff in March 2018. The cross-profession survey results show a commitment to cultural competence in pharmacy programmes. The accreditation standards review has included input from indigenous peoples, within a framework of social accountability, includes a focus on cultural safety and references the Aboriginal and Torres Strait Islander Health Curriculum Framework (Commonwealth of Australia, 2014).

Conclusion: These achievements to date, while positive, indicate merely a beginning of our APC journey. We are committed to making a meaningful contribution by working respectfully in partnership with our indigenous communities, and our health profession educators to enhance socially accountable pharmacy education to advance the health and well-being of all Australians.

References

AIHW [Australian Institute of Health and Welfare]. (2016). Australian Burden of Disease Study: impact and causes of illness and death in Aboriginal and Torres Strait Islander people,. Available at: https://www.aihw.gov.au/reports-data/population-groups/indigenous-australians/overview. Accessed 23 January, 2019

Commonwealth of Australia. (2014). Department of Health. Aboriginal and Torres Strait Islander Health Curriculum Framework. Available at: http://www.health.gov.au/internet/main/publishing.nsf/Content/72C7E23E1BD5E9CFCA257F640082_CD48/$File/Health%20Curriculum%20Framework.pdf Accessed 23 January, 2019

Lindgren, S. & Karle, H. (2011). Social accountability of medical education: Aspects on global accreditation. *Medical Teacher,* **33**, 667-672

Murray, R.B., Larkin, S., Russell, H. *et al* (2012). Medical schools as agents of change: socially accountable medical education. *MJA*, **196**(10), 1-5

EFO3. Wicked Problems: Using design thinking for curriculum development in pharmacy education

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Keywords: Creative Thinking, Curriculum Design, Curriculum Development, Programme Design, Problem Solving

PWDGs: WDG1: Academic Capacity; WDG2: Foundation Training; WDG3: Quality Assurance

Objective: Health professions education is riddled with ill-defined problems: how to motivate learners, how to assess complex skill sets, how to promote innovation, *etc.* We aimed to engage educators in the design thinking process to equip them with a framework and strategies to address ill-defined problems in education (Brown, 2008).

Method: In 2018, we conducted an exhaustive literature review, which showed that design thinking has been used sparingly in health professions education (McLaughlin *et al.*, 2019). There was an absence of literature describing processes for teaching educators how to use design thinking, which meant we needed to create a process for helping others apply this framework. We collaborated with individuals of various backgrounds (medicine, education, engineering) to create a two-hour design thinking workshop for educators. The workshop was highly interactive and modelled various design thinking strategies. Students also participated as users during the

session and were interviewed by attendees. Attendees then used these insights to inform their brainstorming and solution generation for various curriculum design challenges. The workshop concluded with a reflection about educational practice and how design thinking can help improve our educational efforts.

Results: Thirty educators attended the workshop. On a scale from 1-very low to 5-very high, the workshop was rated 4.4 for value, 4.6 for quality, and 4.7 for presenter effectiveness. Attendees identified the workshop activities, including students to interview, as the most beneficial aspect of the workshop. We learned that faculty can benefit from this new perspective and design thinking can instil a creative mindset to generate innovative solutions to our challenges in health professions education.

Conclusion: Our design thinking workshop effectively engaged educators in the design thinking process across multiple disciplines and generated valuable discussion on prominent curriculum development topics. Design thinking holds promise as a framework for solving wicked problems in pharmacy education.

References

Brown T. (2008). Design thinking. *Harv Bus Rev*, **86**(6), 84-92

McLaughlin, J.E., Wolcott, M., Hubbard, D., Umstead, K. & Rider, T.R. (*in press*). A Qualitative Review of the Design Thinking Framework in Health Professions Education. *BMC Med Ed*.

EFO4. Implementation of the RIPE model to enhance patient safety through interdisciplinary education and collaboration

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Keywords: Teamwork, Inter-professional Practice, Inter-professional Education, Reflective Practice

PWDGs: WDG5: Competency Development; WDG8: Working with Others

Objective: Develop and implement a novel model of inter-professional learning: RIPE (Reflective Inter-professional Education Model) to enhance patient safety through interdisciplinary education & collaboration.

Design: This unfolding interdisciplinary stroke case was designed to facilitate collaborative decisions between healthcare professional students (pharmacy, nursing, allied health) at simulated 'bedsides'. Based on the pilot model (Lucas *et al*., 2018), RIPE included 12 workstations: (i) 1 x Assembly workstation and case brief; (ii) 1 x research; (iii) 2 x education; (iv) 2 x guided reflection; (v) 5 x medium/ high fidelity mannequins; (vi) 1 x standardised patient. Participants included; 'pharmacists' (n=55) rotated through 12 stations, 'nurses' (n=8) remained at the bedside workstations, and 'resident medical officers' (n=2) who 'floated' between workstations. The participants performed designated responsibilities at each workstation. The success of RIPE was measured using the university student anonymous feedback process; and thematic analyses of student reflections elicited during focus group sessions (n=7). Focus groups were audiotaped and transcribed *verbatim* for emergent themes.

Results: Emergent themes included: (i) Time management: managing interruptions in time pressured acute care environments; (ii) Patient Centred Care: engaging patients and family in care; (iii) Communication: developing skills in inter-professional communication (IPC); (iv) Teamwork: recognising the importance of teamwork, relationships and respect.

Conclusion: Utilising RIPE, pharmacy and nursing students perceived IPC as an important skill development, essential for their integration into hospital environments and for improved patient health outcomes. Sustainability of this model includes the use of selected student mentors from each discipline who are former students of the cohort.

References

Lucas, C., Power, T., Hayes, C. & Ferguson, C. (*in press*). Development of the RIPE model (Reflective Interprofessional Education Model) to enhance interprofessional collaboration. Research in Social and Administrative Pharmacy (advanced version available ahead of publication)

EFP1. Developing a national competency framework for pharmacy education in Kenya

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Keywords: International Partnerships in Education, FIP Global Competency Framework, Competency, Skills, Attitudes, Kenya

PWDGs: WDG1: Academic Capacity; WDG5: Competency Development; WDG6: Leadership Development; WDG7: Service Provision and Workforce Education and Training; WDG8: Working with Others

Objective: The Kenya Nottingham SPHEIR project (UKAID, 2019) aims to co-develop new pharmacy and chemistry curricular in five Kenyan universities. As part of the project University of Nottingham is working with FIP and five Kenyan universities to develop a national competency framework for pharmacy education to match the learning outcomes with population/health needs. This paper aims to describe the development process.

Design: A pilot needs analysis was carried out at University of Nairobi and learning outcomes were mapped against competencies and behaviours using the FIP Global Competency Framework (GbCF) (FIP, 2012). This was followed by a mapping exercise with a broad range of participants at a stakeholder meeting at Maseno University. They were asked to identify the key skills and competencies need and employability drivers for pharmacists in Kenya based on sectors.

Results: University of Nairobi's mapping against the FIP GbCF showed that the learning outcomes of the curriculum were not completely matched with the competencies and behaviours on public health, medicines management and dispensing, monitoring medicines usage and outcome follow-up, documentation, scientific evidence-based decisions, organisation and management, risk management, and CPD behaviours.

The stakeholder workshop at the Maseno highlighted the need for skills in integrity, team playing and communication. There needed to be renewed focus on counselling skills, leadership and management, a shift from product to patient, basic emergency skills, inter-professional collaborations and work ethics. They considered that these were needed across all sectors.

Conclusion: Global core competencies in GbCF mostly match with learning outcomes and there is no need to reinvent the wheel. With the National Competency Framework for Kenya we will make sure that additional local needs will be met. Further multi-stakeholder meetings will be held with three other Kenyan universities to further refine what needs to be included in the National Competency Framework for Kenya.

References

UKAID. (2019). Strategic Partnerships for Higher Education Innovation and Reform. Available at: https://www.spheir.org.uk/about/partnerships

FIP [International Pharmaceutical Federation]. (2012). FIP Education Initiatives. Pharmacy Education Taskforce. A Global Competency Framework. The Hague: International Pharmaceutical Federation. Available at: https://www.fip.org/files/fip/PharmacyEducation/GbCF_v1.pdf

EFP2. An implementation plan for intercultural learning within a college of pharmacy

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Keywords: Culture Based Curriculum, Cultural Awareness, Curriculum Development, Individualised Education

PWDGs: WDG5: Competency Development; WDG6: Leadership Development; WDG8: Working with Others

Objective: The objective of this programming initiative was to provide intercultural education with a focus on empathy and healthcare for all students in a college of pharmacy.

Design: Faculty within the college participated in training and certifications with a focus on intercultural learning and curriculum placement. Activities and assessments were embedded into student orientation, professional labs, didactic courses, and co-curricular activities. Topics covered included Hofstede's cultural dimensions, mindfulness, learning styles, and conflict management. A framework utilising four intercultural core competencies (increasing cultural and self-awareness, increasing awareness of others, learning to manage emotions and thoughts and learning to shift frames) was used to map included activities across the four professional years. Each student completed an individualised debrief and intercultural development plan. Students completed a Cultural Competency badge from the Purdue University Center for Intercultural Learning, Mentorship, Assessment and Mentorship.

Results: Two cohorts of students have completed the Intercultural Development Inventory during the first professional year and will complete again during the final professional year. The assessments demonstrate that the majority of students begin in polarisation or on the cusp of minimisation (n=227; average developmental orientation (DO): 87.32; average perceived orientation (PO): 118.96). Additional scales to measure empathy and cultural intelligence were used to assess student growth following curriculum-embedded activities.

Conclusion: By working with key College and University partners, a robust intercultural learning programme has been longitudinally implemented that includes several individualised assessment measures.

EFP3. Development of a visualisation and analytical method of the pharmacy curriculum at the University of Pécs, Hungary

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Keywords: Dropout Rate, Curriculum Development, Prerequisites, Progress Monitoring

PWDGs: WDG3: Quality Assurance

Objective: Logical arrangement of the component parts of a curriculum is essential. Our aim is to collect and summarise prerequisites of required courses, data on student dropout rate, and integrate all relevant information in a visual map. This visual network will help educators and the management to further develop our curriculum and design prerequisites for required courses. Further, it can be used as a quality management tool for all stakeholders.

Method: Prerequisites of required courses were exported to MS Project and Gephi software aiming to visualise the networks of our courses. Dropout rates were collected regarding the past three years from the electronic administration system (Neptun).

Results: As our project is currently in the development phase we have preliminary results. Visualisation of the prerequisite structure of obligatory subject in Microsoft Windows MS Project as a Gantt chart is an easy and convenient method, however the complexity of the network makes it difficult for visual interpretation. Using Gephi, an open source network analysis and visualisation software, is a visualisation and exploration software for graphs, however the timeline of education is difficult to manage and building the graph is a laborious process.

Conclusion: A network analysis and visual presentation of the required courses of curriculum require an individual software programmed to meet our needs. Applying such novel method will improve curriculum structure and reduce dropout rate by identifying critical courses with high number of prerequisites and high failure rate.

EFP4. Curricular transformation of a Doctor of Pharmacy degree programme

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Keywords: Curriculum, Curriculum Development, Instruction

PWDGs: WDG1: Academic Capacity; WDG2: Foundation Training; WDG5: Competency Development

Objective: To describe both the process undertaken and newly designed content associated with a complete transformation of an existing Doctor of Pharmacy (Pharm.D.) degree programme.

Design: A multi-pronged approach was used to re-imagine, design, and execute a novel Pharm.D. curriculum. The transformation included both content and delivery methods. Especially unique elements include a six-semester community service learning programme in conjunction with a community partner, a required course in differential diagnosis, and a co-joined laboratory learning sequence that does not sequester students by professional year. The transformation also included adoption of two high stakes assessments (MileMarker examinations), one at the end of the second professional year and another at the end of the third professional year.

Results: Six semesters of the new curriculum have been instructed including a re-engineered experiential course sequence. Preliminary MileMarker and PCOA data are available for analysis along with information provided by IPPE and APPE preceptors.

Conclusion: An innovative and ambitious curricular re-design was undertaken. Significant effort was involved in execution of the original plan and design. Preliminary data indicate that the reformed curriculum is meeting objectives.

References

Romanelli, F. & Tracy, T. (2015). A coming disruption in pharmacy? *American Journal of Pharmaceutical Education*, **79**(1)

Romanelli, F. (2017). Flexner, educational reform, and pharmacy. *American Journal of Pharmaceutical Education*, **81**(2)

EFP5. Learning and adapting from student assessment data

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Keywords: Assessment, Learning Objectives, Curriculum Evaluation, Curriculum Design

PWDGs: WDG2: Foundation Training; WDG3: Quality Assurance

Objective: Demonstrate the value of utilising student assessment data to improve curricular effectiveness and enhance student learning.

Design: Assessment serves multiple purposes. For students, assessments provide feedback, summative or formative, indicating competency, standing in a cohort, or progression through material. When used as part of the learning process, assessment data can help students identify strengths and weakness in their knowledge and skills that can help them focus effort to become more practice-ready. In aggregate, programmes can use the same data to improve curriculum and enhance student learning. This proposal will demonstrate how the University of Colorado used data collected during the last year in the Doctor of Pharmacy curriculum to make changes to programme level learning outcomes, programme curriculum, and student assessments.

Evaluation of the effectiveness of a newly designed and implemented end-of-curriculum assessment was conducted. The objective of the evaluation was to determine the validity of the tool in assessing student practice readiness during end-of-curriculum pharmacy practice rotations. Secondarily, aggregate data were used to assess the effectiveness of the four year curriculum in preparing students to meet programme learning objectives and identified entrustable professional activities (EPAs).

Results: Analysis of an end-of-curriculum assessment was conducted and supported the use of the tool in assessing student practice readiness. Overall, students demonstrated competency in the assessed domains of professionalism, communication, and practice skills. Aggregate data for five items fell below pre-determined benchmarks and were flagged for review.

Conclusion: Results from the end-of-curriculum assessment indicated students were individually prepared for practice. The flagged items were reviewed and the associated learning outcomes were modified to better align with the opportunities students were presented with during their programme of study. Additionally, new learning experiences and assessments were introduced earlier in the curriculum to better prepare students for their final year rotations.

EFP6. Development of bachelor and master degree programmes in global health

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Keywords: Higher Education Program Development, Program Description

PWDGs: WDG1: Academic Capacity; WDG4: Advanced and Specialist Development; WDG5: Competency Development; WDG6: Leadership Development

Objective: Consistent with the College's vision to be globally prominent in pharmacy and health professions education, a New Academic Program Evaluation Task Force was formed in 2017 with the goal to identify and provide market analyses and financial projections for potential new undergraduate and graduate programmes at St. Louis College of Pharmacy.

Method: New programme evaluation and development followed a five step method: 1) faculty-generated academic programme idea; 2) development of a curriculum shell; 3) market analysis; 4) financial projections; and 5) submission of programme to the President and Board of Trustees for approval.

Results: Among the twelve programmes identified by the Task Force, a bachelor degree and master degree programme in global health were developed and approved. The Bachelor of Arts (BA) in Global Health consists of 121 semester credit hours and includes emphases on the environment, culture, economics and politics as well as field work. The Master of Science (MS) in Global Health consists of 32 semester credit hours and is intended for individuals from a wide range of disciplines and professions who wish to develop an in-depth understanding of health-related issues that integrate health and social science perspectives within a global context. Instruction will include self-directed study, formal and interactive lectures, seminars, tutorials, case studies and field work. An accelerated Master's degree option is planned and allows qualified BA in Global Health students to extend their studies to a fifth year to complete the requirements of both degrees.

Conclusion: The BA in Global Health will be implemented in August 2019 and the MS in Global Health will begin in August of 2020. These programmes will be unique programmes to be offered within a United States college of pharmacy.

EFP7. Development programs giving back to the workplace - it's not just the learners who are still learning

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Keywords: Workplace Learning, Staff Development, Hospitals

PWDGs: WDG2 - Foundation Training; WDG8 - Working with Others

Objective: TheThe Society of Hospital Pharmacists of Australia (SHPA) Foundation Residency programme provides structured foundation training to new-to-hospital pharmacists. SHPA works in partnership with workplaces to deliver this programme. It is known that employers are occasionally hesitant to commit to workplace-based learning initiatives (Atkison & Stanwick, 2015).

Design: To describe how participation in the SHPA Foundation Residency has delivered spontaneous benefits for participating hospitals, both planned and unplanned.

Results: During programme accreditation by SHPA staff, we identified various examples of departments utilising the Foundation Residency to improve targeted departmental goals. Additionally, examples of serendipitous improvements to departmental functional were noted. These include workforce planning, building interdisciplinary links, improvement in team leaders management style, and skill acquisition by key staff. These workplace-related benefits were additional to those we expected for residents themselves and their patients.

Conclusion: We describe specific examples of how participation in workplace-based development programmes have improved the workplace itself. We expect the benefits of workplace-based development programmes to concentrate in the learners themselves, and ultimately their patients, but these examples show demonstrated improvements in departmental function brought about directly by participation in our Residency programme. We shouldn't forget that the power of workplace educational programmes extends beyond the primary recipients and that is a tangible good for the workplace as well as the learner.

References

Atkinson, G., Misko, J. & Stanwick, J. (2015). Work integrated learning in STEM disciplines: the employer perspective. [online] National Centre for Vocational Education Research. Available at: https://www.chiefscientist.gov.au/wp-content/uploads/NCVER_WIL-employer-perspectives.pdf. Accessed 16 December, 2018

EFP8. Utilisation of the master adaptive learner (MAL) framework for development of an integrated pharmacotherapy course series

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Keywords: Experiential Placements, Pharmacy Practice, Globalisation

PWDGs: WDG1 - Academic Capacity; WDG2 - Foundation Training and Early Career Development; WDG5 - Competency Development; WDG8 - Working with Others

Objective: The integrated pharmacotherapy (iPHTH) course sequence is a vertically integrated, stepwise progression of pharmacotherapy delivery designed using the master adaptive learner (MAL) framework to ensure that students achieve demonstrably high levels of knowledge, clinical skills, and abilities (Schumacher *et al.*, 2013; Cutrer *et al.,* 2017). The MAL framework describes a metacognitive approach to learning based on self-regulation that fosters the development and use of adaptive expertise in practice (Schumacher *et al*., 2013; Cutrer *et al*., 2017). The operationalisation of this model as a longitudinal, spiral sequence of three courses allows the pursuit of increased applicable conceptual knowledge, complex clinical skills, and clinical reasoning abilities.

Design: The design is guided by the application of four learning strategies (contextual learning, scaffolding, deliberative practice, metacognition) (Sherin *et al*., 2004; Koens *et al*., 2005; Ericsson, 2015; Medina *et al.*, 2017) across the phases (planning, learning, assessing, adjusting) of the MAL framework. This course series strives to move students sequentially from: (1) foundational knowledge to specialised knowledge; (2) general thinking skills (*i.e.* critical thinking) to specialised thinking skills (*i.e.* clinical reasoning and decision making); (3) basic principles and guidelines to applications in practice; and, (4) simple to complicated to complex problems (*i.e.* certainty to radical uncertainty).

Results: iPHTH course assessments demonstrated that students achieved demonstrably higher levels of knowledge learning per Bloom's taxonomy *and* higher levels of clinical skills per the assessment of Entrustable Professional Activities. We built on students' knowledge and skills from foundational courses and immersive experiential clinical learning to allow gradual mastery from one course to the next as the student progresses learning in increasingly complex areas. The framework and student expectations for performance for each course considers complexity progression, course structure continuity, and sequencing.

Conclusion: The transformation of pharmacotherapy learning was developed using the MAL framework with the intent to progress the students towards development of expertise to function efficiently in today's healthcare environment but to also create solutions for novel workplace challenges encountered.

References

Cutrer, W.B., Miller, B., Pusic, M.V., *et al*. (2017). Fostering the development of master adaptive learners: A conceptual model to guide skill acquisition in medical education. *Acad Med*.**92**, 70-75

Schumacher, D.J., Englander, R. & Carraccio, C. (2013). Developing the master learner: applying learning theory to the learner, the teacher and the learning environment. *Acad Med* **88**, 1635-45

Koens, F., Mann, K.V., Custers, E.J. & ten Cate, O.T. (2005). Analysing the concept of context in medical education. *Med Educ,* **39**, 1243-9

Sherin, B., Reiser, B.J. & Edelson, D. (2004). Scaffolding analysis: extending the scaffolding metaphor to learning artifacts. *J Learning Sciences*, **13**, 387-421

Ericsson, K.A. (2015). Acquisition and maintenance of medical expertise: a perspective from the expert-performance approach with deliberate practice. *Acad Med*, **90**, 1471-86

Medina, M.S., Castelberry, A.N. & Persky, A.M. (2017). Strategies for improving learner metacognition in health professions education. *Am J Pharm Educ*, **81**, 78

Results: The students found the assessment form relevant and authentic although some of them claimed that nervousness was a problem. The distribution of grades was in line with prior semesters. However, some students failed the exam solely based on inadequate communication skills. The participating teachers have all been very positive and we believe that this project has led to a more relevant assessment method for this course, a method where we can assess the students' communication skills to a greater extent. The assessment method affects the way students focus their learning and we have seen a strengthening of their ability to communicate since changing our assessment.

Conclusion: The change of assessment method has led to enhancement of the communication skills, thus making our students better prepared for their future profession.

References

Kirton, S.B. & Kravitz, L. (2011). Objective structured clinical examinations (OSCEs) compared with traditional assessment methods. *Am J Pharm Educ*, **75**(6), Art.111

Ramsden, P. (2003). Learning to teach in higher education. 2nd Ed.

EFP9. OSCE as assessment method in a course regarding pharmacotherapy in self-treatment

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Keywords: Assessment, Communication Skills

PWDGs: WDG3 - Quality Assurance; WDG5 - Competency Development

Objective: To strengthen the students´ communication skills and better assess whether they can apply their theoretical knowledge when advising a customer in the pharmacy, by changing the assessment method to an OSCE.

Design: The examination in a nine credit course regarding pharmacotherapy in self-treatment was changed from a traditional written exam to an Objective Structural Clinical Examination (OSCE), *i.e.* an oral exam based on role-play. Assessment criteria were developed and tested. The OSCE consisted of three different stations ('pharmacies') where the students met a customer, played by a teacher. Another teacher in the room assessed the interaction with the customer and asked follow-up questions. After three days of OSCE-sessions, the student' three performances were weighted with an overall grade. Both theoretical knowledge regarding non-prescription drugs and distinction between self-treatment and healthcare, as well as communication skills, were taken into account in the grading. In order to pass the course, the student had to perform sufficiently well within all areas above.

EFP10. Developing a holistic and evidence-based framework to evaluate the MCQ-based summative assessment in pharmacy education programmes

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Keywords: Educational Assessment, Evaluation, Holistic Evaluation, Summative Evaluation, Curriculum Evaluation, Multiple Choice Tests, Delphi technique

PWDGs: WDG1 - Academic Capacity; WDG3 - Quality Assurance

Objective: The objective is to develop a holistic and evidence-based framework to evaluate the multiple choice questions (MCQ) based summative assessment in pharmacy education programmes.

Method: We employed a systematic literature review followed by the Delphi method. We first conducted a critical synthesis of peer-reviewed publications over the past 15 years that focused on (1) Assessment and Curriculum Design in Pharmacy Education; (2) Evaluation methods of Summative Assessment Quality in STEM; and (3) MCQ-based item writing best practices. The framework that emerged from this review was then revised based on feedback provided by a panel of experts in higher education and pharmacy education assessments in line with the Delphi method.

Results: The systematic literature review and experts' inputs resulted in a holistic and evidence-based framework to evaluate the MCQ-based summative assessment. Our framework centred on the adapted concept of Assessment Utility (Kibble, 2017). We conceptualised Assessment Utility in terms of the reliability, validity, feasibility, cost effectives, acceptance and educational impact (van der Vleuten, 1996), and elaborated on the central concept of validity drawing on the assessment theory by Cizek (2012). To evaluate quality of MCQ-based assessments, our framework consisted of three main components: (1) quantitative evaluation of the MCQ-based assessments using Item Response Theory; (2) qualitative item evaluation based on item-writing rules; and (3) qualitative analysis of the test blueprints and construction processes.

Conclusion: The holistic framework emerging from this research suggested a robust and evidence-based evaluation of the MCQ-based summative assessments in pharmacy education. This framework had important implications for programme-level quality assurance processes and policies related to summative assessment evaluations that can be employed and adapted in different pharmacy education contexts. The framework was also a methodology contribution to the current literature in developing a holistic method to evaluate MCQ-based summative assessments in other educational settings.

References

Cizek, G.J. (2012). Defining and distinguishing validity: Interpretations of score meaning and justifications of test use. *Psychological Methods*, **17**(1), 31-43

Frey, B.B., Petersen, S., Edwards, L.M., Pedrotti, J.T. & Peyton, V. (2005). Item-writing rules: Collective wisdom. *Teaching and Teacher Education*, **21**(4), 357-364

Kibble, J.D. (2017). Best practices in summative assessment. *Advances in Physiology Education*, **41**(1), 100-119

Pate, A. & Caldwell, D.J. (2014). Effects of multiple-choice item-writing guideline utilization on item and student performance. *Currents in Pharmacy Teaching and Learning,* **6**(1), 130-134

Van Der Vleuten, CP. (1996). The assessment of professional competence: developments, research and practical implications. *Adv Health Sci Educ Theory Pract,* **1**, 41–67

Wu, M., Tam, H.P. & Jen, T.H. (2016). Educational measurement for applied researchers. Theory into Practice. Springer

PRO1. Transfer of training in the assessment and management of urgent cases to community pharmacy practice

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Keywords: Community Pharmacy, Learning Transfer, Behaviour Change, Clinical Examination

PWDGs: WDG4 - Advanced and Specialist Development; WDG5 - Competency Development; WDG7 - Service Provision and Workforce Education and Training; WDG8 - Working with Others; WDG9 - CPD Strategies; WGD11 - Workforce Impact; WDG13 - Workforce Policy Formation

Objective: Community pharmacy can contribute to meeting demand for patient care for common, self-limiting conditions through commissioned minor ailment schemes. Such schemes are cost effective (Watson *et al*., 2015; Murray, 2016; Wright, 2016) and provide improved access to treatment for low income groups (Rafferty *et al.*, 2017). The potential to expand the range of conditions managed in this setting resulted in training for pharmacists in the treatment and management of patients requiring urgent care being provided for 14 cohorts. The purpose of this study was to determine the extent to which this training was transferred to practice.

Design: Using a repeated measures design, data were collected from participants one week before (T1), one week after (T2) and two months after training (T3). Validated measures were used to capture two urgent care behaviours (taking a structured history; performing a clinical examination); implementation goals and intentions were collected using open-ended questions at T2. Follow-up of implementation intentions at T3 allowed for further investigation of transfer of learning and barriers to this. Repeated measures analyses were undertaken to establish behaviour change quantitatively; qualitative data were analysed thematically.

Results: Findings suggest the training was successful in changing behaviour and that this was sustained at T3 ($p<0.001$). While intentions to implement practice change were widely reported by participants, only around a third were successful in doing so, with workload, lack of equipment and space, and concerns regarding liability insurance suggested as reasons for transfer of training not taking place.

Conclusion: Community pharmacists can extend the scope of their practice to the treatment and management of patients requiring urgent care. However, currently the practice setting may prevent community pharmacists from providing care for these patients. If learning is to be transferred to practice future training models need to address contextual barriers..

References

Murray, R. (2016). Independent review of community pharmacy clinical services. London, UK: NHS England. Available at: https://www.england.nhs.uk/commissioning/wp-content/uploads/sites/12/2016/12/community-pharm-clncl-serv-rev.pdf

Rafferty, E., Yaghoubi, M., Taylor, J. & Farag, M. (2017). Costs and savings associated with a pharmacists prescribing for minor ailments program in Saskatchewan. *Cost Effectiveness and Resource Allocation*, 15(3). Available at: https://doi.org/10.1186/s12962-017-0066-7

Watson, M.C., Ferguson, J., Barton, G.R., Maskey, V., Blyth, A., Paudyal V. & Fielding, S. (2015). A cohort study of influences, health outcomes and costs of patients' health−seeking behaviour for minor ailments from primary and emergency care settings. *British Medical Journal Open*, **5**, e006261. Available at: http://bmjopen.bmj.com/content/5/2/e006261

Wright, D. (2016). A rapid review of evidence regarding clinical services commissioned from community pharmacies. Available at: https://www.england.nhs.uk/commissioning/wp-content/uploads/sites/12/2016/12/rapid-evdnc-rev-dec-16.pdf

PRO2. An investigation of the most critical factors influencing enhancement of pharmacy practice and workforce capability

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Keywords: National Competency Standards, Professional Development, Pharmacist

PWDGs: WDG5 - Competency Development; WDG8 - Working with Others

Objective: To identify common major factors influencing the enhancement of Good Pharmacy Practice (GPP) and capability of the pharmacy workforce in the Western Pacific Region (WPR).

Method: Collaborative decision-making workshops, semi-structure interviews and online surveys were used to gather information, opinions and achieve agreement between pharmacy leaders from the Western Pacific countries. Modified Tuckman's model incorporated with World Café workshops were used for group development and to identify and prioritise major issues related to four main roles of pharmacists described in the joint FIP/WHO GPP guidelines.

Results: Thirty-two pharmacy leaders from 13 of 15 countries of the WPR with pharmacist associations participated in this study. Eight priority issues were identified which provided consensus statements related to enhancement of pharmacy practice and the role of the pharmacist. The most critical factor was related to maintaining individual professional competence: National Competency Standards should be established to enable the formulation of a professional development framework that leads to enhanced pharmacy practice including patient care. Potential benefits and impacts of competency standards (CS) identified by the study participants included CS as a means to facilitating dialogue with policy makers to enhance practice, publicising the capabilities of pharmacists to general public and leading universities in curriculum development and reviews. Analysis of five sets of CS compared with FIP Global Competency Framework (GbCF) showed countries have adopted additional domains for specific areas of practice.

Conclusions: The methodologies adopted in this study overcame cultural and practice differences to ensure equal participation of all delegates. National Competency Standards and Professional Development Frameworks were identified as the common priority and most critical factor for the enhancement of Pharmacy Practice with shared knowledge of the current state of practice. Educators need to consider more widely than the global framework as GbCF domains did not address all requirements of the countries.

References

FIP [International Pharmaceutical Federation]. (2011). Joint FIP/WHO guidelines on good pharmacy practice: standards for quality of pharmacy services. WHO Technical Report Series, No. 961. Available at: https://www.fip.org/www/uploads/database_file.php?id=331&T_id=

FIP [International Pharmaceutical Federation]. (2012). FIP Education Initiatives. Pharmacy Education Taskforce, A Global Competency Framework Version 1, 2012. A global competency framework for services provided by pharmacy workforce. Available at: https://www.fip.org/files/fip/PharmacyEducation/GbCF_v1.pdf

PRO3. Developing foundation-level pharmacy competency framework in Japan: A survey exploring the applicability of the Global Competency Framework in Japan

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Keywords: Competency Based Education, Pharmacy, Professional Development

PWDGs: WDG2 - Foundation Training; WDG5 - Competency Development; WDG9 - CPD Strategies

Objective: To measure the level of relevance of behavioural statements of the Global Competency Framework (GbCF) (FIP, 2012) to Japanese foundation-level pharmacy practice, aiming to investigate the applicability of the GbCF in Japan for developing a national framework for foundation-level pharmacists in Japan.

Method: A cross-sectional, anonymous, online self-completed questionnaire survey was conducted during June and July 2018 in Japan. The questionnaire was adopted from the GbCF which was translated into Japanese using a forward-back translation process. The relevance levels of items of the GbCF were assessed by using 4-point Likert scales.

Snowballing sampling approach was used to reach foundation-level pharmacists in Japan. Collected data were analysed in SPSS quantitatively.

Results: A total 604 usable responses were included in analyses. High levels of relevance levels were found in two clusters ('pharmaceutical public health' and 'pharmaceutical care'), while the other two clusters ('organisation and management' and 'professional/personal') showed significantly low relevance of clusters (relevance = 89.6%, 82.5%, 59.6%, and 67.9%, respectively). The study found little engagement of academic sector with framework, while industry sector showed the relevance to all clusters evenly.

Comparing the relevance levels between years working in sectors, the study found there is no progression of relevance in 'organisation and management' and 'professional/personal' competencies during foundation years, which is a worry in terms of the ability of pharmacists taking the management role transitioning towards advanced level, as well as very little professional/personal development.

Conclusion: The study pointed out specific competencies and behaviours which require modifications to adapt the GbCF into Japanese pharmacy practice environment. This is a key step towards development of a national framework in Japan, illustrating current Japanese foundation-level pharmacy practice compared with global standards. The findings will be used as a base for developing a framework for foundation-level pharmacists in Japan.

References

FIP [International Pharmaceutical Federation]. (2012). Education Initiatives (FIPEd) 2012. A Global Competency Framework version 1. The Hague: FIP.

PRO4. Impact of a patient care clinic located within a pharmacy school on opioid utilisation

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Keywords: Experiential Learning, Narcotics, Pharmacy

PWDGs: WDG1 - Academic Capacity; WDG11 - Workforce Impact

Objective: To determine the impact of medication assessments on opioid utilisation in ambulatory patients referred to the Medication Assessment Centre (MAC), a pharmacist-run patient care teaching clinic located within a pharmacy school (University of Saskatchewan).

Methods: Retrospective chart audit. Any patient referred to the MAC for any reason during the 2017 calendar year who was taking any opioid at the initial appointment was included. Chart data were extracted in August, 2018 and opioid utilisation at the initial MAC visit was compared with opioid utilisation at the final documented patient appointment, after MAC pharmacist/student recommendations had been communicated to the physician. Any changes to opioid utilisation not directly linked to MAC pharmacist/student recommendations were not included in the analyses.

Results: Of the 129 patients referred to the MAC during the study period, 28% (n=36) were taking an opioid and were included. Mean age of participants was 59.8 years and patients were taking a mean of 15.2 different medications (including opioids and non-opioids) at baseline. The most common opioids utilised were hydromorphone (42%), codeine (33%) and tramadol (17%). The most common indications for opioid use were unspecified chronic pain (56%), migraine (11%) and fibromyalgia (6%). Mean morphine equivalent doses were reduced from 129.7mg per patient at baseline to 108.2mg per patient (p=0.043) as a result of MAC pharmacist/student recommendations. Utilisation of adjunctive pain medication (*i.e.*, acetaminophen, non-steroidal anti-inflammatories, duloxetine) were also increased as a result of MAC pharmacist/student recommendations.

Conclusion: Medication assessments provided by pharmacists and students at a patient care clinic, located within a pharmacy school, resulted in statistically significant and clinically important reductions in opioid utilisation amongst current opioid users. This study provides additional data to existing evidence regarding the value of this experiential training model on the provision of patient care in the primary health system (Jorgenson, 2016; Jorgenson, 2018; Lysak, 2018).

References

Jorgenson, D., Landry, E. & Lysak, K. (2016). A Mixed Methods Evaluation of a Patient Care Clinic Located within a Pharmacy School. *International Journal of Clinical Pharmacy*, **38**(4), 924-930

Jorgenson, D., Landry, E., Lysak, K., *et al*. (2018). Impact of Pharmacist-led Medication Assessments on Medication Costs. *Canadian Pharmacists Journal*, **152**(1), 23-27. Available at: https://doi.org/10.1177/1715163518815211

Lysak, K., Berenbaum, S., Landry, E., *et al*. (2018). Student Perceptions of an Experiential Education Clinic within a Pharmacy School. *Currents in Pharmacy Teaching and Learning*, **10**(12), 1636-1640

PRP1. Inter-professional education - right approach, wrong participants? The gatekeeper role of the GP receptionist

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Keywords: Inter-professional Relationship, Work Attitudes, Professional Development, Communities of Practice, Cooperation

PWDGs: WDG8 - Working with Others

Objective: Effective inter-professional teamwork is essential to deliver quality outcomes for patients. However, evidence suggests that inter-professional collaboration in healthcare is suboptimal. Inter-professional education (IPE) during the undergraduate element of training is one mechanism that has been embedded in Pharmacy undergraduate programmes to promote inter-professional collaboration. This IPE is delivered with students training to become healthcare professionals (HCPs). Whilst the relationship with HCPs is vital, there is evidence that the relationship with support staff is similarly important (Swinglehurst, 2011). In this study, the objective was to understand the relationship between community pharmacists and receptionists in General Practitioner (GP) practices.

Method: Community pharmacists were recruited by purposive, snowball sampling. Semi-structured interviews were conducted to understand pharmacists' relationships with GP receptionists. Interviews were transcribed *verbatim* and inductive thematic analysis undertaken.

Results: Fifteen community pharmacists were interviewed. Participants reported daily interactions with GP receptionists. Emerging themes were: (i) The receptionist's broker role in enabling pharmacist interactions with the GP; (ii) the receptionist's broker role as a barrier to interactions with the GP; (iii) the receptionist being helpful in resolving patient-related issues; (iv) the need for a good relationship with the receptionist.

Conclusion: GP receptionists are members of the wider multidisciplinary team and play a significant role in 'brokering' interactions between pharmacists and GPs (Bradley, 2012). Participants in this study found interactions with receptionists to often be frustrating, with some citing the receptionist as the main barrier to interactions with GPs. Although there were a variety of reasons for this, participants indicated that receptionists don't understand the pharmacist's role. Given the importance of the GP receptionist in facilitating interactions between pharmacists and GPs, and a lack of shared understanding of roles, it would be beneficial to develop IPE activities that include the GP receptionist in order to foster collaboration.

References

Swinglehurst, D., Greenhalgh, T., Russell, J. & Myall, M. (2011). Receptionist input to quality and safety in repeat prescribing in UK general practice: ethnographic case study. *BMJ: British Medical Journal*, **343**

Bradley, F. (2012). Exploring interactions between General Practitioners and Community Pharmacists: a novel application of social network analysis. University of Manchester

PRP2. Assessment of pharmacy students' knowledge and attitudes towards geriatric pharmacy education and older adults: findings from Multiple Universities in Malaysia

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Keywords: Geriatrics, Educational Gerontology, Pharmacy, Students

PWDGs: WDG3 - Quality Assurance

Objective: The proportion of Malaysian older adults has more than doubled from 1 million to 2.2 million between 1991 to 2010, and is projected to rise to about 7 million by 2040 (Tey *et al*., 2016). This increment will make up a greater proportion of the clinical work of almost every healthcare providers (Weiss & Fain, 2009). Consequently, the need of geriatric care education will increase. This study attempted to assess the pharmacy students' knowledge and the attitude towards geriatric education and older people in order to check their preparation to deliver the appropriate medical care to that population.

Method: Self-administered questionnaires were distributed among final-year pharmacy students in five different public and private universities in Malaysia. The survey included three sections: sociodemographic section, assessment of knowledge section using a validated 28-item Geriatric Knowledge Assessment Scale (to measure students' geriatric knowledge in the areas of ageing disease, physical activity, drug therapy, and nutrition), and assessment of attitudes towards geriatrics education.

Results: A total of 311 students participated in the study which resulted in a response rate of 70.01%. About 75% of them were connected to their grandparents. They scored a total score 15.6 ± 3.7 (minimum: 2 to maximum: 27) in the geriatric knowledge. More than 80% of them were either agreed or strongly agreed on the importance of taking a course focused on geriatric care as well as their interest to get further knowledge and training in geriatric care. More than half of the students were neutral in their answers towards their attitudes regarding older people.

Conclusion: The findings showed that the students have average knowledge in different areas of geriatric care, which underscore the need for incorporating geriatrics education and training into pharmacy curriculum to improve their future interactions.

References

Tey, N.P., Siraj, S.B., Kamaruzzaman, S.B.B., Chin, A.V., Tan, M.P., Sinnappan, G.S. & Müller, A.M. (2016). Ageing in multi-ethnic Malaysia. *The Gerontologist*, **56**, 603-609

Weiss, D.D. & Fain, M.J. (2009). Geriatric education for the physicians of tomorrow. *Archives of Gerontology and Geriatrics*, **49**(Supp2), s17-s20

PRP3. Key determinants of pharmacy education fitness for purpose in a resource constrained country

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Keywords: Stakeholders, Educational Relevance, Curriculum Re-evaluation, Workforce Development

PWDGs: WDG1 - Academic Capacity; WDG3 - Quality Assurance; WDG5 - Competency Development; WDG7 - Service Provision and Workforce Education and Training; WDG13 - Workforce Policy Formation

Objective: To identify curricular gaps and key determinants for needs-based education from stakeholder perspectives in the context of the Nigerian undergraduate pharmacy programme change from B.Pharm. to Pharm.D. This is the first step towards addressing skill mix imbalance (Fulton *et al*., 2011) as a major health workforce challenge in sub-Saharan Africa, by optimising pharmacy workforce development to meet societal healthcare needs. This is in line with FIP global pharmacy education recommendations, improving the health status of the country, and making progress towards global health goals.

Method: Responses from individual interviews with deans of all accredited pharmacy schools in Nigeria (n=18) and key education decision makers (n=5) were triangulated with focus group interview responses of pharmacy students, trainees, and pharmacists in various sectors of practice (n=55) across five geopolitical zones, between April and June 2018. Audio recordings were transcribed *verbatim* and analysed thematically using the six step method described by Braun and Clarke (2006) to identify important barriers and facilitators to needs-based pharmacy education in the Nigerian context.

Results: Findings from the qualitative study revealed three key domains described as being pertinent to ensuring education fitness for purpose. These were education quality (EQ), education relevance (ER) and government, systems, and policy (GSP). Sub-themes under each included EQ (accreditation transparency, academic staff capacity, global comparability, other resources), ER (understanding of societal needs, curricular flexibility, employing teacher practitioners), GSP (national security, socio-economic stability, equality, cost-effectiveness of programme, policy of 'access to hospitals').

Conclusion: An understanding of these determinants can be useful for planning and development of pharmacy education policy in Nigeria especially with the upcoming undergraduate pharmacy programme change to Pharm.D. A greater benefit can be derived if similarly resource constrained countries or countries seeking to effect a pharmacy programme change to the Pharm.D. would consider these determinants.

References

Fulton, B., Scheffler, R., Sparkes, S. *et al*. (2011). Health workforce skill mix and task shifting in low income countries: a review of recent evidence. *Human Resources for Health*, **9**(1)

Braun, V. & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology,* **3**, 77-101

PRP4. Utilising FIP Nanjing outcomes to transform pharmacy education and practice in FIP UNESCO UNITWIN Centre for Excellence in Africa Programme

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Keywords: Transform, Pharmaceutical Education, Curriculum Development, Programme Development

PWDGs: WDG1 - Academic Capacity; WDG2 - Foundation Training; WDG3 - Quality Assurance; WDG4 - Advanced and Specialist Development; WDG5 - Competency Development; WDG6 - Leadership Development; WDG7 - Service Provision and Workforce Education and Training; WDG8 - Working with Others; WDG9 - Continuing Professional Development Strategies; WDG10 - Gender and Diversity Balances; WDG13 - Workforce Policy Formation

Objective: The goal of the FIP-UNESCO-UNITWIN Centre for Excellence in Africa (CfEA) programme is to transform pharmacy education and workforce (academic, practice, research) to meet contemporary societal health needs in CfEA member countries, including Kenya as a new CfEA member representing the SPHEIR Kenya-Nottingham Partnership as a collaborator with the UNITWIN programme. FIP Global Competency Framework (GbCF) and FIP Nanjing Statements and Pharmaceutical Workforce Development Goals (WDGs) were utilised to identify gaps in pharmacy education and workforce and develop evidence-based transformation programmes.

Design: CFEA representatives were tasked with mapping their curriculum, educational standards and country workforce strategies by using FIP Nanjing statements, WDGs and GbCF to identify gaps, determine priorities for advancing their educational programmes, and prepare a summary report for the June 2018 UNITWIN CfEA meeting in Lagos. Following presentations by each country, identified gaps were consolidated and re-prioritised into three main themes to be addressed over a three-year period.

Results: Numerous gaps were identified of which many were common to all, *e.g.* inter-professional education. Academic capacity (quantity, expertise), needs-based education strategies, and advocacy for an enabling environment (for education and the profession) were identified as the three main priorities to close the identified gaps. Working teams were formed for each priority to implement projects (*e.g.* Pharmacy Education in Africa Policy Paper and expertise mapping) to meet these priorities. Monthly conference calls provide support and monitor progress, and outcomes will be reported at the next UNITWIN CFEA meeting in June 2019 and the Monash Pharmacy Education Symposium 2019.

Conclusion: The UNITWIN CfEA programme is the first multi-country effort to use the FIP Nanjing Statements, WDGs and GbCF to conduct a gap analysis and develop a programme for transforming pharmacy education and workforce to meet health needs of each country individually and regionally.

References

FIP [International Pharmaceutical Federation]. (2012). FIP Education Initiatives. Pharmacy Education Taskforce. A Global Competency Framework. The Hague: International Pharmaceutical Federation

FIP [International Pharmaceutical Federation]. (2017). Transforming Pharmacy and Pharmaceutical Sciences Education in the Context of Workforce Development. The Hague: International Pharmaceutical Federation

PRP5. The future of nutrition in pharmacy education: Knowledge and perception of undergraduate pharmacy students

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Keywords: Informal Assessment, Competency, Feedback

PWDGs: WDG2 - Foundation Training; WDG5 - Competency Development

Objective: Optimising student learning in relation to nutrition is essential to ensure relevant nutrition advice to public health. Hence, we conducted an exploratory study to assess the knowledge of final year undergraduate pharmacy students of various aspects of nutrition.

Method: A 30-single best answer multiple choice item was developed as an informal assessment to evaluate students' knowledge of basic nutrition principle and their ability to put this knowledge into practical advice. The questions were developed in the form of case scenarios in a direct patient care setting taking into account the practice need and competency of entry-level pharmacists. Students also received feedback about their answers to support their learning and professional development. An informal discussion was involved in which students share their thinking about their learning experience and the preference to learn more about nutrition.

Results: Students performed significantly better on the questions that address general nutritional advice and questions pertaining to healthy pregnancy and breastfeeding, but not on questions that require clinical application specifically in cardiovascular cases. About 75% of the cohort agreed that they would like to learn more about nutrition.

Conclusion: Because of an increasing emphasis on prevention of chronic disease development, students must be able to identify and assess dietary risk factors associated with the development of morbid weight gain. Students also need to acquire and develop motivational counselling and referral abilities. Our results suggest the need for a multidisciplinary educational initiative to develop nutrition education competencies and curricula for pharmacy programmes considering best practices and patient outcomes. The inclusion of nutrition in students' training at all levels is necessary to maintain a focus on its critical role in patient care.

References

Kris-Etherton, P.M., Akabas, S.R., Bales, C.W., *et al*. (2014). The need to advance nutrition education in the training of health care professionals and recommended research to evaluate implementation and effectiveness. *The American Journal of Clinical Nutrition*, **99**, 1153S-1166S

PRP6. Establishment of a workplace-based experiential clinical pharmacy training programme in Australia for Chinese pharmacists

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Keywords: Experiential Learning, Workplace Learning, Clinical Teaching, Pharmacy, International Educational Exchange

PWDGs: WD7 - Service Provision and Workforce Education & Training

Objective: Healthcare reforms in China have increased demand for hospital pharmacists with the knowledge and skills to provide proficient clinical pharmacy services (Yip 2012; Hu 2014; Penm 2014). Providing workplace-based experiential learning in Australia exposes Chinese pharmacists to well-developed clinical pharmacy and education and training services.

We describe the establishment of a clinical pharmacy training programme for Chinese pharmacists in Australia.

Design: In collaboration with a Chinese pharmacy professional organisation, a clinical pharmacy training programme was established at a large, metropolitan, teaching healthcare network in Melbourne, Australia.

Hospital pharmacists from China spent 24 weeks participating in the clinical pharmacy training programme. The programme was aligned with relevant International Pharmaceutical Federation (FIP) Workforce Development Goals, and focused on development of clinical pharmacy skills through structured training and assessment. Experiential training in a diversity of clinical specialties and pharmacy practice areas was provided. Chinese pharmacist participants were invited to evaluate the programme *via* anonymous surveys and face-to-face meetings with the programme coordinator. An adapted validated clinical teaching feedback questionnaire was utilised to provide feedback to supervisors (Stalmeijer, 2010).

Results: Survey results demonstrated high levels of participant satisfaction. Areas most valued included: time spent with experienced pharmacists in clinical specialties, regular assessment and feedback from supervisors, and access to clinical governance resources.

Based on feedback and logistics, changes are being made to future programmes to better meet the learning needs of participants. These include reducing the programme to 12 weeks, with a greater focus on advanced, specialist and innovative roles and clinical governance development.

Conclusion: The clinical pharmacy training programme resulted in positive outcomes for both participants and supervisors, with changes being made to improve future programmes. After completing the programme, participants have been able to generalise and apply their learning to their hospital pharmacy workplaces in China.

References

Hu, M., Yee, G., Zhou, N., Yang, N., Jiang, X. & Klepser, D. (2014). Development and Current Status of Clinical Pharmacy Education in China. *American Journal of Pharmaceutical Education*, **78**, 8

Penm, J., Li, Y., Zhai, S., Hu, Y., Chaar, B. & Moles, R. (2014). The impact of clinical pharmacy services in China on the quality use of medicines: a systematic review in context of China's current healthcare reform. *Health Policy and Planning*, **29**, 849–872

Staljeijer, R.E., Dolmans, D.H., Wolfhagen, I.H., Muijtjens, A.M. & Scherpbier, A.J. (2010). The Maastricht Clinical Teaching Questionnaire (MCTQ) as a valid and reliable instrument for the evaluation of clinical teachs. *Academic Medicine*, **85**, 1732-8

Yip, W.C., Hsiao, W.C., Chen, W., Shanlian, H., Ma, J. & Maynard, A. (2012). Early appraisal of China's huge and complex health-care reforms. *Lancet*, **379**, 833-842

PRP7. Learning within an online community of practice for locum pharmacists

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Keywords: Social Networks, Peer Teaching, Socialisation, Professional Isolation, Professional Continuing education

PWDGs: WDG8 - Working with Others; WDG9 - CPD Strategies

Objective: To determine the learning value of an online community of practice to locum community pharmacists in the UK.

Method: Two months' posts from an online chatroom created for UK locum community pharmacists were analysed. Ethical approval was obtained from the University of Central Lancashire, UK. Anonymised text was analysed using a method that integrated Bales' interaction process analysis (Bales, 1950) and thematic analysis.

Results: Small, temporary social groups were created online, which met definitions for communities of practice. During the research period, 59 individuals created 67 threads with a total of 667 posts. Posts were largely task-focused, with little socio-emotional support. The key findings show that posters were forming identity as pharmacists *via* their interactions in the following ways:

- Value making - sharing opinions and views on what it means to be a pharmacist
- Creating a common culture - 'thinking like a pharmacist'
- Sharing information - supporting a joint opinion-forming base that develops ideas on pharmacy practice
- Community formation - helping develop common language and values where ideas can be shared

Conclusion: The integration of Bales' interaction process analysis and thematic analysis allowed the nature of the interactions to be considered alongside the themes discussed. This showed the chatroom was composed of an engaged, respectful, vibrant and sometimes challenging group of individuals discussing pharmacy issues online. Locum community pharmacists have been identified as a potentially professionally isolated group with difficulties accessing continuing professional development opportunities (Jacobs *et al*., 2013). This study demonstrates the value of online networking to professional identity, culture and knowledge.

References

Bales, R. (1950). A Set of Categories for the Analysis of Small Group Interaction. *American Sociological Review*, **15**(2), 257-263

Jacobs, S., *et al*. (2013). Existing arrangements for monitoring community pharmacies in England: Can they have a role in the revalidation of pharmacists? *Research in Social and Administrative Pharmacy*, **9**(2), 166-177

PRP8. An Advance Pharmacy Practice Experience (APPE) for a pharmacist e-consultation service with primary care providers

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Keywords: Primary Care, Medication Optimisation, Prescribers, E-consults, Virtual Teams

PWDGs: WDG6 - Leadership Development

Objective: To develop an Advance Pharmacy Practice Experience (APPE) with an innovative, technology-enabled, virtual team pharmacy practice model with primary care providers (PCPs). We designed an APPE rotation for Pharm.D. student involvement in an innovative practice model to collaborate with PCPs who do not have access to a clinical pharmacist. Most non-academic PCPs do not have access to a pharmacist in their practices. For the past three years, PCPs have used e-consultations to send questions to medical colleagues (*e.g*., cardiologists, dermatologists) when they have a complex case or need a second opinion on treatment options. Our service positions clinical pharmacists as the pharmacotherapy specialist available to PCPs. PCPs use secure electronic technology to send a pharmacist a patient-specific pharmacotherapy question

Design: Our pharmacy practice transformation fellow (licensed pharmacist) provides e-consultations to PCPs *via* a secure, web-based, electronic technology platform. PCPs send an e-consultation that includes the medication-related question, pertinent patient health information and lab results, and current patient medication list. The APPE students reviewed the e-consultation question and pertinent patient info, wrote an actionable recommendations to PCPs for review by the fellow, and the e-consult note was sent to the PCP within 48 hours of receiving an e-consult question. This demonstrates a pharmacy practice transformation opportunity where pharmacists are a virtual health team member with primary care practices.

Results: Students worked on 40 e-consults that resulted in 80+ recommendations. They learned how to: (1) assess data in an e-consultation format; (2) write concise and actionable notes for treatment recommendations; and (3) document clinical pharmacist assessments, recommendations, and time involved to propose reimbursement for pharmacist e-consultation services.

Conclusion: Pharmacist e-consultations are a practical method of introducing clinical pharmacist expertise to PCPs in non-academic settings. Healthcare technology enables the integration of clinical pharmacist expertise as a virtual team member to address complex medication-related questions from PCPs.

References

Herbert, C., Winkler, H. & Moore, T,A. (2018). Outcomes of mental health pharmacist-managed electronic consults at a Veterans Affairs health care system. *Ment Health Clin,* **7**(3), 131-136. doi:10.9740/mhc.2017.05.131

Stammet, M.M. & Spradley, S.S. (2016). Evaluation of treatment changes following electronic consultation to a pharmacist-run urine drug testing service in a veterans healthcare system. *J Opioid Manag*, **12**(6), 389-395. doi: 10.5055/jom.2016.0358

Salvo, M., Nigro, S.C. & Ward, D. (2012). Pharmacist-generated electronic consults to improve hypertension management in a multisite health centre: pilot study. *Inform Prim Care*, **20**(3), 181-4

PRP9. Current and emerging patterns of pharmacist pre-registration training in Great Britain

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Keywords: Professional Training, Educational Trends, Professional Education, Supervisor Supervisee Relationships, Professional Occupations

PWDGs: WDG2 - Foundation Training; WDG5 - Competency Development; WDG11 - Workforce Development

Objective: To map emerging changes in pharmacist pre-registration training in Great Britain (GB).

Method: Analysis of national policies for pharmacist pre-registration training in the countries of GB. Analysis of pilot and other new designs for pharmacist pre-registration training, in comparison to majority and historical single sector pre-registration schemes, through an analysis of pre-registration training plans held by the national regulator. Semi-structured interviews with pre-registration tutors and managers running multi-sector pre-registration training programmes. Relevant literature review.

Results: Patterns of delivery in pharmacist pre-registration training are beginning to vary significantly from traditional models. Emerging findings are: (1) rather than traditional single sector training schemes, multi-sector ones (especially GP Practice/Community and GP Practice/Hospital) are increasing in number significantly; and (2) that trainees in these schemes are more confident, better able to work across a variety of setting, better able to manage their pre-registration training experience and are more confident communicators with a variety of people they encounter while training.

Conclusion: At the GB country level, schemes are being set in place to introduced multi-sector pharmacist pre-registration training: for example, in England a national scheme for introducing centrally funded multi-sector pre-registration training (including training in GP [Family Doctor] Practices); in Wales the introduction of an All Wales Pharmacist Pre-registration Training Scheme and in Scotland plans for introducing five-year integrated M.Pharm., degrees including multi-sector pre-registration training. These initiatives reflect changes in practice which are now being supported by funded strategic interventions by government. Multi-sector working by pharmacists in GB is increasing and is now being reflected in pre-registration training schemes, which are becoming embedded across GB. These schemes are producing adaptable, confident communicators able to manage their own education and training well.

References

Health Education England. (2018). National Pre-registration Trainee Pharmacist Recruitment. Available at: https://www.lasepharmacy.hee.nhs.uk/national-recruitment/. Accessed 24 January, 2019

Jee, S.D., Schafheutle, E.I. & Noyce, P.R. (2019) "Is pharmacist pre-registration training equitable and robust?". *Higher Education, Skills and Work-Based Learning*, Available at: https://doi.org/10.1108/HESWBL-07-2018-0071. Accessed 24 January, 2019

NHS Education for Scotland. (2017). Achieving Excellence in Pharmaceutical Care. Available at: https://www.gov.scot/publications/achieving-excellence-pharmaceutical-care-strategy-scotland/. Accessed 24, January 2019

Welsh Centre for Postgraduate Pharmacy Education. (2017). Evaluating an integrated pre-registration training programme in North Wales: Perceptions of pre-registration pharmacists and their tutors. A report to the MPC Wales Programme Board. Available at: https://www.wcppe.org.uk/wp-content/uploads/2018/03/Evaluation-Report-to-MPC-090617.pdf. Accessed 24 January, 2019

PRP10. Exploring the interactions of hospital pharmacists with other health care professionals to develop inter-professional education

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Keywords: Inter-professional Relationship, Work Attitudes, Professional Development, Communities of Practice, Cooperation

PWDGs: WDG8 - Working with Others in the Healthcare Team

Objective: Inter-professional teamwork, when effective, supports the delivery of quality outcomes for patients. Hospitals provide a unique opportunity for inter-professional teamwork given the range of healthcare practitioners (HCPs) that work in the setting, even though reports have indicated that inter-professional teamwork is sometimes suboptimal. Inter-professional education (IPE), embedded in UK Master of Pharmacy programmes, is an effective tool to prevent professional siloing (Parsell & Bligh 1998). However, student participants in IPE activities can be based on local convenience rather than aligning with inter-professional relationships in practice. Our objective was to understand interactions between hospital pharmacists and other healthcare practitioners in order to develop effective undergraduate IPE.

Method: Hospital pharmacists were recruited by purposive, snowball sampling. Semi-structured interviews explored the nature and extent of interactions between hospital pharmacists and other healthcare professionals. Interviews were transcribed and analysed thematically.

Results: Fifteen interviews were undertaken with a range of hospital pharmacists. Respondents reported interacting with a variety of healthcare professionals from both hospital and community settings. Primarily, these

interactions were with hospital nurses and doctors with all participants indicating they had such interactions on a daily basis; interactions with dieticians and physiotherapists were also frequent (at least once a week). The majority of the interactions described were face-to-face. The nature of the interactions could be defined as either (i) clinical or (ii) practical. Clinical interactions were interactions related to addressing clinical issues of benefit to clinical patient care. Practical interactions involved issues related to operational or logistical processes. The nature of the interactions was highly dependent on the HCP participating in the interactions.

Conclusion: This study has highlighted the HCPs with whom hospital pharmacists predominantly interact and the nature of those interactions. This information can be used to design meaningful IPE for pharmacy students with relevant colleagues and based on authentic scenarios.

References

Parsell, G. & Bligh, J. (1998). Interprofessional learning. *Postgraduate Medical Journal,* **74** (868), 89-95

PRP11. ClinCAT - national utilisation of a competency assessment tool for Australian pharmacists

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Keywords: Peer Evaluation, Professional Development

PWDGs: WDG5 - Competency Development; WDG7 - Service Provision and Workforce Education and Training; WDG9 - CPD strategies

Background: The Society of Hospital Pharmacists of Australia (SHPA) has developed and implemented a national competency assessment tool, the ClinCAT. Its development was informed by the UK General Level Framework, the SHPA Standards of Practice for Clinical Pharmacy Services, the Australian Pharmaceutical Advisory Committee guidelines and the National Competency Standards Framework for Pharmacists in Australia. The tool is designed to support peer review of clinical activities and to assist pharmacists to identify their learning needs.

Objective: To provide training for pharmacists in the use of the ClinCAT to enable national utilisation of the tool.

Method: To facilitate national uptake of ClinCAT, SHPA developed a two-day interactive workshop for prospective evaluators. This was piloted in two states in 2010, then rolled out nationally. Key elements of the workshop include feedback training, structured role plays, change management and workplace implementation. Three workplace-based assessments undertaken following the workshop complete the training. Revalidation as an evaluator is required after 5 years.

Results: Fifty ClinCAT training workshops have been offered in all states throughout Australia since 2010. To date 565 pharmacists have attended the workshops with 345 completing the post workshop steps to become a credentialed evaluator. ClinCAT evaluators are located at over 100 hospitals and health services across Australia. Regular ClinCAT evaluations are a required part of the SHPA Pharmacy Residency programme and pharmacy masters programes at a number of Australian universities.

Conclusion: ClinCAT has been integrated into practice in the majority of hospitals and health services in Australia.

TIO1. Popular culture as pedagogy: Exploring pharmacists' roles in society

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Keywords: Popular Culture, Professional Education, Blended Learning, Role Perception

PWDGs: WDG2 - Foundation Training; WDG5 - Competency Development; WDG6 - Leadership Development; WDG8 - Working with Others in the Healthcare System

Objective: To implement and evaluate popular culture as an instructional approach to explore pharmacists' professional roles in society.

Design: In the Doctor of Pharmacy for Practicing Pharmacists (Pharm.D.) programme at the University of Alberta, students explore pharmacists' roles in society in a social and administrative pharmacy course on inter-professional collaboration and teamwork. A blended learning module integrating popular culture was designed to construct new knowledge about pharmacists' roles in society. It combined individual preparatory readings, group work, classroom presentations, and online activities. Students worked in small groups to select and critically evaluate popular culture artefacts representing pharmacists' roles, engagement with inter-professional teams, and professional learning in practice. Students delivered 20 minute presentations including questions. Discussion continued the following week in the online learning environment. Data were collected using an anonymous online questionnaire to evaluate students' experiences with popular culture as a pedagogical approach. The University of Alberta Research Ethics Board approved the evaluation.

Results: A variety of popular culture artefacts depicted pharmacists' roles including television, video, and comic strip. In all artefacts, students perceived that negative stereotypes dominated, observing fewer positive portrayals of pharmacists' roles. Students critically reflected on their assumptions about pharmacists' work in response to the discrepancies between their experiences and what was presented. The use of popular culture in this course was described as enjoyable and inspired students to relate to their roles in new ways (Jubas & Knutson, 2013). Students identified the need to explore how professionals are defined by the work they do (Pratt, Rockmann & Kaufmann, 2006), demonstrate pharmacists' expanded scope of practice and 'true' roles in healthcare, and plan action to counter role stereotypes.

Conclusion: This evaluation suggests that popular culture is an effective instructional approach to explore pharmacist roles and professional role identities.

References

Jubas, K. & Knutson, P. (2013). Fictions of work-related learning: how a hit television show portrays internship, and how medical students relate to those portrayals. *Studies in Continuing Education*, **35**(2), 224-240

Pratt, M.G., Rockmann, K.W. & Kaufmann, J.B. (2006). Constructing professional identity: the role of work and identity learning cycles in the customization of identity among medical residents. *Academy of Management Journal*, **49**, 235-262

TIO2. Learning in partnership: Leadership training as a cornerstone for inter-professional education between GPs and community pharmacists

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Keywords: Inter-professional Relationship, Leadership Training

PWDGs: WDG4 - Advanced and Specialist Development; WDG6 - Leadership Development; WDG8 - Working with Others in the Healthcare Team

Objective: Inter-professional education (IPE), defined as 'Occasions where two or more professions learn with, from and about each other to improved collaboration and the quality of care' (Barr, 2002), is vital for development of new NHS models of patient care. This project aimed to develop and evaluate an IPE programme to encourage the development of networks of community pharmacists and GPs, and to deepen understanding of each other's NHS contracts and their role in helping achieve better patient outcomes.

Design: Leadership training provided common ground for IPE with GPs and community pharmacists. Five pairs of GPs and community pharmacists, recruited from London and the South East, attended an initial project induction event and five half-day sessions focussing on leadership training based on the Healthcare Leadership Model (NHS Leadership Academy, 2013). The pairs then spent four half-day placements in each other's practice. As an outcome of these activities, each pair was required to jointly undertake, write up and present a Quality Improvement Project (QIP). The leadership training was evaluated using a questionnaire containing open questions developed from previously used questionnaires. Responses were scrutinised to identify and frequency-count themes.

Results: Eight responses were received. Ten overarching themes emerged. The most frequent themes were 'developing understanding' and 'collaborative working', as illustrated by the following quotes:

> *'I have a new found respect for Doctors now and realise we are in the same boat.'*
>
> *'We can work together to achieve a common goal.'*

Conclusion: The focus on leadership training enabled pharmacists and GPs to learn from, with and about each other through the identification of similar challenges and issues. This provided a strong basis to develop inter-professional communication and collaborative working to improve the patient journey.

References

Barr, H. (2002). Interprofessional Education. Today, yesterday and tomorrow. The UK Centre for Advancement of Interprofessional Education

NHS Leadership Academy. (2013). Healthcare Leadership Model. The nine dimensions of leadership behaviour. Leeds, UK.

TIO3. Using Metacognition to sensitise students to computerised provider order entry (CPOE) errors

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Keywords: Simulation, Technology in Education

PWDGs: WDG5 - Competency Development

Objective: To determine the impact of a metacognition and error identification activity on student ability to identify order entry errors.

Method: Course faculty developed six patient cases in EHR Go, an educational electronic health records system. Pharmacy students input all new medications in the computerised order entry (CPOE) portal after working up each patient. At the second half of the semester, course faculty collated all order-entries with errors. They identified fifteen orders, which contained the top errors made by students. Faculty selected five for the pre-exercise, five for the in-class activity, and five for the post-exercise. For the pre-activity, students individually identified errors in the orders. Students then attended a discussion session and participated in a metacognitive exercise highlighting the importance of correct order entry. An instructor then discussed the errors in the pre-activity. Students then identified errors on the second set of orders while instructors assisted. A week later, students received the final set of orders and identified errors on those entries. Students also completed a pre/post patient-safety survey. A few weeks post-intervention, faculty assigned a final patient case. To identify any improvement in order entry, we compared entries from an identical case from the 2017 cohort versus the 2018 cohort.

Results: Two hundred students participated in the intervention and 200 students were included in the 2017 control group. The average score of correctly identified mistakes from the pre-activity to the post-activity increased statistically significantly from 22% to 62.8%. On the final case, the 2017 cohort had an error rate of 44% compared to 30% in 2018 group. Ninety-four percent of students agreed that the activity demonstrated the consequences of incorrectly ordering medications.

Conclusion: Educators looking to improve student error entry and identification of orders entered by another healthcare professional may consider adopting this educational strategy.

TIO4. Developing patient-centred care: a longitudinal hospital volunteering placement in the pharmacy undergraduate curriculum

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Keywords: Student Placement, Professional Development, Patient Education, Student Volunteers

PWDGs: WDG7 - Service provision and Workforce Education and Training; WDG8 - Working with Others

Objective: Unlike Medical and Nursing degree programmes that include repeated and extended exposure to patients, UK Pharmacy programmes feature shorter, mainly observational placements, limiting student opportunities to understand and interact with the patient journey and to develop patient-centred care. To expose pharmacy students early and repeatedly to patient-facing activities, a placement experience with the Cardiff and Vale University Health Board Volunteering Service has been developed for Year 1 undergraduates.

Design: In collaboration with the Volunteering Service, learning outcomes and a workbook were agreed. Pre-requisite training for working within the National Health Service, and 'Dementia Friend' accreditation was undertaken. Students were allocated to a ward and received a local induction. A total of nine half-days of volunteering over two semesters (ongoing) were planned, including activities such as befriending patients, undertaking patient satisfaction surveys, providing patient information and supporting patients in activity workshops. Debriefing sessions were also designed. Students kept a reflective diary (reviewed on an ongoing basis), and must obtain sign-off from the ward supervisor in order to meet the learning outcomes.

Results: After the first three sessions, the cohort were convened and informal feedback was gathered (a formal evaluation at the end of the placement series will also be conducted). Initial feedback confirmed placements provided significant opportunities to engage with patients, develop transferable skills and reflect on the dynamics of hospital wards. On some wards patients were particularly unwell, making interactions less successful. Students articulated they would like the opportunity to rotate around wards. This feedback has been addressed for the remaining five sessions. Anecdotal supervisor feedback highlighted increased capacity for supporting patients, due to student support.

Conclusion: Engaging pharmacy students in volunteering service placements provides the opportunity to understand the patient journey in secondary care, develop transferable skills and contributes to the voluntary service maximising support for patients.

TIO5. A novel approach to team-based simulation exercises for M.Pharm. Year 4 students, within a community pharmacy environment

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Keywords: Simulation, Experiential Learning, Teaching Methods, Peer Learning

PWDGs: WDG1 - Academic Capacity; WDG7 - Service Provision and Workforce Education and Training; WDG8 - Working with Others

Objective: Year 4 M.Pharm. students often struggle understanding the need to use their cumulative pharmacy practice learning in the workplace. We designed a simulation enabling them to apply the pharmacy practice knowledge, skills and behaviours taught. This took place in workshops within the mock pharmacy at UCL Green Light Pharmacy Educational Centre.

Method: In teams of six-eight, students were briefed, given time to prepare, and assigned a role (*e.g*. pharmacist) in the mock pharmacy for 35 minutes, or as simulated characters. During the simulation they had medicines and equipment as in a pharmacy. The tutor decided which simulated characters presented themselves to the 'pharmacy team' and when. Green Light pharmacists observed and provided technical support, as needed. Groups were rotated, and scenarios changed, so students experienced all roles. Peer-to-peer feedback sessions, based on Pendleton's model, took place along with reflection exercises, to identify areas of CPD. A Qualtrics questionnaire was provided, 8 questions on a 5-level Likert scale and a free text section.

Results: Responses (n=41), collated seven days later, represented 23.6% of the cohort. Students' agreement (combining strongly, and somewhat, agree) for Q 1-3 is identical (95.12%), suggesting correlation between their enjoyment of the exercise, how it tested their knowledge of pharmacy practice and that it was not tested traditionally. The largest disagreement (a combination of somewhat, and strongly, disagree) was for Q8 (9.74%) and Q6 (7.32%), suggesting correlation between how well the simulation prepared them for the workplace (during pre-registration) and how they feel they communicate with patients.

Conclusion: This allowed students to apply their pharmacy teaching from all their M.Pharm., allowing us to demonstrate the necessity of utilising this in future. Also, encouraging students' reflection on their preparedness for the workplace and CPD needs. Further work would consider patients vs actors vs students as simulated characters.

References

Lin, K., Travlos, D.V., Wadelin, J.W. & Vlasses, P.H. (2011). Simulation and introductory pharmacy practice experiences. *American Journal of Pharmaceutical Education*, **75**(10), 209

General Pharmaceutical Council. (2017). Standards for the initial education and training of pharmacists. London. General Pharmaceutical Council

Biggs. J. & Tang. C. (2011) Teaching for Quality Learning at University. Open University Press, UK.

TIO6. Listening to the life stories of older people: an opportunity for transformative learning

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Keywords: Educational Methods, Ageing, older adults

PWDGs: WDG7- Service Provision and Workforce Education and Training

Objective: To describe an undergraduate, elective module, designed to transform the manner in which pharmacy students view and relate to older people. The module seeks to deepen students understandings of the complexities and difficulties associated with ageing, in order to empower the students to become practitioners capable of caring for and meeting the healthcare and more specifically, the medicine needs of older people.

Design: The module combines a theoretical, experiential and research approach. The theoretical component is covered by student-led seminars, during which pairs of students present on topics relevant to ageing. Central to the module is the experiential component that involves the student pairs conducting a series of visits to an older person. During the visits the students encourage the older person to tell their life stories and in a conversational manner explore his or her experiences of the ageing process and associated healthcare issues and experiences. One of the visits forms the basis for a structured qualitative research component, in which, through in-depth interviews, the students specifically explore older people's relationships with and experiences and perceptions of pharmacists. By means of guided reflections and engaged discourse throughout the module the students are encouraged to identify, challenge and transform their understanding, assumptions and beliefs about ageing and their behaviour toward older people.

Results: Both formal and informal feedback and student reflections collected over the past three years suggest that the module makes a substantial contribution to students' beliefs and assumptions about older people. It provides students with deepened insights of the complexities, struggles and joys of ageing and a heightened awareness of the need to treat each person as an individual with a history and life story.

Conclusion: Listening to the life-stories of older people can provide transformative learning opportunities that prepare pharmacy students to provide person-centred care.

TIO7. Utilising e-stream technology to develop the consultation skills of pharmacy undergraduate students at King's College London

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Keywords: Technology uses in education, video technology, communication skills, feedback, performance

PWDGs: WDG1 - Academic Capacity

Objective: At King's, consultation skills development through patient simulation and then real-world practice commences in Year 2 of the M.Pharm. programme and is built upon in subsequent years. Although students receive verbal feedback, there is no opportunity for students to further reflect on their consultation skills following the patient simulation class.

Following the introduction of e-stream technology, we evaluated how this technology would enrich the feedback received by students on their consultation skills

Method: Students were filmed using the technology whilst consulting with 'patients' in a simulated environment. Two experienced pharmacists reviewed each student's video following this and provided electronic written feedback on their consultation skills. Students were then asked to complete an evaluation form to provide an understanding into how the feedback has helped them develop their consultation skills.

Results: During academic year 2017/2018, 94 students (82%) were filmed. Individual feedback was received by 86 (91%) students of which 84 (98%) completed an evaluation form. The majority of students (>94%) reported gaining a deeper understanding of their strengths and weaknesses of their consultation performance. For instance, one student stated "*learnt about the weakness that I have such as not asking enough questions to choose the most appropriate medication*". Students also commented on the benefits of watching the video: "*I have watched the video and saw the errors I have made, it helped me to improve on my skills by allowing me to see where I went wrong*".

Conclusion: Students report that feedback received through e-stream technology is helpful in developing their consultation skills and provides them with an opportunity to reflect outside of the classroom environment. The process has also identified common areas of development required by all students, which faculty staff can focus on, moving forward.

TIO8. Inter-professional mind-body course to support resiliency and well-being among health professional students

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Keywords: Resilience, Well-being, Inter-professional, Educational Methods, Burnout

PWDGs: WDG5 - Competency Development; WDG8 - Working with Others

Objective: To develop an educational strategy that provides skills for positive behavioural adaptations that can help healthcare professional students manage stress and resist burnout.

Design: An inter-professional (IP) mind-body elective course was developed and implemented in collaboration with the Centre for Integrative Health & Wellness at the University of Cincinnati. Fifty-seven (four pharmacy) faculty from eight colleges over six years received intensive training regarding the effects of stress on the body complemented with tools and strategies to decrease stress. Units within the course consist of ten IP students with one-two faculty meeting two hours each week. The environment of time spent together is peaceful and supportive. Education regarding the physiology & impact of the mind-body connection is provided and stress reduction tools are taught within the modules. Students apply the learned tools throughout the week and discuss their experiences within the meetings.

Results: Fifty-nine pharmacy students have participated in the course over the last three years with over 200 students from other colleges within the University. All pharmacy students completed a course survey. Mean age was 24; 76% (45) were female and 69% (41) were Caucasian. Majority of the students (97%) rated their health as good to excellent. Students who participated in the mind-body programme showed statistically significant increase in their Perspective Taking (pre 18.9 vs 22.42, $p<0.05$), resilience (pre 19.3 vs 21.1, $p<0.05$), mindfulness (pre 44.19 vs 48.38, $p<0.05$) and decrease in the PROMIS sleep disturbance measure (pre 56.58 vs 51.8, $p<0.05$).

Conclusion: Students reported that this programme gave them ways to cope and to deal with stress and that their resiliency could be improved with more similar workshops, mentorship, and better access to wellness resources at school. This approach is successful for enhancing well-being of pharmacy students and providing them skills for resisting burnout in the future.

TIP1. Leadership 101 for intern pharmacists

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Keywords: Leadership, Internship Programmes, Pharmacy

PWDGs: WDG2 - Foundation Training; WDG6 - Leadership Development; WDG7 - Service Provision and Workforce Education and Training

Objective: To investigate intern pharmacists' knowledge of leadership principles and to report on a workshop undertaken to assist intern pharmacists explore leadership principles.

Method: A 90 minute interactive workshop was developed covering leadership and management principles. The workshop incorporated: leadership styles, reflection of personal leadership style, and understanding application of the advanced performance criteria for management and leadership (PSA, 2016). Interns completed a pre- and post-workshop survey to determine knowledge of leadership principles. Basic descriptive statistics of frequency and percentage were calculated for each question and appropriate responses compared using McNemar's test. Interns completed a workshop evaluation. Ethical approval was granted.

Results: Seventy-four students participated in the workshop. Survey results showed a trend for intern pharmacists to demonstrate improved leadership knowledge at the conclusion of the workshop. There was a significant improvement in intern pharmacists' ability to identify delegation of rostering as a management rather than a leadership skill (69% pre- and 96% post-workshop, p=0.001).

Interns were also able to more successfully identify which leadership style would allow other people to have the greatest influence (40% pre- vs 54% post- responded transformational), which concept is increasingly associated with leadership today (25% pre- vs 46% post- responded follow-ship), and which of the following styles best differentiates how a leader rather than a manager influences teams (22% pre- vs 68% post- responded providing a vision for the future).

Feedback from attendees was positive overall with 88% agreeing it was relevant to incorporate leadership training in the intern year; 97% agreeing that intern pharmacists could learn leadership principles, and 86% disagreeing that leadership training should be reserved for more senior pharmacists.

Conclusion: Intern pharmacists responded positively to a leadership workshop. Their knowledge of leadership principles improved. This workshop will become an annual event.

References

PSA [Pharmaceutical Society of Australia]. (2016). National Competency Standards Framework for Pharmacists in Australia. Available at: https://www.psa.org.au/practice-support-industry/national-competency-standards/. Accessed 17 January, 2019

TIP2. Health promotion in high schools: Student reflections on a core curriculum activity

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Keywords: Undergraduate Pharmacy Education, Health Promotion, Public Health, Peer Education, Public Engagement

PWDGs: WDG1 - Academic Capacity; WDG6 - Leadership Development

Objective: Public health promotion interventions in high schools may incorporate behaviour change techniques, health education and empowerment of children to take control of their life. Peer education is effective for delivering such interventions because of the social and cognitive congruence that learners share with educators (WHO, 2006; Lockspeiser *et al.*, 2008; Singh, 2010). Benefits for peer educators include developing leadership skills and social responsibility (Badura *et al.*, 2000; Hodgson, 2015). The purpose of this study was to explore perceived impact on third year pharmacy students of being a peer educator.

Design: A core curriculum component for third year undergraduate pharmacy students at The University of Manchester is the delivery of a workshop relevant to health and well-being to high school children. Workshops covering public health topics relevant to 14-16 year olds (antibiotic resistance, alcohol, diabetes, mental health & sexual health awareness) were co-designed with high school teachers to map learning outcomes to the high school curriculum. Working in groups of four, pharmacy students were trained prior to delivering a workshop; reflections on being a peer educator, captured in an assessed continuing professional development (CPD) record, were analysed thematically to identify perceived impact.

Results: Commonly reported outcomes for pharmacy students included development of team working, presentation, communication and engagement skills, the ability to apply health and well-being learning, and recognition of the importance of sharing knowledge with younger people: it provided a "*good opportunity to adapt my language and approach to a younger audience…not [had] the opportunity for this at university but will have to in practice*".

Conclusion: Providing opportunities for undergraduate pharmacy students to act as peer educators is beneficial in preparing them for a future role in health promotion, and for gaining experience in how to communicate with members of the public.

References

Badura, A.S., Millard, M., Peluso, E.A. & Ortman, N. (2000). Effects of peer education training on peer educators: Leadership, self-esteem, health knowledge, and health behaviors. *Journal of College Student Development*, **41**(5), 471

Hodgson, Y., Benson, R. & Brack, C. (2015). Student conceptions of peer-assisted learning. *Journal of Further and Higher Education*, **39**(4), 579-97

Lockspeiser, T.M., O'Sullivan, P., Teherani, A. & Muller, J. (2008). Understanding the experience of being taught by peers: the value of social and cognitive congruence. *Advances in Health Sciences Education*, **13**(3), 361-372

Singh, S. (2010). Near−peer role modelling: The fledgling scholars education paradigm. *Anatomical Sciences Education*, **3**(1), 50-51

WHO [World Health Organisation]. (2006). What is the evidence on school health promotion in improving health or preventing disease and, specifically, what is the effectiveness of the health promoting schools approach? Available at: http://www.euro.who.int/__data/assets/pdf_file/0007/74653/E88185.pdf

TIP3. Development of an effective measure assessing M.Pharm. students' perception of the usefulness of their experiential placements at Green Light pharmacy

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Keywords: Experiential Learning, Evaluation Methods, Curriculum Design

PWDGs: WDG1 - Academic Capacity; WDG3 - Quality Assurance; WDG7 - Service Provision and Workforce Education and Training

Objective: There is great importance in giving pharmacy students opportunities to translate and apply their knowledge before entering the workforce. To provide students with a broader diet of experiential learning, University College London (UCL) collaborated with Green Light Community Pharmacy to create an educational centre in one of their branches. This study aims to develop a measure of utility for community-based experiential learning in undergraduate students.

Method: A course-based feedback survey was designed and delivered to all cohort groups. All students had experienced a community-based, structured experiential learning series and answered the same survey. Factor analysis (using principal components analysis with oblique rotation) was used to identify measurement constructs with subsequent descriptive and comparative statistics.

Results: Valid responses were received from 660 students, factor analysis indicated a two-component result with significant confirmatory diagnostic statistics. Factor 1 suggested satisfaction linked to gaining insight into practice and applying prior knowledge; Factor 2, was identified as satisfaction linked to the placements' overall educational design and organisation. ANOVA suggested significant differences in both factor scores between year-cohorts (Factor 1 F=19.1, $p<0.0001$; Factor 2 F=5.2, $p<0.001$). For Factor 1, Year 4 students reported significantly higher scores, and Year 3 students indicated lower scores ($p<0.0001$). There was a tendency for scores to reduce over the four-year degree period ($r=-0.134$, $p<0.001$) for Factor 2.

Conclusion: Initial results indicate Years 1 and 2 are satisfied with both factors. Year 3 students' satisfaction results suggest the areas of practice covered do not add to their learning. Year 4 students have a high degree of satisfaction with the opportunity given to develop and apply their practice knowledge. Future work will explore these variances in greater detail, including whether Year 3 students would benefit from experiencing the Year 4 team-based simulation exercises that utilise practice knowledge and skills gained throughout the M.Pharm.

References

Biggs. J. & Tang. C. (2011). Teaching for Quality Learning at University. Open University Press, UK.

Cohen, L., Manion, L. & Morrison, K. (2011). Research in Medical Education. Routledge, UK.

TIP4. Does a cardiology in clinical pharmacy practice module equip pharmacists with the knowledge and skills to optimise patient care?

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Keywords: Professional Continuing Education, Cardiology, Blended Learning, Course Evaluation

PWDGs: WDG4 - Advanced and Specialist Development; WDG5 - Competency Development; WDG6 - Leadership Development; WDG8 - Working with Others; WDG9 - CPD strategies

Objective: To equip community and hospital pharmacists with the knowledge and skills to optimise cardiovascular patients' management, thereby improving patient safety and pharmaceutical care.

Methods: A Continuing Professional Development module was developed in collaboration with pharmacists and doctors from hospital and community backgrounds. It is primarily delivered *via* a virtual learning environment (Blackboard 9.1), with face-to-face evening workshops at the start and end. Eight cardiology topics are followed by two 'practice dilemma' sessions, enabling students to apply key principles to complex patients in their practice. Each topic has a podcast lecture, directed reading, online activities and practice guidance. Assessment is through

online assignments (*e.g.* multiple-choice questions, workplace tool development), casework (including online discussion) and a reflective e-portfolio. A SurveyMonkey questionnaire, with 13 open and closed questions for anonymous completion, was emailed to 211 pharmacists, who undertook the module from 2013-2018.

Results: Response rate was 26%. Thirty-seven out of 55 were from community pharmacy. All agreed/strongly agreed that the course helped them to: (a) identify/assess relevant factors for the management of cardiovascular patients; and (b) provide appropriate drug therapy advice to patients, carers and healthcare professionals. Fifty-two out of 55 felt it helped them to optimise drug therapy in cardiovascular patients. Fifty-four out of 55 rated the podcasts and reference materials as useful/very useful. Fifty-two out of55 found the assessments useful/very useful. Thirty-seven out of 55 rated discussion fora and the e-portfolio as useful/very useful. The opening and closing workshops were considered useful/very useful by 46/53 and 41/51 respectively. The module's flexibility, opportunities to interact with community and hospital practitioner colleagues, staff support and the practical applicability of course content were identified as key advantages. Shorter assignments, more detailed feedback and more face-to-face sessions were suggested. Fifty-two out of 55 were quite likely/extremely likely to recommend this module.

Conclusion: Based on self-reports, this module has supported pharmacists in gaining the knowledge and skills to optimise cardiovascular patients' management.

TIP5. Collaborating across state borders: An inter-professional curriculum centred around telemedicine principles

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Keywords: Simulation, Technology in Education, Inter-professional Relationships

PWDGs: WDG8 - Working with Others

Objective: To describe a telemedicine curriculum designed to provide collaborative inter-professional experiences (IPE).

Design: For the first telemedicine simulation, fives cases were developed with a focus on psychiatric illnesses. Students from the University of the Pacific Pharmacy School (UOP) in California and University of Missouri-Kansas City, Nurse Practitioner (NP) programme, participated in this IPE. The second simulation was with UOP students and Doctor of Osteopathic Medicine (DO) students from the West Virginia School of Osteopathic Medicine. For this simulation, an inpatient case focusing on liver cirrhosis was developed. For both simulations, students had access to the patient charts on EHR Go, an educational electronic health record system. Students also received results from a full history and physical assessment conducted by another health professional. In addition, students received a YouTube video simulating a physical assessment with a focus on the physical manifestations of disease, when applicable. Students were required to schedule two videoconferences with their IPE partner(s). The first conference focused on the differential diagnosis and assessment of their patient. The second videoconference focused on the treatment plan. Students then wrote-up a SOAP (subjective, objective, assessment, and plan) note. To measure attitudes, students completed a pre/post SPICE survey and a peer assessment of team members.

Results: Six hundred and thirty students participated in this telemedicine curriculum. Students reported significant improvements in the SPICE survey questions. Majority of students felt that the IPE was useful to their learning. Data from the peer assessment generally showed positive attitudes towards team member performance and contribution.

Conclusion: This IPE leveraged technology to provide meaningful telemedicine experiences. Students from different US states were able to interface and work collaboratively to provide care for a patient. This design may be useful for providers who need to reach patients/ colleagues located in remote/rural locations.

TIP6. Education through the lens of equity: Transforming the learning experience

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Keywords: Equity, Transformative Learning, Public Health, Global Education

PWDGs: WDG1 - Academic Capacity; WDG5 - Competency Development; WDG6 - Leadership Development; WDG8 - Working with Others; WDG10 - Gender and Diversity Balances; WDG11 - Workforce Impact

Objective: To describe university partnerships focused on health equity and global education, and how transformative learning can facilitate learning and development among Pharm.D. students. Using this theory, students and faculty both engage in dialogue to better understand social determinants of health and foster a space to unpack their own experiences and implicit biases.

Design: Using Mezirow's principles of transformative learning, Pharm.D. students are asked to engage in critical self-reflection while also examining public health programmes and policies through the lens of equity, applying social justice frameworks in an inter-professional setting. A mixed-modal approach, including walking tours, semi-structured discussions, and guided assignments are used as tools to aid in the students' self-reflection.

Results: Students were able to present their experiences and understanding of social determinants of health and health equity, and consequently apply their learning to critically examine existing public health policies and programming through the lens of equity. Students were able to engage in critical self-reflection on their understanding of systemic oppression, and how they individually are able to impact their patient experiences to help mitigate the negative impacts due to health inequities. As a result, new collaborations have been formed, such as the health equity teaching collaborative, for example, where Pharm.D. students engage with law and medical students to explore the intersection of legal and health matters related to the opioid crisis and gun violence in the United States. As such, students are able to engage in a collaborative process to explore innovative solutions and ideas to improve health equity.

Conclusion: The theory of transformative learning can be used to help students transition from cursory self-reflection to higher self-awareness and individual impact. We plan to survey students from this cohort one year post-graduation to assess impact of their experience on their practice, and further utilise this collaborative teaching approach to inform new partnerships.

References

Braveman, P., Arkin, E., Orleans, T., Proctor, D. & Plough, A. (2017). What Is Health Equity? And What Difference Does a Definition Make? Princeton, NJ: Robert Wood Johnson Foundation

Centers for Disease Control and Prevention. (2013). Division of Community Health. A Practitioner's Guide for Advancing Health Equity: Community Strategies for Preventing Chronic Disease. Atlanta, GA: US Department of Health and Human Services

Mezirow, J. (1990). Fostering critical reflection in adulthood: a guide to transformative and emancipatory learning. 1st ed. ed. San Francisco: Jossey-Bass Publishers

TIP7. Preparing a workforce for care of older adults through inter-professional education

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Keywords: Educational Methods, Healthcare, Multidisciplinary Approach, Geriatrics, Small Group Instruction

PWDGs: WDG1 - Academic Capacity; WDG2 - Foundation Training; WDG7 - Service provision and Workforce Education and Training; WDG8 - Working with Others

Objective: To describe the development and evaluation of an inter-professional education (IPE) pre-professional geriatrics (PPG) experience involving learners from ten different health discipline programs.

Design: The IPE PPG experience provided interdisciplinary health professional encounters using a collaborative approach towards caring for older adults held over two three-hour sessions. The learners gained exposure to pertinent geriatric principles using case studies in small groups and working with experienced inter-professional faculty specialising in geriatrics and gerontology. The teams were comprised of learners from medicine, dentistry, nursing, occupational therapy, pharmacy, physical therapy, social work, public health, and speech and hearing sciences. Exposure and awareness of the needs of the older adult and their families were highlighted throughout. Learners completed pre- and post-experience surveys framed from session objectives on the learners' confidence in functioning in IPE teams, their knowledge of other disciplines, their views on the importance of each discipline in providing older adult care, and what qualities they consider important for good team process. Learner assignment deliverables were also used to collect qualitative data on emerging themes. Data were collected over three years (2016, 2017, 2018).

Results: Over the course of three years, 562 learners have participated. Programmatic outcomes from participants indicated increased knowledge level ratings about the types of services different health professionals could provide to older adults and increased confidence in knowing when to refer to other disciplines. Mean increase in confidence in functioning in inter-professional teams was significant, suggesting the IPE PPG experience was effective in facilitating confidence in functioning and in improving views on the importance of other disciplines in older adult care.

Conclusion: This collaborative IPE PPG experience demonstrated learners gained skills to apply geriatric principles and critical thinking as inter-professional team members. They demonstrated the ability to construct comprehensive care plans for older adults with patient-centred goals.

TIP8. Year 1 M.Pharm. induction: Understanding medicines adherence from the patients' perspective

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Keywords: Empathy, Medical Education, Reflection, Transformative Learning

PWDGs: WDG1 - Academic Capacity; WDG7 - Service Provision and Workforce Education and Training; WDG9 - Continuing Professional Development Strategies

Objective: Empathy is the healthcare professional's ability to understand patients' concerns by placing themselves in the patient's position (Halpern, 2003). Supporting medicines adherence is a key role for pharmacists, requiring them to practice person-centred care (GPhC, 2017). This novel induction activity allowed Year 1 (Y1) M.Pharm. students to experience medicines adherence by taking a placebo for five days and identifying their own beliefs about medicines (Horne *et al*., 1999). They also spoke to a friend/relative who regularly took prescribed medicines and met patients with HIV who shared experiences of adherence. Students then completed a formulary entry for their 'medicine' (ibuprofen, metformin or simvastatin) and wrote a reflective account.

Method: The evaluation assessed students' engagement and performance through submission of a reflective account, using Gibb's (1988) model assessed using the REFLECT tool (Wald *et al.,* 2012) and a formulary entry. A questionnaire evaluated student experience.

Results: Of the 183 MPharm Y1 students, 174 (95%) participated in the activity, with 173 (95%) submitting a reflective account and 179 (98%) a formulary entry for formative review. Most students identified in their reflection that medicine-taking was more challenging than expected. Some compared their experience with their friend/relative. A few compared their experience to the patients with HIV. No students linked their adherence to their beliefs about medicines.

Identification of national guidance was not as well completed as other formulary sections. Many students required referencing support.

The post-activity questionnaire was completed by 73 (40%) students with 90% (64/71) recommending the activity. Students definitely or mostly agreed that the activity allowed them to 'explore adherence from the patient perspective' (68/72), 'challenged and stimulated their views' (59/72) and provided an 'opportunity to appreciate the pharmacist's role in supporting patient adherence' (64/70).

Conclusion: The induction activity enabled students to understand the complexity of medicines adherence and the pharmacist's role.

References

GPhC [General Pharmaceutical Council]. (2017). Standards for pharmacy professionals. London: General Pharmaceutical Council

Gibbs, G. (1988). Learning by Doing: A guide to teaching and learning methods. Further Education Unit. Oxford Polytechnic: Oxford

Halpern, J. (2003). What is clinical empathy? *Journal of General Internal Medicine*, **18**, 670-74

Horne, R., Weinman, J. & Hankins, M. (1999). The beliefs about medicines questionnaire: The development and evaluation of a new method for assessing the cognitive representation of medication. *Psychol Health*, **14**(1), 1–24

Wald, H.S., Borkan, J.M., Taylor, J.S. *et al* (2012). Fostering and Evaluating Reflective Capacity in Medical Education: Developing the REFLECT Rubric for Assessing Reflective Writing. *Academic Medicine*, **87**(1) 41-50

TIP9. Design. Develop. Teach. Repeat.

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Keywords: Blended Learning, Skill Development, Student Centred Curriculum, Teaching Models, Teaching Experience

PWDGs: WDG1 - Academic Capacity; WDG3 - Quality assurance

Objective: To describe the process undertaken to design, develop and deliver a foundational unit within the new Vertical Integrated Masters of Pharmacy degree (VIM degree) at the Faculty of Pharmacy and Pharmaceutical Sciences at Monash University.

Design: The Faculty of Pharmacy and Pharmaceutical Sciences at Monash University strategically redesigned the Pharmacy curriculum to better align with the needs of the profession. A key feature of the VIM degree is skill development such that students learn to be critical thinkers, problem solvers, excellent communicators and team players. Units were purposefully restructured to adopt a student centred learning approach. Lecture notes were replaced by self-directed online modules which were incorporated into the learning management system (Moodle) by an educational support team of assistant lecturers. In-class didactic lectures were replaced with newly developed Interactive Lectures comprised of active learning exercises only. Workshops were also designed with student centred learning in mind.

Results: In 2017, the units were delivered for the first time to a cohort of ~190 1st year Pharmacy students. Both students and instructors were engaged throughout the entire learning / teaching process. Now in the third year of its inception, we report our experience in the

initial design, development and delivery of a foundational unit, How the Body Works, as well as the changes that were made to improve the unit in time for the second and third offering in 2018 and 2019 respectively. In 2018 the impact of these changes were reflected in the teaching evaluation surveys which showed an 11% increase in the overall unit satisfaction.

Conclusion: Utilising a different teaching approach new units were developed as part of the new Pharmacy curriculum which focuses on skill development. Feedback obtained from staff and students this year will be used to further develop the unit in 2020.

TIP10. Interactive and model driven teaching pushes students to learn

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Keywords: Reflection Process, Peer Teaching, Interactive Systems (Online), Writing Skills

PWDGs: WDG 3 - Quality assurance

Objective: To develop an individual, interactive, model-based task in order to increase the student's responsibility and motivation and thereby obtain a better understanding for the subject.

Design: When students log in to the web site, a unique substance is generated, whose PK and PD parameters should be calculated. Limitations are integrated into the model to make it more reality-based, such as number of allowed blood samples, sensitivity of the analytical method etc. The task is divided into five steps and to get access to the next step, students need satisfactory calculations and a personal reflection on what they have learned. Their data are summarised in a Summary of Product Characteristics and peer reviewed during a seminar.

Results: Since each student has a unique substance, the tutoring is held on a conceptual level and no old solutions are available. Students need to reflect over study design and integrate other subjects from their study program in order to proceed with the task. With this approach, we guarantee individual examination. The majority of students appreciate the set-up, but some students are very frustrated and not used to work in this way. We have observed that students are better prepared and discuss at a higher level during the final seminar.

Conclusion: By distributing the responsibility for the learning to the students, and creating an environment where curiosity promotes learning, we've observed that students are better prepared and discuss at a higher level. The approach also supports oral and written progression.

TIP11. Implementation of a digital curriculum in a college of pharmacy

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Keywords: Technology Uses in Education, Handheld Devices, Electronic Publishing, Blended Learning

PWDGs: WDG 1 - Academic Capacity; WDG 3 - Quality Assurance

Objective: To implement a digital curriculum in a College of Pharmacy (COP).

Design: In March 2015, the University of Nebraska Medical Centre (UNMC) College of Pharmacy (COP) formed a committee to transform the way faculty engage professional pharmacy students in the classroom to enhance teaching effectiveness. A strategy was developed based on Kotter's 8 step process for Leading Change. The committee served as the guiding coalition and developed a vision and guiding principles for the initiative. Discussion at the 2015 faculty retreat focused on why the COP should change curricular delivery, major barriers or obstacles, and a vision for the future. The 2016 and 2017 faculty retreats focused on key issues and updates. In autumn 2015, COP faculty were selected for campus-wide training in educational technology. Course and instructor evaluations were revised to include questions about student engagement. In July 2016, additional faculty agreed to receive training and consultation with instructional designers. In autumn 2016, the COP moved into a new building with education space equipped with next-generation technology and simulation. The professional curriculum goes paperless. In January 2017, faculty from the University of North Carolina School of Pharmacy led a faculty workshop on curricular transformation. In July 2017, nearly 40% of full-time faculty agreed to participate in a campus-wide digital curriculum training series and receive personalised consultation from an embedded instructional technologist. In autumn 2017, iPads were distributed to all students.

Results: Faculty and student educational technology surveys showed increasing use and acceptance of educational technology. The Pharmacy Curriculum Outcomes Assessment (PCOA) is a comprehensive standardised examination administered to all third-year pharmacy students enrolled in United States' pharmacy schools. PCOA scores increased from 2016 to 2018.

Conclusion: Successful implementation of a digital curriculum requires strong leadership, strategic planning, faculty buy-in and involvement, and institutional support.

TIP12. Escape the norm: Escape rooms for learner engagement and collaboration

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Keywords: Educational Games, Games, Active Learning, Puzzles, Design Requirements

PWDGs: WDG1 - Academic Capacity; WDG2 - Foundation Training; WDG8 - Working with Others; WDG12 - Workforce Intelligence

Objective: To pilot an escape room and identify design principles that can be used to promote learner engagement and collaboration in novel learning environments.

Design: This project included an iterative design process to identify types of puzzles that would be most impactful in an escape room. The early phases of this work included small group testing with prototypes that required students to check dispensing errors, complete cardio-pulmonary resuscitation, and obtain a blood pressure reading from a simulation mannequin. The project also included the design of a collaboration assessment tool constructed to provide an individual-, team-, and group-level evaluation of collaborative behaviours in an efficient and meaningful manner.

Results: Learners shared their experiences through focus groups and discussions - this included an evaluation of their engagement, the utility of the room, and potential modifications for improvement. The researchers also evaluated the group performance throughout the prototyping process to identify best practices for escape room design.

Conclusion: Escape rooms are a unique teaching strategy that have been increasing in popularity outside the classroom. The purpose of this pilot programme was to determine if escape rooms can have value in promoting learning and collaboration among pharmacy students. The initial experience suggests that escape rooms may be a viable approach to introduce games into pharmacy curricula; however, there may be several barriers such as the resources and time necessary to implement these programmes.

References

Cain, J. & Piascik, P. (2015). Are serious games a good strategy for pharmacy education? *American Journal of Pharmaceutical Education*, **79**(4), Art. 47

Aburahma, M.H. & Mohamed, H.M. (2015). Educational games as a teaching tool in pharmacy curriculum. *American Journal of Pharmaceutical Education*, **79**(4), Art. 59

Stone, Z. (2016). The rise of educational escape rooms: Why UV lights and padlocks are finding their way into classrooms. The Atlantic. Available at: https://www.theatlantic.com/education/archive/2016/07/the-riseof-educational-escape-rooms/493316/. Accessed 30 October, 2017

TIP13. Development of a cultural communication online module for pharmacy students' learning and assessment of cross-cultural skills

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Keywords: Cultural Awareness, Communication Skills, Learning Modules

PWDGs: WDG1 - Academic Capacity; WDG5 - Competency Development; WDG8 - Working with Others

Objective: To develop and evaluate an online cultural competence training module for use by pharmacy students across three countries.

Design: Members of the research team developed a series of role-play videos (n=18) that demonstrated interactions with diverse cultural groups. The cultural groups represented include but are not limited to the Indigenous community, LGBTQI community, ethnic background (*i.e*. language, religion, customs, *etc*.), gender, and disability. The videos were incorporated into an online training module. Students will complete self-reflection questions following each role-play video. Then a survey will be provided to students after completion of the training module.

Results: The module will be piloted in May 2019 with undergraduate pharmacy students at the three institutions. Cultural awareness and use of the training module as a cultural learning tool will be evaluated through qualitative analysis of self-reflective essays and a survey post-completion of the training module. Student engagement on participation, time on task, and completion rates will also be evaluated.

Conclusion: There is a growing need for appropriate training models to enhance cross-cultural skills and cultural awareness in health professional schools such as pharmacy (Poirier *et al.*, 2009; ACCP *et al.*, 2013). The training module will serve as an additional teaching tool to improve cultural communication skills in future Objective Structured Clinical Examinations (OSCEs) and practice. The evaluation of the online module will provide insights into the current level of students' cross-cultural skills thereby guiding and informing educators how to better teach cultural communication and informing the creation of OSCE stations that would asses students' cultural competence in a robust, meaningful and objective way.

References

ACCP, O'Connell, M.B., Rodriguez de Bittner, M., *et al*. (2013). Cultural competency in health care and its implications for pharmacy part 3A: emphasis on pharmacy education, curriculums, and future directions. *Pharmacotherapy: The Journal of Human Pharmacology and Drug Therapy*, **33**(12), e347-e367

Poirier, T.I., Butler, L.M., Devraj, R., *et al*. (2009). A cultural competency course for pharmacy students. *American Journal of Pharmaceutical Education*, **73**(5), 81

TIP14. Integration of the Pharmacists' Patient Care Process (PPCP) in an integrated pharmacotherapy course series

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Keywords: Pharmaceutical Education, Simulation, Problem-based Learning, Clinical Experience

PWDGs: WDG1 - Academic Capacity; WDG2 - Foundation Training; WDG5 - Competency Development

Objective: The Joint Commission of Pharmacy Practitioners (JCPP) developed five-steps (Collect, Assess, Plan, Implement, Follow-up) that pharmacists use to provide patient care entitled the Pharmacists' Patient Care Process (PPCP) (APA, 2019). The goal of the PPCP is to improve patient health through integration of a comprehensive and consistent process for pharmacists working as members of the healthcare team. The PPCP is now incorporated into the accreditation standards within the United States (Taylor *et al.*, 2015; ACPE, 2016). Our objective was to evaluate student performance on the five steps of the PPCP in a three-semester integrated pharmacotherapy (iPHTH) course series and to assess if student performance progresses.

Method: The five-step PPCP was introduced in the first year of the curriculum and then carried forward and integrated into a three semester iPHTH course series. The course series is based on self-directed learning through complex patient cases using a scaffolded learning structure. Students were assessed on each step of the PPCP using the entrustable professional activities (EPA) assessment tool (1=dependent; 2=assisted; 3=supervised; 4=independent; 5=supervise others). With each course we set expectations of minimal competency across each PPCP step.

Results: Within each course the mean EPA assessment for all five steps of the PPCP was higher than the a *priori* set expectations for performance. Additionally, we saw an increase in performance of all five steps as students progressed across the three courses from dependent to supervised.

Conclusion: Implementing the PPCP in PHTH courses provides students the opportunity to connect pharmacotherapy learning and assessment of skill development to the PPCP that is practiced and assessed during experiential clinical learning.

References

ACPE [Accreditation Council for Pharmacy Education]. (2016). Accreditation standards and key elements for the professional program leading to the doctor of pharmacy degree. Standards. Available at: https://www.acpe-accredit.org/pdf/Standards2016FINAL.pdf. Accessed 24 January, 2019

APA [American Pharmacists Association]. (2019). Pharmacists' patient care process. Available at: https://www.pharmacist.com/sites/default/files/files/PatientCareProcess.pdf. Accessed 24 January, 2019

Taylor, C.T., Adams, A.J., Albert, E.L., *et al.* (2015). Report of the 2014-2015 Professional Affairs Standing Committee: producing practice-ready pharmacy graduates in an era of value-based health care. *Am J Pharm Educ*, **79**(8) Art. S12

TIP15. The use of Situational Judgement Tests for international advanced pharmacy practice experience selection

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Keywords: Alternative Assessment, Experiential Learning, Admission Criteria

PWDGs: WDG7 - Service Provisions and Workforce Education and Training; WDG8 - Working with Others

Objective: Situational Judgement Tests (SJTs) are a measurement method designed to assess judgement in a situation as well as an assessment of cognitive aptitude and non-academic skills. SJTs have been used in trainee selection for health professions education to assess non-academic attributes such as critical thinking, empathy, and leadership. (Patterson, 2016) While there are examples of SJT use in pharmacy school admissions, there is no data available regarding their role in selection of students for advanced pharmacy practice experiences (APPEs). As interest in international and global health APPEs increases, applications have become a necessary part of the trainee selection process. The objective of this innovation was to develop and vet SJTs within the application process for international APPEs across multiple institutions.

Design: Authors worked with researchers experienced in SJT development to initially create two SJTs that focused on desirable skills in global health situations including adaptability and initiative. A comprehensive online application that included SJTs was developed for utilisation across three institutions. Limited demographic information was also collected for research purposes.

Results: SJTs were vetted across faculty with expertise in international practice and global health to ensure they assessed the desired skills. Students from three universities completed the SJTs as part of the application process for international APPEs for the 2019-2020 academic year. A total of 147 students completed applications. SJTs will be scored and compiled. The final process of evaluation will be to correlate SJT responses to admission decisions.

Conclusion: Exploration of the role of SJTs in the international APPE selection process may be an important innovation for schools of pharmacy. Next steps include further validating the developed SJTs and developing additional SJTs for inclusion in future application processes. Another step would be to assess changes in responses following participation in global health APPE activities.

References

Patterson, F., Zibarras, L. & Ashworth, A. (2016). Situational judgement tests in medical education and training: Research, theory and practice: AMEE Guide No. 100. *Medical Teacher*, **38**(1), 3-17

Lievens, F. (2013). Adjusting medical school admission: Assessing interpersonal skills using situational judgement tests. *Medical Education*, **47**, 182-9

TIP16. Attempts for modernisation of teaching Pharmacognosy subject in University of Pécs

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Keywords: Pharmacognosy, Phytochemistry, Practice, Educational Methods

PWDGs: WDG5 - Competency Development; WDG8 - Working with Others

Objective: To adapt some parts of pharmacognosy and phytochemistry curriculum to modern challenges of pharmacy education.

Design: In the past ten years, the classical pharmacognosy curriculum (macroscopic, microscopic, and phytochemistry examination of herbal drugs) have been supplemented with some new tasks (*e.g*., pharmacist advice situations) in University of Pécs, which are intended to help the pharmacy students to adapt to the new challenges of our world.

Results: There are a lot of outstanding teaching supplements in the field of pharmacognosy (Hänsel & Sticher, 2010; Heinrich *et al*., 2018), but some new topics are underrepresented in this context, and we could not find public practical notebooks. Additionally, the behaviour and needs of the students are changing rapidly, the classical teaching methods are not efficient for most of them, we are constantly trying to reorganise the most important knowledge in this field and develop new teaching strategies (*e.g*., more interactive, e-learning methods) adapted for the field of pharmacognosy. It also should be noted, that there are intercultural differences between the students (especially, if they study in foreign countries) and difference between the healthcare and educational systems.

Conclusion: Pharmacognosy is a robust and core subject within the pharmacy curriculum. Although, we have to keep the traditional knowledge with the required adaptations to the changing demands of the students and communities. The authors are open to cooperation and advice from other pharmacognosy teachers globally.

References

Hänsel, R. & Sticher, O. (2010). Pharmakognosie - Phytopharmazie, 9th Ed. Springer

Heinrich, M., Barnes, J., Prieto-Garci,a J., *et al*. (2018). Fundamentals of Pharmacognosy and Phytotherapy, 3rd ed. Elsevier

TIP17. Integrated therapeutics wiki project: Using concept mapping and a wiki to help final year M.Pharm. students connect the dots

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Keywords: Concept Mapping, Teaching Methods

PWDGs: WDG1 – Academic Capacity: WDG5 – Competency Development

Objective: Pharmacy is underpinned by a broad range of subjects. The pharmacist needs to be able to make efficient use of this diversity of information in their professional and clinical practice. The graduating student has typically compartmentalised their knowledge and would benefit from the integrated understanding that usually develops with experience. The integrated wiki project aims to accelerate this process by direct facilitation of a way of thinking that promotes a more connected view of the diverse subject areas and clinical practice that the students can then show by illustration.

Design: The project centres around a list of topics drawn from material taught across the M.Pharm. degree. There are enough for each student to be allocated five topics. The students develop wiki pages for each of their allocated topics, and they should include on each page, links to other topic pages created by their colleagues. They each produce a concept map to summarise the connections they have made individually and collectively throughout the wiki and demonstrate integration between the different pharmaceutical disciplines and clinical practice. For the 2018-19 cohort, the project is being evaluated using a questionnaire.

Results: Evaluation is ongoing. Based on initial results, over half of respondents agree or strongly agree that the wiki project has helped them to:

- refresh their knowledge of topics throughout the M.Pharm.;
- understand how topics that were taught in the different pharmaceutical disciplines can be connected;
- understand how to integrate the different pharmaceutical disciplines and the importance of doing so;

Due to the variability in quality of the wiki pages, students feel that they may not be a useful revision tool and that the peer marking of the pages was not helpful to them.

Conclusion: The use of a wiki and concept mapping can help students integrate knowledge from their M.Pharm.

TIP18. Reflection in global health using Photovoice

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Keywords: Inter-professional Relationship, Clinical Teaching (Health Professions), International Education, Study Abroad

PWDGs: WDG1 - Academic Capacity; WDG7 - Service Provision and Workforce Education and Training; WDG8 - Working with Others

Objective: The objective of the Photovoice assignment is to critically engage students in a medium used to stimulate reflection and inculcate principles related to global citizenship. The long-term aim of this work is to connect global experiences to local communities.

Design: Experiential learning in global health often overwhelms students. Most have a difficult time processing their emotions, do not have the skills to describe and reflect upon this experience in a meaningful way, and do not recognise the implications of this experience to their US-based careers. Adding a creative visual element to the learning process provides an outlet for expression of emotion and promotes active learning and better integration of knowledge. Photovoice has been used as a pedagogical tool to engage learners. Photovoice participants are encouraged to observe their environment, capture a point in time through photography, reflect and describe their image both orally and in writing with a caption. Photovoice was implemented as an assignment for all inter-professional students who participate in the Shoulder to Shoulder Global medical service experience in Ecuador. Students from multiple colleges participate: Arts and Sciences, Dentistry, Design, Health Sciences, Medicine, Nursing, Pharmacy, and Public Health. After an introductory lecture on visual communication and storytelling, mobile photography, and Photovoice methodology, participants were asked to take photos they felt embody one of the course themes.

Results: Students shared their photos in facilitated small groups each evening in Ecuador. Following group feedback and reflection, students chose their best photo and created a draft caption. Upon return students uploaded their photos/draft captions for final group input. Finally, an Instagram gallery was compiled for public view.

Conclusion: Students enjoyed the assignment and engaged in deeper reflection with the use of Photovoice. Future plans are to collect survey data on the use of Photovoice from students

References

Smetaniuk, T., Johnson, D., Creurer, J., *et al.* (2017). Physical activity and sedentary behaviour of master of physical therapy students: An exploratory study of facilitators and barriers. *Physiother Canada*, **69**, 260-70

Wilson, J.E., Smith, M.J., Lambert, T.L., *et al.* (2017). A novel use of photovoice methodology in a leadership APPE and pharmacy leadership elective. *Curr Pharm Teach Learning,* **9**, 1042-54

TIP19. 'Reflecting on pOSAs' – Online Summative Assessments utilising certainty based marking for postgraduate pharmacy education

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Keywords: Assessment, Student Experience, Staff Development

PWDGs: WDG5 - Competency Development; WDG9: CPD Strategies

Objective: Online assessments are frequently used in medical education to test knowledge to underpin competency development. In medical education certainty based marking (CBM) is used as a reflective tool to help students assess their own depth of understanding of concepts (Barr & Burke, 2013). These approaches have been adopted in undergraduate pharmacy education, but are less established in postgraduate courses and research has focused on describing accuracy rather than exploring the student and tutor experience (Luetsch & Burrows, 2016). Pharmacotherapeutic Online Summative Assessments (pOSAs) were introduced as part of the assessment for pharmacists studying a clinical postgraduate certificate programme designed for community pharmacists in England in 2018. The certificate is one year long and comprises sequential five units. Four units have pOSAs. The objectives of this study are: (a) to explore students' experiences of the tool; (b) to identify if pOSAs supported reflective learning and development during the year; and (c) to explore the experiences of tutors in designing these assessments.

Design: Anonymised student performance grades for pOSAs have been tracked across four units to address objective (b). Focus groups are planned with tutors and students to address objectives (a) and (c) at forthcoming study days scheduled in February 2019. The focus group discussions will be recorded and transcribed *verbatim*. The transcripts will be analysed using thematic analysis. The project received ethical scrutiny from the University of Bath.

Results: Student performance data for 2018 will be analysed for evidence of learning gain. Findings from student focus groups will highlight how students use CBM results, and this supports reflection on learning to build confidence. Findings from staff focus groups will address approach to assessment design, staff development and overall satisfaction.

Conclusion: Student and staff experiences of these assessment and their role in supporting reflection for learning will be discussed.

References

Barr, D.A. & Burke, J.R. (2013). Using confidence-based marking in a laboratory setting: a tool for student self-assessment and learning. *Journal of Chiropractic Education*, **27**(1)

Luetsch, K. & Burrows, J. (2016). Certainty rating in pre- and post-tests of study modules in an online clinical pharmacy course - a pilot study to evaluate tearing and learning. *BMC Medical Education*, **16**, 267

TIP20. Development of self-care scenarios requiring ethical decision making using an online pharmacy simulation, MyDispense

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Keywords: Simulation, Online Systems, Pharmacy, Decision Making

PWDGs: WDG1 – Academic Capacity; WDG5 – Competency Development

Objective: MyDispense is an award-winning online pharmacy simulation platform developed by Monash University. Our aim is to prepare students for practice in a more robust manner through the use of complex cases involving special patient populations and the enhancement of the MyDispense over-the-counter (OTC) function. Simulations have "the benefit of trial and error practice to become a more informed decision-maker in similar experiences in the future" (Staub & Bravender, 2014). These are important in pharmacist training, allowing opportunities to learn from mistakes without compromising patient outcomes. Currently, there appear to be no simulated online teaching tools to support professional and ethical decision making in pharmacy, however positive outcomes have been shown in medical students and within the educational setting. (Staub & Bravender, 2014; Bell *et al*., 2016). Students need preparation in clinical decision-making regarding OTC medications while considering prescribed medications and concomitant disease states.

Design: This project develops the MyDispense programme software functionalities to expand utilisation and further enhance traditional teaching methods, through the development of nine complex self-care scenarios requiring students to apply and justify their ethical and professional decision-making skills. Students at the authors' schools of pharmacy will pilot the scenarios in late spring 2019.

Results: Student feedback and utilisation data will be collected to determine what aspects of MyDispense OTC may need to be adapted to further support ethical decision making.

Conclusion: Evaluation of the results will help develop a strategy on how we can use more complex exercises and introduce more structured clinical decision making capability on the MyDispense OTC platform in areas such as: strengthening current face-to-face OTC teaching; preparing students to provide a higher standard of patient care on placement; integrating into students' competency assessment for managing patients with self-care; development of the OTC platform for use by graduates preparing for registration examinations and competency sign off.

References

Bell, J., Dziekan, G., Pollack, C., Mahachai, V. (2016). Self-care in the 21st century: a vital role for the pharmacist. *Advances in Therapy*, **33**, 1691-1703

Staub, N.A., Bravender, M. (2014). Principal Candidates Create Decision-Making Simulations to Prepare for the JOB. *Int Journal of Educational Leadership Preparation*, **9**(1)

TIP21. Developing a scaffold to conceptualise the relevance of integration in clinical practice in preparation for an integrated therapeutics wiki project

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Keywords: Scaffolding, Concept Mapping, Teaching Methods

PWDGs: WDG1 – Academic Capacity; WDG5 – Competency Development

Objective: Final year M.Pharm. students at University College London (UCL), complete an integrated therapeutics wiki project. This is an innovative learning activity designed to help students make connections between topics from different pharmaceutical disciplines using concept mapping and wiki pages. Feedback from the 2016-17 cohort highlighted that students did not always understand how to approach the tasks, nor the relevance to their learning. In response, the wiki project team developed a workshop and feedback schedule to provide a more solid supporting scaffold (Wood *et al.*, 1976).

Design: The workshop centred on a patient case to highlight the relevance of integration in practice. Students were introduced to the principles of concept mapping and how to make links between topics before making their own concept maps in teams, using topics related to the patient case. Students received feedback from staff and peers, and the workshop concluded with an example map that demonstrated how integration of different disciplines was relevant to the patient case. Further support was provided through the provision of peer and formative feedback during the wiki project. The workshop is being evaluated using a questionnaire.

Results: Evaluation of the workshop is in progress. Preliminary results have shown over half of respondents agree or strongly agree that the workshop helped them to understand the idea of concept mapping and what was required to complete their own map. Two thirds of respondents would recommend the workshop to their colleagues in the years below and they agreed or strongly agreed that they would have found it hard to start their

own map without the workshop and the patient case in the workshop helped them understand the relevance of connecting pharmaceutical sciences and clinical practice.

Conclusion: Initial results suggest that students have found the workshop a useful scaffold to support them with the wiki project.

References

Wood, D., Bruner, J.S. & Ross, G. (1976). The role of tutoring in problem solving, *Journal of Child Psychology and Psychiatry*, **17**, 89-100

TIP22. Scaffolding to enhance inquiry skills in pharmacy students, intern pharmacists and pharmacists

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Keywords: Pharmacy, Inquiry, Pharmaceutical Education, Curriculum Development, Scaffolding (Teaching Technique)

PWDGs: WDG2 - Foundation Training; WDG5 - Competency Development; WDG7 - Service Provision and Workforce Education and Training

Objective: To scaffold the development of inquiry skills in pharmacy undergraduate and postgraduate education for pharmacy students, intern pharmacists and practising pharmacists.

Method: Inquiry skills have been identified as a gap in pharmacy graduate competencies (Vienet e*t al*., 2018). A review of undergraduate and postgraduate education curricula was undertaken to determine opportunities for students to progressively develop and enhance their inquiry skills as they advance in their study and pharmacy practice.

Results: A framework for scaffolded development of inquiry skills was designed and implemented. Undergraduate pharmacy students develop skills in evidence based and professional practice in first and second years. This provides the foundation for them to learn the fundamentals of research philosophy and methodology by developing a specific research proposal in third year. In fourth year, students undertake the research detailed in their proposal and write up their findings in accordance with publication requirements, with close supervision from an experienced researcher. Students develop an understanding of the importance of dissemination as a component of inquiry and have the opportunity to present their proposal and research findings to others.

Intern pharmacists undertake work integrated learning in which they work more independently to design and complete a workplace-based research project. They present their project outcomes as a poster and three-minute oral presentation to peers and pharmacists at an evening celebrating the conclusion of their internship.

Practising pharmacists may further enhance their inquiry skills by undertaking higher level practice-based research in the Master of Clinical Pharmacy. Master's students are required to demonstrate leadership and independence in their research and to present their research both orally and in written form suitable for publication.

Conclusion: Scaffolding has been utilised to enhance the development of inquiry skills across pharmacy undergraduate and postgraduate education for pharmacy students, intern pharmacists and pharmacists.

References

Vienet, M., Brock, T., Galbraith, K. & Malone, D. (2018). Identifying gaps in intern competencies to inform scaffolding for pharmacy students: Bridging from undergraduate to postgraduate. *Pharmacy Education*, **18**(1), 31

TIP23. A novel approach to the design of a fully integrated clinically enhanced pharmacist independent prescribing course in the UK

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Keywords: Blended Learning, Alignment (Education)

PWDGs: WDG4 - Advanced and Specialist Development; WDG7 - Service Provision and Workforce Education & Training

Objective: The Five Year Forward View (FYFV) (NHS, 2014) described new roles for pharmacists such as in urgent and emergency care. Pharmacists need advanced skills to competently manage patients with health assessment, diagnostic and clinical examination skills to fulfil these roles. University College London (UCL) aimed to design a novel prescribing course with fully integrated physical assessment skills teaching that would develop pharmacists with the skills to take on these new roles. The course was designed for pharmacists by practicing pharmacists using advanced skills in these new roles.

Design: The course was uniquely developed through co-creation by a team of practicing and academic pharmacists using constructive alignment (Biggs, 2003). The course aimed to develop pharmacists with the skills to make an informed decision at each instance of prescribing. Co-creation enabled the team to understand

what this meant in practice and to describe the skills pharmacists would require to achieve this, that go beyond those described by the General Pharmaceutical Council (GPhC) (GPhC, 2019). The course was designed utilising a blended learning approach (Garrision & Kanuka, 2004) with real life case studies and reflective questions to embed learning in practice. The course is currently being evaluated; the first cohort are due to complete in May 2019. Evaluation of the face to face study days was through on-line questionnaires containing open and closed questions. An end of course questionnaire and interviews with course representatives, together with a follow up questionnaire six months post-completion, is planned.

Results: The course has successfully recruited to two cohorts. Initial evaluation of the face to face study days suggest that the case study approach is well-received by the students and that they are learning skills they can take into their practice.

Conclusion: Interim results suggest that using co-creation has developed a course that will develop pharmacists ready to take on new roles.

References

Biggs, J.B. (2003). Teaching for quality learning at university. Buckingham: Open University Press/Society for Research into Higher Education, 2nd edition

Garrison, D. & Kanuka, H. (2004). Blended learning: uncovering its transformative potential in Higher Education. *The Internet and Higher Education*, B(2), 95-105

GPhC [General Pharmaceutical Council]. (2019). Standards for the education and training of pharmacist independent prescriber.

NHS. (2014). Five year forward view. NHS, London, 2014

TIP24. Development of a professionalism self-assessment tool for pharmacy undergraduate students

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Keywords: Educational Assessment, Experiential Learning, Reflection

PWDGs: WDG1 - Academic Capacity

Objective: A self-assessment tool was required for pharmacy students to reflect on their understanding of concepts relating to professionalism, in preparation for their experiential learning.

Design: A literature review of materials utilised for pharmacy professionals was carried out. An existing tool (WCPPE, 2017) was used as a starting point, and two cycles of piloting and evaluating were carried out with pharmacy students who had just finished their second year of studies. Participants in each cycle were asked to comment on clarity of questions, time required to complete the test, and any other issues they identified.

Results: A ten-question, multiple-choice quiz was tested with six students in cycle 1. Marks ranged from 6/10 to 9/10, with a mean mark of 8. All students agreed that most questions were fair and at an appropriate level; where a wrong answer was provided, it was attributed to lack of familiarity with the content. Only one question was answered incorrectly due to different interpretations of the available options and ambiguity of the question (n=3). Changes were made to both the question and options to clarify the intended meaning. Some other questions were also reworded to improve clarity, even though the wording did not affect participants' ability to answer them. The amended version was tested with ten students in cycle 2. Marks ranged from 7/10 to 10/10, with a mean mark of 8.5. There were no comments on ambiguity of questions.

Conclusion: A student-tailored tool was produced that can be used by pharmacy undergraduate students to self-assess their understanding of professionalism.

References

WCPPE [Wales Centre for Pharmacy Professional Education.] (2017). Professionalism for pharmacy practitioners. Available at: https://learning.wcppe.org.uk/pluginfile.php/42641/mod_resource/content/3/story_html5.html. Accessed June 2018

TIP25. Use of the Entrustable Professional Activities Framework for classroom-based assessment of clinical reasoning for clinical decision making

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Keywords: Health Professions Education, Educational Methods, Clinical Teaching

PWDGs: WDG1 - Academic Capacity; WDG2 - Foundation Training; WDG5 - Competency Development

Objective: Entrustable Professional Activities (EPAs) are units of professional practice that describe the professional's unique abilities and work (Pitenger *et al.*, 2016). EPAs are gaining popularity in pharmacy education, because trainee assessment of EPAs is based on the level of independence a supervisor can allow on their journey to practice ready (Taylor *et al.*, 2015). EPAs provide support for students toward their future professional roles by presenting them with work that shapes their professional identity and builds a culture of

self-reflection of their progress toward that professional role. The integrated pharmacotherapy (iPHTH) course series is a vertically integrated, stepwise progression of pharmacotherapy delivery designed to ensure that students achieve demonstrably high levels of knowledge, clinical skills, and clinical reasoning abilities. Our objective was to assess the incorporation of EPA assessment of clinical reasoning and clinical decision making within a three course iPHTH series, in order to track the progression of students to practice ready.

Design: During iPHTH, students are exposed to complex patients with problems and disease states that require clinical reasoning for clinical decision making. The EPA framework was used to provide students an assessment on their clinical reasoning abilities within this course. The minimum level of clinical reasoning entrustment was defined for each course and tracked within and across the three courses.

Results: Within each course the mean EPA assessment for clinical reasoning met the a priori set expectation for performance. Additionally, we saw a progression of performance across the three courses.

Conclusion: EPAs are an innovative educational strategy emerging in pharmacy education. Incorporation of EPAs into didactic curriculum can provide students with clear expectations for performance and as a curricular assessment to evaluate student progress prior to and during the experiential curriculum. Ideally, introducing and familiarising students with EPAs during their didactics promotes the skill of self-reflection early in their training.

References

Pittenger, A.L., Chapman, S.A., Frail, C.K., Moon, J.Y., Undeberg, M.R. & Orzoff, J.H. (2016). Entrustable professional activities for pharmacy practice. *American Journal of Pharmaceutical Education*, **80**(4), 57

Taylor, C.T., Adams, A.J., Albert, E.L., *et al.* (2015). Report of the 2014-2015. Professional Affairs Standing Committee: producing practice-ready pharmacy graduates in an era of value-based health care. *American Journal of Pharmaceutical Education*, **79**(8), Art.S12

TIP26. Simulation in pharmacy education: Developing students' professional and leadership skills through authentic practice based learning

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Keywords: Simulation, Pharmacy, Experiential Learning

PWDGs: WDG1 - Academic Capacity; WDG3 - Quality Assurance; WDG6 - Leadership Development; WDG8: Working with Others; WDG9 - CPD Strategies

Objective: To develop 3rd year pharmacy students' professional, leadership and organisational skills.

Design: In Great Britain (GB), the Responsible Pharmacist Regulations (GPhC, 2008) requires a Responsible Pharmacist (RP), to be present in each Registered Pharmacy. S/he organises the work of the team.

In years 1 and 2, pharmacy students undertake dispensing workshops using didactic methodology guided by faculty. Students become familiar with the practice of dispensing, application of relevant laws and regulations and clinical assessments of prescribed medicines.

To progress students from dependent learners through interested and involved stages to becoming self-directed learners (Grow, 1991), an interactive workshop, simulating community pharmacy practice was developed. Students working in teams of three 'staffed' a pharmacy. One student was assigned the role of RP and was responsible for the leadership, organisation and supervision of the team combined with the quality of work produced. Over the course of the semester, every student performed this role. Each team started with a number of prescriptions to process, and at intervals, additional pharmacy scenarios were encountered. Scenarios included: deliveries of stock, staff breaks, Inspector's visits, medication queries from doctors, patient enquiries for over the counter medicines, provision of advanced pharmacy services (PSNC, 2019), medication errors and Emergency Supplies. Performance issues to be dealt with included tardiness and absence. Students were provided feedback after each workshop and they wrote reflective entries in their portfolios.

Results: Anonymised student feedback and portfolio entries indicated the sessions were highly engaging. "*Rx review sessions was amazing, loved the additions*"; "*… worth repeating*". Consensus opinion was that the workshops helped to equip them for their future professional roles supporting evidence of self-directed learning.

Conclusion: Simulation enabled students to demonstrate their organisation and leadership skills, knowledge of RP legislation, and application of risk strategies to reduce patient harm, and show empathy.

References

Grow, G.O. (1991). Teaching Learners To Be Self-Directed. *Adult Education Quarterly*, **41**(3), 125–149

GPhC [General Pharmaceutical Council]. (2008). The Medicines (Pharmacies) (Responsible Pharmacist) Regulations 2008

PSNC. (2019). Advanced Services. Available at: https://psnc.org.uk/services-commissioning/advanced-services/ Accessed 21 January, 2019

TIP27. What skills do pharmacoepidemiologists need: development of the core curriculum for health professional students

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Keywords: Pharmacoepidemiology, Ph.D., Postgraduate Doctoral Degree, Core Curriculum

PWDGs: WDG1 – Academic Capacity; WDG2 – Foundation training

Objective: Post-marketing surveillance of medicine safety requires clinical and epidemiological expertise. Rapid advances in the availability of administrative health data, electronic medical record systems and new analytical techniques are transforming the discipline of pharmacoepidemiology. Clinicians and researchers require new skills to access, analyse and appraise health data. The objective is to develop a core curriculum in pharmacoepidemiology for health professional students undertaking higher degree research.

Design: Core curriculum development is being undertaken by the Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists Pharmacoepidemiology Special Interest Group. Overall, 19 researchers and doctoral candidates from four Australian states participated in stakeholder discussions and a curriculum mapping exercise in Adelaide in November 2018.

Results: Mapping was performed based on current training models at six Australian and one international institution. The content and duration of training models were diverse. Training was predominantly provided through external short courses, pre-conference workshops and online modules. Core skills identified were: 1) fundamental principles of epidemiology; 2) medication use as an exposure in epidemiological research; 3) strengths and limitations of different health data; 4) ethics, data security, and responsible reporting; and 5) applied biostatistics. As the first step, an online repository of training materials was proposed to facilitate sharing and assist curriculum development. Furthermore, development of a basic training package suitable for delivery across multiple institutions or on a rotational basis was proposed.

Conclusion: Specific training for pharmacoepidemiology in Australia is scarce. Sharing of existing resources and development of a new training package will equip health professional students to remain at the forefront of medicine safety research.

NIO1. A preliminary global analysis of country level factors supporting advanced practice development

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Keywords: Pharmacists, Advanced, Specialisation, Policy

PWDGs: WDG4 - Advanced and Specialist Development; WDG12 - Workforce Intelligence; WDG13 - Workforce Policy Formation

Objective: International Pharmaceutical Federation (FIP) established 13 Workforce Development Goals (WDGs), as a guide to support nations in transforming their workforce (FIP, 2017). To facilitate the implementation of WDG4 (Advanced and Specialist Expert Development), FIP conducted a cross-sectional country-level survey as research subsequent to the 2015 Global Report (FIP, 2015). Our objective is to identify key country-level enablers supporting advanced practice policy development for accelerating global progress.

Method: A country-level questionnaire was distributed from July to September 2018. The data were quality assured then coded for analysis. Multiple Correspondence Analysis (MCA) was conducted to identify associative variable and category factors to develop a general global model for advanced practice development.

Results: Forty-five countries initially submitted data. Information about country demographics (WHO region, formal language and world bank income classification) were included as variables. From the model obtained by MCA, there is a marked difference in category clusters between countries with a developed model of advanced practice. The country-level evidence suggests that high-income and upper-middle countries are clustered with a set of category conditions that support advanced practice. Moreover, availability of defined advanced practice frameworks, opportunities to gain formal recognition and practitioner benefits for being recognised as advanced pharmacists have the most influence on the attributes of advanced practice. Workforce policy related to separation between the regulator body and the professional body, and the prescribing system availability currently have less influence on advanced practice development.

Conclusion: There is now a need to enhance data acquisition across a wider a range of countries to validate the policy model (currently being undertaken by FIP). This study identified factors that enhance and contribute to advanced practice policy development in a country. Further work in building this policy model for the advancement of practice development is required to accelerate the progress of advanced practice globally.

References

FIP [International Pharmaceutical Federation]. (2015). Advanced Practice and Specialisation in Pharmacy: Global Report 2015. The Hague: International Pharmaceutical Federation

FIP [International Pharmaceutical Federation]. (2017). Transforming Pharmacy and Pharmaceutical Sciences Education in the Context of Workforce Development. The Hague: International Pharmaceutical Federation

NIO2. Development and implementation of a new experiential programme using a framework of integrated Entrustable Professional Activities (EPAs)

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Keywords: Pharmacy, Competency Based Education, Portfolios, Practicum Supervision, Clinical Experience

PWDGs: WDG5 - Competency Development

Objective: To develop and implement a new experiential programme in a redesigned undergraduate pharmacy degree.

Design: The programme was designed to provide students with earlier and enhanced practice experiences. Components included detailed activity descriptions, and efficient supervision models. A framework of Entrustable Professional Activities (EPAs) was implemented. EPAs are a set of discrete, specific tasks which students are expected to undertake in a work integrated learning setting with the goal of being able to perform these tasks without supervision once reaching a specific level of competence (ten Cate *et al.*, 2015). Via a collaborative process EPAs were defined for each placement and practice setting. Students' baseline ability to complete EPAs was assessed in a classroom setting, with the expectation tasks could be performed under supervision on subsequent placements. Placement timing and duration were modified to allow implementation of EPAs as soon as practicable after assessment. Preceptors were briefed and provided with detailed information. An enhanced faculty ePortfolio tool allowed preceptors to record student EPAs and to enable tracking of individual student development. Feedback was sought from students and preceptors.

Results: An EPA framework was introduced for experiential placements in second-year of the new curriculum. Fifteen EPAs were identified for placements in the students' second year, expanding to 25 in Year 3. By mid-2019 193 second-year students and 231 third-year students will have attended EPA based placements, and received feedback from preceptors regarding their EPA levels. Currently 15 hospitals and 112 community pharmacies have partnered with the faculty to clinically educate students. Six stakeholder feedback sessions have been conducted, and 145 feedback surveys completed Feedback from students and preceptors has been positive; suggestions have been implemented.

Conclusion: An undergraduate experiential programme for a new pharmacy curriculum has been successfully developed and implemented using EPAs, a bespoke ePortfolio, and significant workplace partnerships.

References

ten Cate, O., *et al*. (2015). "Curriculum development for the workplace using Entrustable Professional Activities (EPAs): AMEE Guide No. 99. *Medical Teacher,* **37**(11), 983-1002

NIO3. Identifying traits and building consensus on priority leadership and professionalism attributes in pharmacy education

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Keywords: Delphi Technique, Leadership, Professionalism, Pharmaceutical Education, Pharmacy

PWDGs: WDG2 - Foundation Training; WDG3 - Quality Assurance; WDG5 - Competency Development; WDG6 - Leadership Development

Objective: To identify and build consensus among faculty/staff educators, preceptors, and students on priority leadership and professionalism attributes for pharmacy student development.

Method: One hundred individuals (27 faculty/staff, 30 preceptors, 43 students) involved in the pharmacy curriculum were invited to participate in a modified Delphi technique. Leadership and professionalism attributes for round 1 of the Delphi were identified from pharmacy education literature (Benner *et al*., 2000; Hammer *et al*., 2003; Boyle *et al.,* 2007). Participants had the opportunity to review the attributes, provide feedback, and add additional traits important for pharmacy student leadership and professional development. Twenty-one leadership and 21 professionalism attributes were included in round 2 of the Delphi. Participants prioritised each leadership attribute and each professionalism attribute as either Highly Important, Important, or Less Important.

Results: An 82% participation rate (24 faculty/staff, 21 preceptors, 37 students) was achieved in round 2 of the Delphi. Eleven leadership and 13 professionalism attributes achieved an overall consensus (a *priori* set to ≥

80.0%) of being Highly Important or Important for pharmacy student development. Differences were observed among the groups for multiple attributes. For example, "accountable for personal development" was endorsed as a Highly Important or Important leadership attribute by 75.0% of faculty/staff, 100.0% of preceptors, and 70.3% of students. Similarly, differences were observed for leadership attributes "change management" (85.7% faculty/staff, 82.4% preceptors, 48.6% students) and "grit" (71.4% faculty/staff, 47.1% preceptors, 67.6% students) and professionalism attribute "creativity and innovation" (42.9% faculty/staff, 70.6% preceptors, 50.0% students).

Conclusion: The modified Delphi technique can effectively identify and prioritise leadership and professionalism attributes important for pharmacy student development. This process facilitates consensus building and identifies gaps among stakeholders. Identified gaps may represent differing priorities among stakeholders and/or different opportunities for emphasis and development across settings (*e.g.*, classroom, experiential, co-curriculum).

References

Arnold, L. *et al*. (2018). Medical school factors that prepare students to become leaders in medicine. *Academic Medicine,* **93**(2), 274-282

Benner, J. & Beardsley, R. *et al*. (2000). White paper on pharmacy student professionalism: Recommendations of the American Pharmaceutical Association Academy of Students of Pharmacy and American Association of Colleges of Pharmacy Council of Deans Task Force on Professionalism. *Journal of American Pharmacists Association*, **40**(1), 96-102

Boyle, C.J. *et al*. (2007). Professionalism: A determining factor in experiential learning. *American Journal of Pharmaceutical Education*, **71**(2), Art.31

Hammer, D.P. *et al*. (2003). Student professionalism. *American Journal of Pharmaceutical Education*, **67**(3), Art.96

Janke, K.K. *et al*. (2013). Competencies for student leadership development in doctor of pharmacy curricula to assist curriculum committees and leadership instructors. *American Journal of Pharmaceutical Education*, **77**(10), Art.22

NIO4. Supported communication skills training: Evaluation of a pilot workshop for pharmacy undergraduates

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Keywords: Aphasia, Communication Skills, Empathy, Patients, Self Efficacy

PWDGs: WDG1 - Academic Capacity; WDG7 - Service Provision and Workforce Education and Training

Objective: Healthcare professionals may lack the skills and confidence to support patients with communication impairments (Burns *et al*., 2012). Supported communication skills training has been used to address this across a range of professions, including speech and language therapy (Finch *et al*., 2017) occupational therapy and physiotherapy students (Cameron *et al*., 2015). A pilot of supported communication skills training with pharmacy undergraduates was undertaken to evaluate the benefits and assess the value of incorporation into the University of East Anglia (UEA)'s M.Pharm. degree.

Design: The training consisted of one taught session (two hours, covering components of healthcare communication, communication impairment and the knowledge, skills and resources which can support communication) followed by one practical training session (one hour, communicating with people with aphasia who are trained to train and provide feedback). All UEA pharmacy undergraduate students were invited to participate in the pilot training. A post-training evaluation form was distributed to all students immediately following the training, consisting of five 5-point Likert scale questions and three open questions.

Results: Twelve students volunteered for the pilot, ten of whom completed the evaluation. Students were unanimously positive about the training, with all agreeing both training sessions were useful, that their knowledge and confidence in supporting people with communication impairment had increased and that they would recommend the training to their peers. Students particularly valued the experiential aspect of the training *(e.g.*, "*the amount of time we had and the variety of people we met. It changed my perspective a lot*") and shared how it had influenced their future practice (e.g., "*I'll definitely be more understanding and won't feel the need to rush them as they're speaking*").

Conclusion: Our findings suggest this training can have the same positive impact on pharmacy undergraduates as it has with other healthcare professionals. As a result plans are in place to include it within UEA's M.Pharm. degree.

References

Burns, M.I., Baylor, C.R., Morris, M.A., McNalley, T.E. & Yorkston, K.M. (2012). Training healthcare providers in patient–provider communication: what speech-language pathology and medical education can learn from one another. *Aphasiology*, **26**, 673-688

Cameron, A., McPhail, S., Hudson, K., Fleming, J., Lethlean J, & Finch E. (2015). Increasing the confidence and knowledge of occupational therapy and physiotherapy students when communicating with people with aphasia: A pre-post intervention study. *Speech, Language and Hearing*, **18**, 148-155

Finch, E., Cameron, A., Fleming, J., Lethlean, J., Hudson, K. & McPhail, S. (2017). Does communication partner training improve the conversation skills of speech-language pathology students when interacting with people with aphasia? *Journal of Communication Disorders*, **68**, 1-9