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CONFERENCE ABSTRACTS

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Identifying and prioritising social/administrative science topics for pharmacy curricula

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Background and Statement of Aim(s): Since 2009, colleges/schools of pharmacy across the United States have utilised the ACCP Pharmacotherapy Toolkit to assist in prioritising clinical topics within curricula. Despite the essential role of social/administrative science (SAS) skills, no similar curricular guidance exists for SAS coursework. Areas such as pharmacoepidemiology, pharmacoeconomics, policy, and management currently feature heavily in curricula, but a framework to prioritisethese topics to avoid hoarding is needed. Accordingly, the aim of this work is to identify/prioritise areas of importance in the SAS domain for pharmacy curricula.

Methods: A modified Delphi process was undertaken amongst pharmacy educators. An informal literature review was conducted to gather a list of potential SAS topics, organised into domains for assessment. Four rounds of iterative surveys were conducted to identify, refine, and tier SAS topics according to their importance within curricula; tiering used adapted language from the 2019 ACCP Pharmacotherapy Toolkit.[1] This included Tier 1 (highest priority; students should receive education); Tier 2 (middle priority; students may need additional knowledge/skills after graduation); and Tier 3 (lowest priority; students expected to obtain knowledge after graduation to provide care if required in their practice).

Results: A total of 147, 140, 139, and 111 individuals responded in rounds one to four, respectively. The process generated a final list of 76 topics across 11 domains. Domains included Healthcare systems; Structural/societal factors; Public health; Social/behavioral aspects of practice; Research design/structure; Medication safety; Pharmacy management/business; Pharmacy laws/regulations; Professionalism; Communication; and Digital health/informatics. The final list was composed of 35 topics (46%) in tier 1, 28 topics (37%) in tier 2, and 13 (17%) in tier 3.

Discussion and/or Conclusion: This work enables a framework for colleges/schools of pharmacy to organise baseline SAS education that will support graduates in a variety of careers. Continuing work is focusing on verifying these results among other interested parties, such as practicing pharmacists in different settings.

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Beyond the lecture: game-based learning as a catalyst for transformative pharmacy education

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Background and Statement of Aim(s): The evolving landscape of pharmacy and pharmaceutical sciences

education calls for transformative teaching strategies that move beyond traditional didactic methods toward learner-centered, integrative and practice-ready approaches. Game-based learning has emerged as a promising pedagogical tool to enhance engagement, motivation, and conceptual understanding. This pilot project aims to design and evaluate a board game as an innovative learning intervention to foster deeper conceptual connections, active participation, and collaborative learning among undergraduate pharmacy students in chemistry.

Methods: A design-based research framework was adopted, encompassing three phases: (i) conceptual design informed by educational theory and curriculum mapping, (ii) prototype development and iterative playtesting, and (iii) pilot implementation and evaluation. The study employs a mixed-methods approach combining pre- and post-intervention surveys to measure changes in engagement and self-efficacy, alongside focus group interviews to explore learner perceptions and cognitive engagement. Quantitative data will be analysed using paired statistical tests, and qualitative data will undergo thematic analysis.

Results: Preliminary observations from prototype testing suggest enhanced student engagement and increased confidence in connecting theoretical knowledge with problem-solving tasks. Early data also indicate the game's potential to promote active learning, peer collaboration, and reflective thinking. Comprehensive findings from the pilot implementation will be presented, focusing on the educational value and feasibility of integrating game-based learning within the pharmaceutical sciences curriculum.

Discussion and/or Conclusion: This pilot project demonstrates the potential of game-based learning as a scalable and sustainable approach to reimagining how complex scientific concepts are taught in higher education. By embedding interactivity and cognitive challenge within a collaborative framework, the intervention contributes to the broader goal of developing future-ready graduates equipped with problem-solving, communication, and critical-thinking skills.

Development and implementation of pediatric pharmacy education modules for hospital pharmacists with a provincial health authority

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Background and Statement of Aim(s): Pediatric medication errors in the hospital are a major concern.[1] There remains insufficient exposure to pediatric pharmacotherapy within pharmacy schools; recent graduates require extensive on-the-job training to reach a minimum level of competency.[2] The Pediatric Pharmacy Association recommends that employers ensure pharmacists are prepared with key pediatric competencies (e.g., pharmacokinetics, fluid and nutrition needs, etc.).[2] Efforts to provide pediatric pharmacotherapy education must be prioritised. The objective of this study was to develop and implement hospital pharmacist pediatric pharmacotherapy education modules and assess changes in confidence.

Methods: Six pediatric pharmacotherapy modules were designed for adult learners that could be completed asynchronously via a web-based platform. Topics were selected guided by pre-existing literature and identified needs of the organisation. Participants completed an online questionnaire before and after completion of the modules to assess self-reported confidence with navigating different pediatric scenarios. Statistical analysis included application of a two-tailed paired t-test to assess the difference in pre- and post-test scores. Statistical significance was defined as a p-value of < 0.05.

Results: Forty-three pharmacists participated in the study. Most had one to five years of experience (62.8%) and 83.7% of participants received five hours or less of didactic pediatric education in pharmacy school. An increase in pharmacists' confidence occurred after the modules were completed (Mean difference = 0.97; 95% CI 0.73 - 1.21; $p < 0.05$). The greatest increase in confidence was shown in assessing intravenous fluid appropriateness (Mean difference = 1.51; 95% CI 1.26 - 1.77; $p < 0.05$).

Discussion and/or Conclusion: This study demonstrated improvement in pharmacist self-reported confidence in pediatric pharmacotherapy following completion of education modules. Future interventions should include routinely incorporating the pediatric modules in hospital pharmacist training programs to provide safer care for patients.

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Using MyDispense for pharmacy students to apply bioethical principles

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Background and Statement of Aim(s): The usability of MyDispense for students to apply bioethical principles has not been previously explored. Currently, teaching and learning bioethical principles in the 2nd-year of the Monash University undergraduate Pharmacy degree is predominantly conducted via lectures, workshops, and self-paced learning using online content on Moodle. The aim of this study was to develop and incorporate ethical scenarios in the MyDispense platform that encompass one or more of the ethical principles within a 2nd-year pharmacy unit.

Methods: Six bioethical hospital and community pharmacy cases were designed and built into the MyDispense platform. 2nd year pharmacy students attempted any of the six cases as part of the PHR2011 unit, ethics in pharmacy workshop. For each case students were prompted to select which of the 4 bioethical principles apply and provide reasoning for their choice. More than 1 principle could apply to the case. The ethical obligations can be summed up in the four main ethical principles, i.e. beneficence, nonmaleficence, autonomy, and justice.

Results: 285 students attended the workshop and were instructed to complete the MyDispense cases as part of their learning for the ethics in pharmacy topic. Case 1 (n = 43): Autonomy (n = 3), Beneficence (n = 31), Non-Maleficence (n = 39). Case 2 (n = 28): Autonomy (n = 26), Beneficence (n = 6), Justice (n = 3), Non-Maleficence (n = 3). Case 3 (n = 25): Autonomy (n = 7), Beneficence (n = 19), Non-Maleficence (n = 22). Case 4 (n = 12): Autonomy (n = 5), Beneficence (n = 8), Justice (n = 10) Non-Maleficence (n = 2). Case 5 (n = 8): Autonomy (n = 7), Beneficence (n = 5), Non-Maleficence (n = 3). Case 6 (n = 9): Autonomy (n = 2), Beneficence (n = 5), Non-Maleficence (n = 8).

Discussion and/or Conclusion: Six bioethical cases were incorporated into the MyDispense platform for 2nd year pharmacy students. Students were able to apply their knowledge of the bioethical framework to select the most appropriate principles based on the scenario.

From dispensing to prescribing: Preparing future pharmacists for management of acute upper respiratory tract and ear infections

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Background and Statement of Aim(s): Pharmacists are being relied on more often to assess, diagnose, and prescribe for common upper respiratory tract infections (URTI) and ear infections, especially in regions where healthcare systems are strained. The objective of this mixed-methods study was to determine curricular changes necessary to prepare pharmacy students for expanding scope to manage URTI and ear infections.

Methods: An environmental scan of Canadian pharmacy programs was undertaken. Representatives were invited to complete an electronic questionnaire describing the curricular content of URTIs and ear infections including the assessment, diagnosis, and treatment. A questionnaire and focus groups/ interviews were also completed with pharmacists to evaluate self-perceived confidence and competence in prescribing for these infections. Quantitative data was analysed descriptively, and qualitative data was analysed using thematic analysis.

Results: All Pharmacy program curricula include common URTIs and ear infections, although to varying degrees. Few programs (27%) prepare students to complete a differential diagnosis related to this content including discussion of less common infections. Physical assessment techniques, where included (19%), are primarily taught didactically. Half of all program representatives do not feel their students can independently assess and prescribe for these infections upon graduation. Consistent with the environmental scan, pharmacists (n = 49) reported apprehension in assessment of URTI and ear infections with only half self-reporting they have competence in diagnosing pharyngitis and fewer than a third in diagnosing ear infections. Most respondents were comfortable prescribing an appropriate antibiotic. The qualitative analysis identified “Preparedness”, including need for more hands-on training, as the most extensively discussed theme by participants (n = 16).

Discussion and/or Conclusion: If graduates are expected to offer this expanded scope at exit from degree, there is a need to increase instruction on assessment and diagnoses of URTI

and ear infections in programs. Students should be exposed through skills labs and experiential education.

Preparing future pharmacists as antimicrobial stewards

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Background and Statement of Aim(s): Antimicrobial resistance (AMR) is a leading public health threat. Recognizing the increasing role of pharmacists in leading antimicrobial stewardship (AMS) initiatives and expanding scope of practice, an elective course for PharmD students was implemented. The goal of this course is to prepare students to develop AMS initiatives and promote appropriate antimicrobial use (AMU).

Methods: This course was developed using the World Health Organisation's "Health Workers' Education and Training on Antimicrobial Resistance" curricula guide and incorporates fundamental principles of implementation science (IS). Since 2023, this course is offered 3rd year PharmD students. Content is delivered through lectures, case-based and panel discussions, and interactive activities. To ensure the goal of this course is met, students are evaluated using an innovative assessment that incorporates real-word challenges. Students are paired with a clinician mentor (pharmacist or physician) to identify an AMR related quality improvement opportunity in practice. Students apply knowledge from course content to develop an AMS intervention considering local context and principles of IS. Students submit a written description of their challenge, health promotion material, and present the AMS intervention to peers and mentors as a final course assessment. Students complete a course evaluation at the end of term and mentors provided feedback through a questionnaire.

Results: Students who completed evaluations felt the course used fair assessment methods (14/15) and increased their ability to think critically (14/15). Mentors (8/8) agreed that the course prepare students to engage in AMS initiatives that promote appropriate AMU. At least one mentor has incorporated student work into design of an AMS intervention at their practice site.

Discussion and/or Conclusion: This course and assessment demonstrated evidence of preparing future pharmacists to identify and address AMR challenges in practice. The final course assessment is also mutually beneficial to clinicians who have incorporated some suggested strategies at their practice site.

Towards indigenous excellence in pharmacy education in New Zealand

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Background and Statement of Aim(s): Although Aotearoa New Zealand has universal health coverage, inequities in health outcomes exist. Māori, the Indigenous people of Aotearoa, represent only 18% of the population yet experience disproportionately high mortality rates, more than twice those of non-Māori. Alongside other persistent indicators of poor health, these disparities demonstrate that Aotearoa's healthcare system remains insufficiently equipped to meet the needs of Māori communities. Such inequities reflect the long-term impacts of colonisation and a health system that is not consistently culturally safe, sufficiently diverse, or guided by Te Tiriti o Waitangi (the Treaty of Waitangi). Despite growing global recognition of the importance of Indigenous knowledge in health professional education, research examining Indigenous curricula in pharmacy programmes remains limited. The aim of this research is to identify how pharmacy education can strengthen the Aotearoa health workforce responsiveness to Māori and contribute to improved Māori health outcomes.

Methods: This qualitative study was guided by a Kaupapa Māori research approach, underpinned by values such as whanaungatanga (relationships), manaakitanga (hospitality), and mana motuhake (autonomy). Interviews with pharmacy educators, Māori pharmacists, and Māori whānau (family/community) were undertaken alongside a literature review focused on Indigenous pharmacy education.

Results: Early analysis indicates that Indigenous content in pharmacy curricula is sparse, inconsistently integrated, and often reliant on individual champions rather than institutional commitment. Educators express interest in strengthening content but report limited support, training, resourcing and guidance. Māori pharmacists and whānau Māori discussed the importance of pharmacy graduates having a good understanding of Hauora Māori (health and wellbeing) and ability to enact Te Tiriti obligations in practice.

Discussion and/or Conclusion: This research contributes to a broader movement aimed at transforming health professional education to support Indigenous health equity. By centring Indigenous perspectives in pharmacy training, we can strengthen student capability, enhance engagement with Indigenous communities, and ultimately improve health outcomes for Indigenous communities.

Survey to evaluate the quality of the mentorship program amongst faculty members at a school of pharmacy

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Background and Statement of Aim(s): The benefits of mentorship for faculty in pharmacy education are extensive, including enhanced self-perceived abilities in teaching, research and service activities, as well as achieving career goals, increased job satisfaction, productivity, retention and career progression. The main aim of this study is to assess the effects of a faculty mentorship program on job satisfaction, networking abilities, and professional development.

Methods: An investigational review board approved electronic survey was emailed via Qualtrics to faculty members at a school of pharmacy. The primary outcome was determining the response rate on job satisfaction, networking abilities, and professional development on the mentoring program. Secondary outcomes include strengths, weaknesses, and challenges associated with the current mentorship program. Data was collected through the survey questions consisting multiple choice questions and Likert scale items. Descriptive statistics (e.g., mean, median, mode, standard deviation, percentages, etc.) was obtained for demographic data.

Results: A total of 125 emails were sent with a 52 (41.6%) response rate. Twenty-seven participants were included in the study analysis. A positive outcome was defined by an average score < 2.5. (scoring from 1-5; 1: strongly agree, 5: strongly disagree). The mentorship program was most effective in the following: helping mentees feel more confident reaching out to other faculty for collaboration (score: 1.92); overall job satisfaction by providing a mentor to faculty (score: 2.42); and feedback to mentees to help them grow professionally (score: 2.17). The mentorship program was least effective in initiating more collaborations through their mentor (score: 2.88), motivating faculty in their work (score: 2.75), and helping mentees utilise available technology (score: 2.91).

Discussion and/or Conclusion: Most mentees reported neutral feelings towards both the quality of the mentorship program and their overall experience. These findings suggest that the mentorship program can be improved to build a stronger network as well as requiring more frequent mentor-mentee meetings to create a more structured program. This study establishes a foundation for continuous improvement, with the goal of creating an even more impactful mentoring environment at the school of pharmacy.

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Cross-institutional insights on curriculum gaps for future-ready pharmacy graduates in the AI and digital health era

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Background and Statement of Aim(s): Pharmacy graduates are entering practice environments increasingly shaped by artificial intelligence (AI) and digital health technologies. While learners often adopt these tools rapidly, pharmacy education has struggled to keep pace with the structured development of AI literacy, ethical awareness, and critical clinical reasoning. There is a limited shared understanding of how curricula should address both the opportunities and risks associated with AI-enabled practice. This educational innovation aimed to identify curriculum gaps, priorities, and actionable strategies to support the development of future-ready pharmacy graduates through cross-institutional dialogue.

Methods: A hybrid educational innovation initiative was conducted involving pharmacy educators, clinicians, and students from multiple institutions. Structured World Café discussions and a facilitated fireside dialogue were used to explore experiences, concerns, and educational needs related to AI, digital health, and innovation in pharmacy education. Discussions were guided by predefined prompts focusing on AI literacy, clinical deskilling, ethical implementation, and curriculum integration. Qualitative thematic synthesis was undertaken across discussion outputs.

Results: Three dominant themes emerged. First, participants identified an urgent need for structured AI literacy education, including skills in critical evaluation of AI outputs, recognition of bias, and alignment with clinical guidelines. Second, concerns were raised regarding potential clinical deskilling associated with over-reliance on AI, highlighting the importance of preserving foundational pharmacy competencies through strategies such as AI-free learning activities and peer-based learning. Third, ethical and responsible AI use was emphasised, particularly regarding data privacy, transparency of AI systems, and clear boundaries between appropriate educational uses and tasks requiring human clinical judgement. Cross-institutional and interprofessional dialogue was viewed as a key enabler for shared learning and curriculum development.

Discussion and/or Conclusion: Dialogue-based, collaborative educational initiatives provide valuable insights into curriculum gaps and priorities for preparing future-ready

pharmacy graduates. Embedding AI literacy, ethical reasoning, and innovation competencies within pharmacy curricula is essential to balance technological advancement with patient safety, professional identity formation, and sustainable practice readiness.

Professional identity formation - becoming a pharmacist

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Background and Statement of Aim(s): Professional identity formation (PIF) entails 'thinking, feeling and acting' as a professional within a specific domain. Within pharmacy educational programs, the development of students' professional identity gets more attention. A literature study was conducted to identify what PIF is, why it is important and what hampers this development in practice.

Methods: A search for recent (last decade) studies and commentaries was conducted in PubMed, using the key phrase of "professional identity" OR "professional identity formation" OR "PIF" combined with "pharmacy" OR "pharmacist". The findings (n=85) were considered eligible when they regarded PIF, pharmacy students, educational programs or educational incentives to support PIF (n=17).

Results: PIF:

- internalises a profession's core values and beliefs, in thinking, feeling, and acting.
- relates to the sense of being a professional, formed through interaction between self and context.
- results in defining oneself in relation to professional roles and expected behaviors.

Students are positively influenced to transition from exam-focused to profession-focused. Pharmacists who have internalised profession-based norms, attitudes, and behaviors, more likely act according to practice standards. The profession benefits from pharmacists with a clear sense of professional identity; they are able to engage in lifelong learning, navigate crises, exert influence and advocate for the profession. Lastly, pharmacy practice changes over times, due to societal needs and expectations. A resilient workforce needs a starting point from which to align with these changes. Impeding implementation and assessment of PIF in pharmacy programs is the lack of a universally accepted and singular identity and drug centered knowledge and skills development in curricula. Also, when scope of practice taught in academia does not align with students' real world experiences, or if social recognition by healthcare professionals and/or patients of the student's (future) role and responsibility as pharmacist does not take place, identity dissonance may occur.

The findings define the educators' role in PIF and provide educational activities (e.g. 'Bring your pharmacist to class'-day).

Discussion and/or Conclusion: This literature search shows the importance of addressing PIF, explicates barriers hampering this process and provides examples of educational activities fostering PIF.

I trust you… assessing the reliability of an entrustment-supervision scale embedded with the concepts and language of trust

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Background and Statement of Aim(s): Entrustment-supervision scales (ES), used to assess Entrustable Professional Activities (EPAs), have been adopted in Australian pharmacy education. However, inconsistencies persist in making entrustment decisions among assessors. This may be due to a lack of overt language of trust within existing scales and the absence of pharmacy-specific validity evidence. The authors aimed to assess the reliability of an adapted ES, embedding language of trust, to support more consistent entrustment decisions.

Methods: An ES was developed in consultation with a linguistic expert and pharmacist educators using a two-round survey to establish content and face validity. Community and hospital pharmacists directly involved in the supervision of pre-registrant pharmacists from 2023 onwards with experience using ES were then invited to participate in an anonymous online survey. Respondents made entrustment decisions using three standardised vignettes (developed de novo) for the counselling EPA using the ES. Descriptive statistics were used to analyse trends and compare ratings. Interrater reliability was determined using intraclass correlation coefficient (ICC) and internal consistency was measured using Cronbach's alpha. Thematic analysis of narrative comments was performed.

Results: Twenty-six pharmacists (community n=14; hospital n=12) with a mean 12.8 (SD 5.8) years of practicing experience completed the survey. Entrustment level distributions across all vignettes demonstrated variability ranging from 1 (observation) to 4 (independent practice). The ICC indicated strong agreement among respondents (ICC (2,k)=0.984, 95% CI [0.938-1.000]) and Cronbach's alpha of 0.992 demonstrated strong internal consistency. Narrative feedback corresponded with the entrustment level selected.

Discussion and/or Conclusion: An ES embedding more overt language of trust demonstrated reliability and internal consistency amongst pharmacist supervisors. The developed ES may be useful to improve the consistency of making entrustment decisions. Future studies should explore the implementation of the ES using authentic workplace cases within a work-integrated learning environment.

Scaffolding critical thinking in pharmacy education through a redesigned literature thesis

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Background and Statement of Aim(s): Critical evaluation of scientific literature is a core competency for pharmacists' clinical decision making [1]. Today's society with sheer unlimited access to valid and non-valid information poses additional challenges for students on how to sieve relevant and reliable information from literature and how to critically appraise claims and statements, in order to formulate their own critical arguments. At Utrecht University, the Bachelor of Pharmacy is finalised with a thesis, for which students perform an individual literature study to answer a specific research question. Based on the quality of these theses, concerns were identified regarding students' information literacy, critical appraisal, and quality of argumentation. The aim of this project was to more effectively scaffold the development of these academic skills of 3rd-year pharmacy students by redesigning the literature thesis from an end-product targeted project to a competency-centred capstone project, supported by targeted workshops.

Methods: Three workshops were developed targeting research question formulation, systematic literature searching, critical appraisal, and scientific argumentation. Students' and supervisors' perspectives on perceived learning outcomes and added value of the different workshops were explored using a mixed qualitative approach, including student questionnaires and supervisor focus groups.

Results: Evaluation revealed that the most important perceived learning outcomes were taking on a systematic approach to searching the literature and critical analyses of scientific literature. In addition, students reported more effective structuring of relevant information to benefit their argumentation and supervisors reported higher quality of formulated research questions. Supervisors indicated that although scientific argumentation has improved, students still struggled, especially while writing their discussion section. They suggested students would benefit from a workshop about discussion writing.

Discussion and/or Conclusion: In conclusion, the new set up with three workshops to support students' research process strengthen critical thinking skills that directly align with pharmacists' responsibilities in evidence-informed clinical decision making.

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Design thinking as a framework for integrating digital health for managing diabetes care

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Background and Statement of Aim(s): XDigital health tools are reshaping diabetes care by supporting real-time, data-driven clinical decisions. As these tools become integral to patient management, pharmacy students must develop firsthand familiarity with their capabilities and limitations. Design thinking, a human-centered and structured approach to problem solving, offers an effective framework for integrating technical competence with empathy-based learning. This study evaluated the impact of a design thinking module on students' ability to optimise diabetes care in the digital era.

Methods: First-year pharmacy students (N = 158) participated in a six-week module structured around the five stages of the design thinking framework. Students wore a continuous glucose monitor (CGM) for two weeks, analysed personal glucose patterns in relation to nutrition/exercise, and delivered diabetes education to simulated patients (empathise and define). They then worked in teams to design a CGM-based clinic (ideate and prototype) and presented their prototype to a partner team, receiving feedback (test). At the end of the module, students completed a reflection exercise and a design thinking survey on a 5-point Likert scale (1=strongly disagree and 5=strongly agree). Reflections were analysed using Braun and Clarke's framework and quantitative data were analysed descriptively.

Results: Average scores across all design thinking stages were high: empathise (M = 4.38/5), define (M = 4.32/5), ideate (M = 4.34/5), and prototype/test (M = 4.34/5). Students rated the utility of the course (M = 4.40/5) and its applicability to future practice (M = 4.47/5) favorably. Thematic analysis identified four key domains: empathy through lived experience (77%), systems and workflow awareness (53%), technical and usability literacy (45%), and empowerment through real time data (27%). Reflections also noted

challenges such as device discomfort, alarm fatigue, and data overload.

Discussion and/or Conclusion: Integrating a design thinking framework into a diabetes care module enhanced pharmacy students' empathy, digital health literacy, and innovative problem-solving.

Opinions about a Generative Artificial Intelligence tool as a therapeutic reasoning co-coach

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Background and Statement of Aim(s): Therapeutic reasoning is a core competency for person-centred care and is best developed through supervised experiential learning. Inconsistent coaching, limited feedback, and supervisor variability limit effective supervision. A generative artificial intelligence (GenAI) therapeutic reasoning co-coaching tool has the potential to support learners; however, little is known about healthcare professionals' acceptance of such a tool. The aim of this study was to gather perceptions from healthcare learners on the potential use of a GenAI tool for coaching therapeutic reasoning including key characteristics such a tool should possess.

Methods: Semi-structured interviews with healthcare learners were conducted between January and April 2025. Transcripts were coded using a semi-inductive approach guided by an a priori framework based on Cognitive Apprenticeship theory and the Unified Theory of Acceptance and Use of Technology (UTAUT) [1,2]. Two independent coding teams (n=3 in each team) analysed the transcripts. Human Research Ethics Committee approval was obtained.

Results: Seven interviews were conducted, including pharmacy interns (n=3), nurse practitioners (n=2), an independent prescribing pharmacist (n=1), and a medical practitioner (n=1). 364 unique codes were generated; high interrater reliability was achieved (Cohen's κ = 0.859; 84.8% agreement). Participant experiences/opinions aligned strongly with the theoretical frameworks. Coaching features such as articulation, domain knowledge, and scaffolding were highly valued from the participants human coach and desired in the GenAI tool. GenAI was seen as a promising co-coach, especially for its accessibility and ability to prompt critical thinking, although concerns were raised about data privacy and relational limitations. Key features desired in a GenAI tool included adaptability, reference to trusted clinical sources, and a capacity to tailor responses to the learner's stage and style. A blended model combining human and GenAI coaching was favoured.

Discussion and/or Conclusion: Findings suggest that healthcare professionals recognise the potential of GenAI tools to support therapeutic reasoning, provided these tools include characteristics expected of an effective supervisor.

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Much ado about generations: examining the use of generational stereotypes in pharmacy education literature

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Background and Statement of Aim(s): The use of generational labels, such as referring to learners as "Millennials" or "Gen Z", is common within education. While these labels are often used to explain learner preferences or situatedness, there is limited evidence supporting their validity and growing concern that such stereotypes may hinder educational equity and innovation. This narrative review aims to critically examine how generational stereotypes are used in published pharmacy education journals, to identify common stereotype myths, and to explore the potential impact on educational practice.

Methods: A literature search was conducted using PubMed and pharmacy education journal databases. Search terms included "generational stereotypes," "Millennials," "Gen Z," "generation differences," and related MeSH terms, limited to English-language articles published since 2010. Articles were screened for relevance to pharmacy education and analysed for the presence of generational labeling, the context of use, and whether the discourse reinforced or critiqued generational stereotypes.

Results: Across pharmacy education journals, generational labels are used far more often as rhetorical and pedagogical devices than as empirically validated constructs. While they provide an accessible language for discussing change in learners and educational environments, their use frequently relies on stereotypical trait attribution, limited evidence, and borrowed narratives from outside pharmacy education. A smaller but important body of literature acknowledges these limitations and cautions against generation-based assumptions, suggesting a need for a shift toward learner-centered, evidence-informed approaches that do not rely on cohort stereotypes.

Discussion and/or Conclusion: Generational stereotypes are prevalent in pharmacy education discourse, particularly in practice guidance and opinion pieces. Pharmacy educators and researchers should continue to raise awareness about the limitations of generational stereotypes in education.

Impact of a design thinking based interprofessional education workshop on student attitudes regarding dementia care

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Background and Statement of Aim(s): Health professionals are increasingly expected to contribute to the design of care models and services, yet many students receive limited training in structured, human-centered problem solving. Design thinking offers a practical framework that emphasises empathy, creativity, and iterative solution development, making it well suited for addressing complex healthcare challenges. Its intentional use within interprofessional education (IPE), particularly at scale, remains underexplored. This project describes a virtual IPE workshop that applied a design thinking framework to reimagine dementia care in the United States. The aims were to assess changes in students' self-perceived design thinking skills related to dementia care and their attitudes toward interprofessional collaboration.

Methods: Students from nine health professions programs at the University of the Pacific participated in a three-hour, Zoom-based IPE workshop. The session began with a one-hour overview of a Dutch model of dementia care, followed by facilitated small-group activities in which interprofessional teams applied design thinking principles to develop innovative dementia care proposals for the U.S. context. Students completed pre- and post-workshop surveys, including the Students' Perceptions of Interprofessional Clinical Education–Revised Version 2 (SPICE-R2) and the Interprofessional Design Thinking for the Enhancement and Advancement of Dementia Care (IDEA-DC) survey. The post-workshop survey also assessed students' likelihood of applying the knowledge and skills gained to future practice.

Results: A total of 417 students participated, with 348 completing matched pre- and post-workshop surveys. Statistically significant improvements were observed across all IDEA-DC domains, indicating enhanced self-perceived design thinking skills related to dementia care. Improvements were also noted in 9 of 10 SPICE-R2 items, reflecting more positive attitudes toward interprofessional learning and collaboration. More than 85% of respondents reported being likely or very likely to apply the knowledge and skills gained in future practice.

Discussion and/or Conclusion: This design thinking–based IPE workshop enhanced students' design thinking skills and interprofessional attitudes. Embedding human-centered design frameworks within IPE may help prepare future health professionals to collaboratively address complex care challenges, including dementia care.

Innovation under the Tuscan sun - capability framework for future practice

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Background and Statement of Aim(s): Capability frameworks and accreditation standards need to evolve to prepare future-ready health practitioners who can thrive in an increasingly complex and diverse healthcare landscape. As scopes of practice expand and new models of care emerge, graduates must be equipped not only with clinical capability but also with adaptability, digital fluency, and collaborative skills. Educators and regulators play a critical role in reimagining foundational capabilities to ensure day one pharmacists are prepared to lead and transform practice.

The Australian Pharmacy Council (APC) is the national standard-setting and accreditation authority for pharmacy education and training. Accreditation is a valuable tool to ensure educational quality and shape the health workforce of the future. The Pharmacy Board of Australia (PharmBA), the national regulator, requested APC develop a Pharmacist Capability Framework with the intention to foster good practice and enhance efficiency and consistency across health professions. The Framework will describe entry to practice capabilities of a newly registered pharmacist who is adaptable to future practice change. It will be used by APC for accreditation of pharmacy programs.

Methods: Ahpra guidance (1) on developing professional capabilities was followed. A comprehensive literature review was undertaken to identify consensus capabilities aligning with emerging roles and contemporary professional standards. The literature review informed early versions of the framework. Extensive stakeholder consultation was undertaken including consensus panels with subject matter experts and national public consultation. The project was overseen by Governance and Reference Groups. PharmBA reviewed iterations on a regular basis.

Results: Thirteen frameworks were reviewed in detail, 114 people attended public consultation forums, and an additional 28 online submissions were received. In total more than 1,300 pieces of feedback were received. Analysis of

feedback informed the final version which was released to the profession in April 2026.

Discussion and/or Conclusion: The development of this evidence-based, contemporary framework provides consistency across the pharmacy profession and establishes a foundation for best practice that will elevate professional standards in the delivery of care. The Framework will define the capabilities of a newly registered pharmacist who is adaptable to evolving practice settings.

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Making reasoning visible: a suite of micro-interventions to strengthen history taking and prescribing readiness in pharmacists

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Background and Statement of Aim(s): Pharmacists developing prescribing capability may report high confidence while experiencing difficulty integrating information and articulating clinical reasoning during simulated consultations.[1] Simulation-based education often prioritises task completion rather than making reasoning explicit, limiting opportunities for feedback on clinical reasoning.[2] This innovation applied low-burden micro-interventions across a simulated history taking teaching sequence to make clinical reasoning more visible and improve feedback without increasing curricular burden.

Methods: Three micro-interventions were embedded across three sessions in a prescribing programme. Structured triad and hybrid fishbowl formats supported observer engagement and feedback. A rapid "history relay" rehearsed fluency in structured history taking prior to full cases. "Reasoning pauses" required learners to verbalise differential diagnoses and reasoning during consultations. Evaluation used pre/post self-ratings of confidence (0–10 scales), Likert-based survey items, facilitator observations, and free-text feedback across multiple cohorts of postgraduate pharmacists.

Results: Self-rated confidence increased following simulation across all cohorts, with differing post-session confidence patterns between intervention and non-intervention groups. Post-session confidence was lower in groups completing the history relay and reasoning pause interventions. Facilitator observations and learner feedback suggested increased awareness of the structure and complexity of history taking and clinical reasoning, reflected in more cautious confidence ratings. Survey timing was identified as a potential confound, as the non-intervention group completed the survey later in the day following physical examination teaching. During reasoning pause sessions, facilitators observed earlier verbalisation of differential diagnoses and more explicit articulation of clinical reasoning. Structured observer roles were associated with more specific peer feedback, although observers reported only moderate comfort delivering constructive critique (mean 3.46/5).

Discussion and/or Conclusion: Targeted design changes applied across a simulation sequence can make clinical reasoning more visible and support more meaningful feedback. Lower post-session confidence following fluency- and reasoning-focused interventions appears to reflect improved calibration rather than reduced capability, highlighting limitations of self-reported confidence as a proxy for competence.

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Piloting a deaf-literacy curriculum co-designed with a hard-of-hearing partner to prepare pharmacy students for effective patient interactions

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Background and Statement of Aim(s): Pharmacy education faces challenges in offering authentic opportunities for students to develop skills for effective healthcare delivery to diverse patient populations. While workshops provide safe spaces for students to model behaviours that enhance deaf literacy, validating their effectiveness is essential. Real-world placements and mystery shopping scenarios ultimately test students' ability to apply these skills in practice. The aim of this study was to develop, impement and evaluate a deaf-literacy curriculum co-designed with a hard-of-hearing partner to prepare pharmacy students for effective communication with hard-of-hearing patients.

Methods: The curriculum was piloted in the PHR2011 unit at Monash University and included consumer-led videos simulating poor and effective communication, self-paced materials, and reflective tasks. Students attended a workshop and completed a post-intervention survey. A subset

participated in mystery shopping during placements, and students were invited to a focus group. Data sources included a survey, observations, and thematic analysis of reflections.

Results: Mystery shopper observations (n=25) showed:

- 76% spoke clearly at a normal pace, facing the patient
- 84% maintained eye contact and avoided covering their mouth
- 16% offered to move to a quieter area
- 92% used gestures or visual aids (e.g., pointing to a product location)
- 100% demonstrated patience and empathy
- 24% checked for understanding using teach-back

Focus group reflections (n = 4) highlighted students' intentions for improvement after their placement experiences. One student noted:

"I would give written information next time- for example, providing the CMI and pointing out key aspects." (Student 1)

Another reflected: "I would highlight the written information that is relevant and use better body language to reinforce my counselling." (Student 3)

Students valued the authenticity of consumer-led videos and workshops but acknowledged challenges during placements, such as difficulty interpreting patient body language and balancing the problem-solving required for the mystery shopper scenario with effective communication strategies.

Discussion and/or Conclusion: The co-designed curriculum improved confidence and foundational communication behaviours, but advanced strategies such as offering to move hard-of-hearing patients to quieter areas and using teach-back to confirm understanding were less consistently applied. Future work should reinforce these strategies and extend the approach to other diverse patient groups to enhance inclusivity and readiness for practice.

Student-led development of a conflict resolution workshop to support group working

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Background and Statement of Aim(s): Pharmacy students complete multiple pieces of group work to enable them to develop communication and teamworking skills essential to their future practice. However group work can be disrupted by disagreements which impact student learning[1],[2]. Skills in managing conflict within teams must be developed to work effectively with others. As part of a student internship, a conflict management workshop for MPharm year 1 students was designed, delivered, and student feedback collected. The aim was to evaluate the effectiveness of the workshop on student's teamworking skills and identify areas for future development.

Methods: All ten students who responded to an email invitation, participated in a pilot workshop which included pre-reading, a quiz and role-play activities. Students were invited to provide feedback using a MS Form that involved 8 questions including two Likert-type questions to measure usefulness of the session and perceived impact on teamworking skills. Open questions were used to identify additional learning needs relating to teamworking and suggestions for improvement of the session. Analysis consisted of descriptive statistics of Likert-type questions and themes were derived from open questions.

Results: Four (40%) students responded, where 100% found the session useful. Students developed their skills and knowledge around conflict management and how to apply it in the future. Seventy-five percent stated there was nothing further the session should have covered. 100% of students described their teamworking skills as 'good' or 'very good'. Students felt that their contribution in future team working situations would be more enhanced as a result of the workshop.

Discussion and/or Conclusion: This pilot workshop benefited students in understanding conflict management, showed insight into themselves on what skills they may have developed, and potentially helping them in future teamworking tasks. An in-depth evaluation involving more students is needed to measure the impact of this workshop on student teamworking skills.

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Evaluating faculty facilitator performance in interprofessional education: Utility of the interprofessional lean facilitator assessment scale

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Background and Statement of Aim(s): Effective faculty facilitation is vital to the development of interprofessional collaborative practice skills for clinicians in training. While well-trained faculty are essential, there is a dearth of validated instruments to evaluate facilitator performance which fosters interprofessional education (IPE) and Interprofessional Collaborative Practice (IPCP). The aim of this study is to evaluate the utility of the Interprofessional Lean Facilitator Assessment Scale (ILFAS) for assessing facilitator performance. We hypothesised that the ILFAS could successfully distinguish between more and less experienced faculty facilitators of IPCP case review sessions.

Methods: Facilitator performance was evaluated across n=20 ILFAS criteria. A mixed-methods approach was used, combining qualitative content coding of video combined with K-means clustering methods. n=13 video recorded IPE sessions were evaluated by four coders. After calibration, intercoder agreement was acceptable (ICC = .67). Discriminant analysis and Random Forest Machine Learning were used to identify the ILFAS criteria that most differentiated the clusters.

Results: Two clusters of facilitators were identified based on the ILFAS criteria, successfully distinguishing between experienced (mean = 4.33 years) versus less experienced (mean = 2.25 years) facilitators. Several characteristics, including more frequent use of redirects, effective use of time management techniques, and emphasis on patient collaboration were among the facilitator behaviors that distinguished more from less experienced facilitators.

Discussion and/or Conclusion: The ILFAS tool can effectively differentiate between faculty facilitator performance in IPCP case review sessions. Decomposition of the behaviors demonstrated by experienced facilitators provides guidance for specific facilitator training approaches.

The development of research Entrustable Professional Activities (EPAs) for the training of practicing pharmacists

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Background and Statement of Aim(s): Research and scholarship are foundational to advancing pharmacy practice, yet variability in research training has resulted in limited consensus regarding expectations for research competence.[1] Entrustable professional activities (EPAs) which define discrete tasks suitable for supervision and assessment, offer a framework to support competency-based research training.[2] The aim of this study was to develop a set of research EPAs for practicing pharmacists that can inform training and assessment.

Methods: XA mixed-methods, multi-phase study was conducted. In Phase 1, focus groups with pharmacy research experts (n=35) were used to generate a preliminary list of research tasks. In Phase 2, the research team (n=5) refined the tasks into EPAs and completed a modified e-Delphi to assess each statement across a 5-point Likert scale assessing whether each EPA was essential, entrustable and trainable (i.e. modified EQual rubric[3]). EPAs meeting the prespecified cutpoint (≥4.17) progressed to phase 3, where an e-Delphi process with additional pharmacy research experts (n=33) was used to further evaluate the EPA titles and descriptions based on the modified EQual rubric. EPAs meeting prespecified cutpoints (≥4.0) constituted the final list of EPAs

Results: In Phase 1, 34 tasks were identified across seven domains which were further refined in Phase 2 to 22 research EPAs. Further refinements included improved clarity, broader applicability to research for practicing pharmacists, and emphasis on determining the applicability of research findings and generating future research questions. In Phase 3, two of the 22 EPAs did not meet the pre-specified cutpoint resulting in a final list of 20 EPA statements. EQual scores for the remaining 20 EPAs ranged from 4.00 to 4.89.

Discussion and/or Conclusion: This study established a research-specific EPA framework for pharmacists that provides a structured approach to defining, teaching, and assessing research competence. These EPAs may support greater consistency in research training and inform future curricular design, assessment strategies, and implementation efforts across pharmacy education.

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Building workforce-ready prescribers through pharmacist-led entrustable professional activity feedback

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Background and Statement of Aim(s): In January 2024, the Australian Medical Council introduced Entrustable Professional Activities (EPAs) to assess clinical competence for general registration of PGY1 doctors[1]. EPA 3: Prescribing focuses on accurate prescribing, medication reconciliation, and multidisciplinary collaboration[1]. Prescribing assessment has traditionally been undertaken by senior medical staff, however pharmacists' expertise in therapeutics, pharmacology, and medication-safety systems positions them as highly capable supervisors for EPA-based education and feedback. Their involvement provides an authentic, work-integrated learning experience aligned with modern team-based clinical practice[2]. The aim of this study was to evaluate the role of pharmacists as multidisciplinary educators within EPA-based prescribing feedback and their contribution to junior doctors' prescribing competence and confidence.

Methods: Clinical ward pharmacists participated in interprofessional education on EPA 3 alongside medical staff, led by the Medical Education Unit. PGY1 and PGY2 doctors were introduced to the EPA framework, eligible assessors, and assessment expectations at orientation. EPA 3 assessment data and a survey exploring assessor selection, perceptions of pharmacist involvement, and the educational impact of pharmacist-led feedback were analysed[3].

Results: Across all submitted EPA 3 assessments (n=266), pharmacists completed 197 assessments (74%), far exceeding medical assessors (registrars 46; consultants 10; fellows 3; term supervisors 6; nurses 3; allied health 1). Reasons for seeking pharmacist feedback included: ease of access (62%), pharmacist expertise (52%), and quality of feedback (34%). Junior doctors consistently reported that pharmacist feedback was more detailed, systems-focused, and closely aligned to medication safety. Respondents described improved confidence in identifying unsafe prescribing, managing polypharmacy, and applying evidence-based guidelines.

Discussion and/or Conclusion: Pharmacists are the predominant assessors of EPA 3 and function effectively as multidisciplinary supervisors, providing high-quality, medication-safety–oriented feedback that strengthens junior doctors' prescribing competence. Embedding pharmacists within EPA-based, work-integrated learning enhances workforce readiness and reinforces their essential role in developing safe, entrustable prescribers.

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Preparing for real-world collaboration: lessons for IPE curricula from pharmacy students and practicing pharmacists

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Background and Statement of Aim(s): Contemporary healthcare systems require effective coordination among health professionals to deliver high-quality care. In response, pharmacy education embraces collaborative learning as essential to preparing graduates for team-based, patient-centered care. Curricula worldwide increasingly emphasise structured interprofessional education (IPE) developed with defined collaborative competencies from established frameworks. However, findings from a series of qualitative studies exploring pharmacy student experiential learning and primary care pharmacists' collaborative practices in Canada, suggest a gap between how collaboration is taught on-campus and how it unfolds in everyday patient care.

Methods: We conducted diary and follow-up interview studies with 4th year pharmacy students (N=25) completing experiential learning placements in community and hospital practices, respectively. We subsequently completed social network analysis of community (N=30) and outpatient clinic (N=14) pharmacists exploring their interprofessional care networks. Multi-member research teams conducted reflexive thematic analysis to identify themes in collaborative care.

Results: Students often encounter informal and unstructured collaboration shaped by local relationships and systemic constraints which is far removed from the controlled, protocol-driven activities rehearsed in campus-based IPE curricula. Pharmacists similarly describe collaborator encounters as improvisational, forged through necessity and context, and frequently extending beyond formal interprofessional boundaries to include social care providers,

administrative staff, and other non-traditional team members.

Discussion and/or Conclusion: Together, our findings compel critical reflection on whether current educational approaches sufficiently prepare students for the realities of collaborative work. In privileging structured team-based models, IPE may unintentionally obscure the relational, adaptive, and invisible forms of collaboration essential to primary care practice. Students entering practices physically situated apart from other health professionals or without membership in pre-established teams must enact collaboration across geographic and personnel boundaries. To truly support workforce readiness, interprofessional and pharmacy education programming must broaden instruction and skill development to equip graduates to pro-actively identify potential collaborators, engage with informal and relational teamwork, and navigate communication and collaborative decision-making in more varied care contexts.

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How is collaborative care enacted in community pharmacy?

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Background and Statement of Aim(s): Community pharmacists are essential collaborators in patient care. Their roles in interprofessional care are well described for inpatient and clinic settings where pre-existing teams collaborate, yet how they establish professional networks and collaborate outside geographically co-located or pre-existing teams remain understudied. We adopted a qualitative social network analysis approach to understand how community pharmacists establish and maintain relationships with others to provide collaborative care.

Methods: We collected ego-network data using a two-stage participant-aided concentric circle technique for network visualisation. Participants ("ego"), practicing at least one year in community pharmacy in a Western Canadian province, identified network members ("alters") and positioned them in the concentric circle according to relative relationship strength. Semi-structured interview questions explored participants' rationale for network placement and collaborative experiences. Interview transcripts were systematically coded and analysed in an iterative process by the research team throughout the data collection period.

Results: Thirty pharmacists described networks of varying size and composition. Reported network membership was as low as four and as high as 12 alters (mean nine). Prescribing professionals were the most prevalent members in the 30 pharmacist networks, including family physicians (83%), nurse practitioners (50%), and dentists (40%). Other health professionals (e.g. dietitians, physiotherapists) were identified less frequently. Collaborators situated most often in the first concentric ring circle, representing the closest network relationship were physicians, patients and family, and other pharmacists. Networks were formed and maintained through shared patient care, regular interactions, and social connections, but workforce shortages and time constraints challenged effective collaboration. Relationships were strengthened when members could efficiently communicate and exchange patient information.

Discussion and/or Conclusion: These findings indicate community pharmacists cultivate diverse and dynamic networks to coordinate care across distributed settings. By highlighting relational mechanisms such as responsiveness, reciprocity, and boundary-spanning work, the study can additionally inform pharmacy student training to enact collaborative care beyond formal protocols and pursue opportunities for community-based connections.

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Early identification, better belonging: translating medical education neurodiversity practices to pharmacy

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Background and Statement of Aim(s): Neurodiversity describes natural variation in how individuals think, learn, and process information. Estimates suggest that neurodivergence affects 15–22% of the global population and approximately 11% of the Australian workforce1,2. Local hospital data demonstrate that 17.5% of a tertiary hospital staff identified as neurodivergent, highlighting the relevance of neurodiversity to health professional education and workforce sustainability.

Hospitals are highly structured, fast-paced, and interruption-rich environments, with rigid hierarchies and implicit performance expectations that may disadvantage neurodivergent learners. Without early identification and inclusive support, these environments can undermine equity, belonging, and professional identity formation. Medical education has increasingly implemented proactive, relational identification and mentoring models, offering leadership insights. The aims of this study were to comopare survey-based and interview-based approaches to early identification of neurodiversity in intern doctors, examine implications for supporting junior doctors and explore the transferability of this approach to pharmacy intern education and support.

Methods: All intern doctors were invited to complete an online well-being survey during orientation. Additionally, each intern participated in a structured face-to-face interview within the first five weeks of commencing their internship, designed to identify support networks and diversities, and to normalise disclosure within a psychologically safe environment. Early identification informed tailored supports and access to mentoring pathways coordinated through the Medical Education Unit.

Results: Face-to-face interviews identified a higher proportion of neurodivergent interns than surveys alone (9%). Interviews enabled nuanced exploration of strengths, preferences, and workplace challenges, facilitating earlier, individualised supports. Survey-only approaches under-identified neurodivergence and were less effective in fostering trust and belonging (0.5%).

Discussion and/or Conclusion: Interview-based early identification, supported by mentoring and educator capability building, represents an inclusive educational leadership strategy. Translating this model to pharmacy education offers an opportunity to foster professional growth, embed equity and belonging, and strengthen professional identity formation for pharmacy interns and future pharmacy leaders.

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How Master of Pharmaceutical Science students use generative AI in authentic funding-proposal assessment: A convergent mixed-methods study

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Background and Statement of Aim(s): Generative artificial intelligence (AI) tools are increasingly used in higher education[1], including academic writing where distinct human–AI collaboration patterns have been described[2], yet its impact on authentic academic performance and student learning practices remains unclear. This study investigated how students used GenAI when writing a staged funding proposal and its impact on proposal performance, the perceived benefits and boundaries of use.

Methods: Convergent mixed-methods design analysis within a single coursework Masters unit. Quantitative strand: cross-sectional comparison of final proposal marks between 2023 (GenAI not permitted) and 2024 (GenAI permitted). Qualitative strand: deductive thematic analysis of 2024 student reflections on tool use (initial n=182; final n=200) and student self-report data from survey (n=13) and interviews (n=5). Strands were analysed separately then integrated to generate meta-inferences.

Results: Mean final proposal marks were similar across cohorts (2023: 68% vs 2024: 67%, p=0.828 Welch's two-sample t-test), suggesting no cohort-level grade uplift from GenAI access. In student reflections, GenAI was commonly framed as assisting with "writing infrastructure" for clarity, rather than time-saving. Students also described GenAI as a thinking partner for sense-making, reflected in interview reasons: writing support, summarisation, research assistance, and brainstorming. "Trusting AI output" was a dominant theme: cross-checking and reliability were common concerns. Reported benefits included capability-building (critical-thinking/problem-solving; productivity).

Discussion and/or Conclusion: GenAI did not meaningfully change cohort performance, but students positioned GenAI as a tool for communication quality and cognitive scaffolding, accompanied by active verification and boundary work. These findings support assessment designs that teach verification/attribution practices and leverage GenAI for capability development rather than perceived "grade advantage", consistent with emerging ethical guidance for AI-assisted academic writing[3]. Future research could explore objective indicators to determine whether GenAI helped students optimise their time and effort while achieving comparable grade outcomes.

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Hideen curricular and mental health: pharmacy students' perspectives driving curricular reform

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Background and Statement of Aim(s): Universities have implemented strategies to address worsening student mental health, yet uptake of available resources remains low in many health faculties. Pharmacy students face unique pressures, including high academic demands and reluctance to seek help. This study explores pharmacy students' perspectives on institutional mental health initiatives and factors influencing help-seeking, with the aim of informing improvements in resource design and utilisation and curricular reform.

Methods: Twenty-five current Doctor of Pharmacy students in years 1-4, from a large Pharmacy Faculty, participated in semi-structured interviews in Spring 2025. Questions examined perceptions of mental health, peer, academic, and institutional culture, professional expectations, and the use of mental health services. Data was recorded and transcribed using Zoom. Transcripts were analysed thematically using Braun & Clarke's coding methodology (1).

Results: Four key themes were identified: (1) performative institutional messaging; (2) academic policies exacerbating mental health challenges; (3) faculty constraints within institutional systems; and (4) student-driven recommendations for change at institutional, cultural, and individual levels.

Discussion and/or Conclusion: Students perceived a misalignment between the formal, overt curriculum and the informal, hidden curriculum in the PharmD program. Students reported discrepancies between what was said and what was done, interpreting implied faculty messages as a lack of support. This eroded trust and deterred health-seeking. Findings informed significant curricular reform initiatives, which incorporate student-centred academic policies, improved assessment scheduling, one asynchronous online learning day per week, and wellness breaks between courses. These systemic reforms aim to enhance equity, belonging, and the development of professional identity while improving mental health outcomes. Broader recommendations include strengthening communication about mental health resources and further aligning faculty and institutional actions with stated values.

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Embedding adaptive expertise in pharmacy education: A curriculum transformation for future ready graduates

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Background and Statement of Aim(s): Healthcare knowledge is expanding at unprecedented rates, and pharmacy practice is becoming increasingly complex. To succeed in this environment, pharmacists need the ability to apply knowledge flexibly in novel situations while maintaining efficiency in routine tasks. Traditionally, pharmacy educators have responded by adding more content to programs, but this approach risks overload and learner burnout.[1] Research on adaptive expertise suggests an alternative: by emphasizing deep conceptual knowledge rather than teaching fragmented knowledge, educators can equip learners with the tools to solve novel problems and engage in lifelong learning.[2] In response, we transitioned from a four-year PharmD to our country's first three-year integrated program to foster adaptive expertise while maintaining professional standards and supporting learner well-being.

Methods: Faculty teams developed integrated modules introducing foundational pharmaceutical and social science concepts early, reinforced spirally across therapeutic blocks. Longitudinal experiential rotations starting in the first term, programmatic assessment, and structured wellness breaks were embedded. Stakeholders - including faculty, regulators, and students - were engaged throughout to ensure alignment with accreditation standards and learner needs.[3]

Results: Key outcomes include:

- Curriculum structure: Integrated modules and longitudinal experiential rotations launched.
- Applicant profile: Increased interest, with 80% of incoming students holding a science degree.
- Financial and logistical impact: Tuition parity maintained; graduates enter workforce one year earlier; Year 3 placements can occur in students' hometowns.
- Stakeholder feedback: Positive response to spiral integration and wellness supports.

Discussion and/or Conclusion: XBy embedding adaptive expertise principles throughout an integrated, three-year curriculum, we aim to prepare graduates with the skills and mindset to navigate uncertainty and complexity in healthcare. This design supports lifelong learning and flexibility, while intentionally fostering learner well-being and readiness for complex pharmacy practice.[2]

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Assessing practice readiness in pharmacy students through a competency-based traineeship and objective structured clinical examination

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Background and Statement of Aim(s): Integrating innovative learning approaches into traditional curricula presents a significant challenge in higher education. Since the academic year 2011/2012, the Faculty of Pharmacy and Biochemistry, University of Zagreb, has incorporated a six-month pharmacist traineeship programme into its curriculum, based on the Croatian Competency Framework (CCF), thereby systematically introducing work-based learning. This study aimed to evaluate the performance of two student cohorts and their satisfaction with the traineeship programme, and to examine associations between performance on the Objective Structured Clinical Examination (OSCE), self-assessed competencies, and selected variables, including mentor satisfaction.

Methods: A total of 126 students were included over two academic years. Competency development was assessed through student self-evaluation at the beginning and end of the traineeship using the CCF, which includes four competency clusters: public health, pharmaceutical care, personal and professional, and organisational competencies. Student performance was assessed using a final OSCE consisting of six stations evaluating clinical, communication, and magistral formulation skills. Student satisfaction with the programme and mentors was assessed using anonymous questionnaires.

Results: Self-assessment scores showed improvement across all competency clusters and assessed competencies during the traineeship. Students rated themselves most competent in the preparation of magistral and galenic formulations and in personal and professional competencies. OSCE results were very good, with average scores above 80% at all but one station. The highest scores were achieved in OTC patient counselling (86.83%), while the lowest were observed in managing a clinical case of a hospitalised patient (73.74%). OSCE performance was associated with earlier involvement in prescription dispensing ($p = 0.050$). No association was found between mentor satisfaction, self-assessed competencies, and OSCE outcomes. Overall programme satisfaction was moderate, while satisfaction with mentors was high.

Discussion and/or Conclusion: The pharmacist traineeship programme effectively supports the development of professional competencies and learning outcomes in a real-world practice setting. The findings highlight the value of practical engagement and indicate the need for further curriculum alignment with pharmacy practice requirements.

Inclusive conversations in pharmacy education: a collaborative simulation model with standardised patients

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Background and Statement of Aim(s): Simulation is widely used in pharmacy education, and best practice guidance for simulated participant (SP) methodology emphasises that cases be grounded in authentic experiences and designed to respect the individuals represented[1-3]. This study described and evaluated a collaborative skills lab in which SP Educators, pharmacy instructors, and SPs with lived experience co-developed and delivered an inclusive conversations session, departing from traditional models that position SPs solely as role-players, and examined its impact on students' inclusive communication skills.

Methods: SP Educators and pharmacy instructors partnered with SPs of diverse lived experiences to co-author scenarios addressing COVID-19 vaccine hesitancy, gender-affirming therapy, microaggressions, and naloxone stigma in a required skills lab session focused on inclusive communication. SPs co-authored cases, portrayed the roles, and facilitated learner-centered feedback. Across four years, students completed post-session surveys; in the fourth year, an 11-item pre–post

survey assessed self-reported skills in communication, cultural humility, and inclusive care. Quantitative data were analysed with Mann–Whitney U tests; open-ended responses underwent thematic analysis.

Results: Over four years, 476 students participated and 451 completed surveys. Overall, 80% strongly agreed and 18.8% agreed that interacting with SPs significantly enhanced their learning. Among year-four respondents (n = 106), statistically significant improvements ($P < 0.05$) were observed in 9 of 11 competencies, including gender-affirming care, intersectionality awareness, inclusive communication, and patient advocacy. Active listening and comfort asking about pronouns and gender identity increased numerically but did not reach statistical significance. Thematic analysis identified five themes: realism and authenticity, diversity and inclusion, empathy and connection, feedback and reflection, and preparation for real-world practice.

Discussion and/or Conclusion: Involving SPs with lived experience as co-authors, role-players, and educators within a skills lab was associated with gains in students' inclusive communication competencies and was perceived as valuable. This collaborative model offers a feasible approach for embedding authentic, inclusive conversations into pharmacy curricula.

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Integrating planetary health into pharmacy education: assessing student engagement and competence in sustainable patient care

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Background and Statement of Aim(s): Health care is among the top four emitters of greenhouse gases and medicines contribute to 20% of these emissions. Climate change results in healthcare disruption from floods, heatwaves and wildfires, which significantly affect safe and effective medication management. Pharmacy education programs must incorporate planetary health into curricula, but this has not occurred at the University of Saskatchewan. The aim of this study was to assess pharmacy students' interest and ability to incorporate planetary health into the patient care process, prior to being given instruction on the topic.

Methods: Planetary Health was incorporated into the Patient Care Process taught at the University of Saskatchewan in 2025 by adding 'Planetary Health' to the 'Therapeutic Alternative Worksheet' (TAW) students use to compare and contrast medication options to resolve drug therapy problems. The curriculum will be revised to instruct students how to do this in 2026. Students in years 1-3 completed a care plan assignment as part of normal course work in September-December 2025 and were instructed to complete the TAW planetary health information on a voluntary basis. Students were encouraged to provide information based on previous knowledge and/or experience about planetary health and how it could impact drug therapy decisions. Care plans were evaluated to determine student interest and ability to accurately incorporate planetary health into the TAW and in making drug therapy decisions in the care plans.

Results: Many students completed the planetary health TAW section of the care plans (27% year 1, 100% year 2, 43% year 3). Inaccurate information was included in some submissions (24% year 1, 1% year 2, 8% year 3). Information included in TAWs directly influenced drug therapy decisions in many care plans (38% year 1, 29% year 2, 50% year 3).

Discussion and/or Conclusion: Students were willing and motivated to consider planetary health in their drug therapy decisions, despite not being required nor taught how to do it. The lack of instruction was evident in that many included inaccurate information. This study supports that planetary health instruction is needed in the curriculum and that the upcoming change will likely be well-received by students.

Integration of student-led quality improvement into experiential learning: Evaluation of extended placements

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Background and Statement of Aim(s): Quality improvement (QI) is key to the development of safe and effective pharmacy services.[1] [2] Introduction to QI during experiential learning may prepare undergraduates for future roles by integrating clinical, analytical and leadership skills, whilst building a culture of improvement.[3] This study aimed to evaluate the integration of pharmacy undergraduate-led QI projects into extended placements, focusing on the impact on student professional development.

Methods: Final-year MPharm students attending four-week extended placements led QI projects and were invited to

complete a Likert-scale-based evaluation. Quantitative data were analysed descriptively. Open-ended responses were analysed using content analysis.

Results: Seventy-two students (79.1%, 72/91) completed the survey. Of these, 51.3% (37/72) attended placements in hospitals, 40.3% (29/72) - in general practice surgeries and the rest - either in community pharmacy or other settings (8.3%; 6/72). Most agreed that the placement helped them gain a better understanding of the pharmacy profession, with a specific focus on QI (88.9%, 64/72), and that new learning/skills would assist them in both future studies and career (87.5%, 63/72). They agreed that delivery of QI projects contributed to development of communication skills (97.2%, 70/72), organisation/time management (93.1%, 67/72), problem-solving ability (91.7%, 66/72) and teamworking (81.9%, 59/72). Students praised first-hand learning opportunities when interacting with patients, felt integrated within multidisciplinary teams and thought that their projects would improve services and/or patient outcomes. Some respondents highlighted the need to balance clinical activities against QI project delivery, and to revise the training for placement providers.

Discussion and/or Conclusion: To our knowledge this is the first documented evaluation of QI-focused undergraduate pharmacy placements. Findings from this evaluation suggest that this novel approach to experiential learning may support the development of problem-solving and organisational skills whilst preparing students to deliver QI within multidisciplinary teams and contributing to improved patient care.

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Impact of simulation-based education on the professional development of pharmacy undergraduates: a longitudinal study

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Background and Statement of Aim(s): Simulation-based education (SBE) offers students opportunities to develop clinical skills and professional behaviours in safe environments, leading to its increased integration within the Master of Pharmacy (MPharm) courses in the UK.[1] This longitudinal study aimed to explore the impact of SBE on the professional development of pharmacy undergraduates, using a mixed-methods approach.

Methods: Second- and third-year MPharm students participated in structured simulations, each including a prebriefing, simulation activity, and debrief. Quantitative data were collected using Likert-scale SET-M questionnaires[2] after the first simulation and at the end of each academic year. Qualitative data from semi-structured interviews were thematically analysed to identify key perceptions and learning experiences

Results: Twenty-six students participated across three time points (baseline in Year 2, end of Year 2 and start of Year 3). Students agreed that SBE helped develop key skills, such as clinical decision-making (75.0%, 94.4% and 100% at three time points, respectively), ensuring patient safety (28.6%, 55.6%, 75.0%) and prioritisation (62.5%, 70.6%, 75.0%). Areas which did not improve following SBE, included understanding of pathophysiology (25.0%, 33.3%, 33.3%) and ability to report information to the healthcare team (62.5%, 66.7%, 58.3%). Thematic analysis revealed four overarching themes: professional identity formation, skill development, emotional and psychological development and authenticity and realism of learning. Simulations were found to reinforce clinical knowledge and foster a reflective and realistic learning environment. The critiques were the high levels of stress and anxiety, and the volume of pre-work. Additionally, the space used was commented to not always be suitable for purpose, reducing the fidelity of the simulation.

Discussion and/or Conclusion: SBE was found to enhance key aspects of pharmacy students' professional development, particularly clinical decision-making, prioritisation, and reflective practice. Ongoing refinement of simulation design, workload, and learning environments is needed to maximise its educational impact.

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AI governance and integration for AI for learning

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Background and Statement of Aim(s): Rapid growth of Gen-AI in higher education demands secure, institutionally governed tools that enhance learning rather than replace it. Aims: Develop AI governance; Integrate AI into education to enhance learning.

Methods: At CUSSPPS, we developed a comprehensive, faculty-led AI governance framework aligned with university standards for privacy, ethics, and academic integrity: a three-tiered governance structure to promote and share AI use in all mission areas. Within this framework, we are integrating Cogniti, a secure teaching and learning AI platform from the University of Sydney, to support scalable, evidence-based innovation across education programs.

Results: Governance: (i) an AI Strategic Council serves as the hub of AI activities, assures across school and campus communications regarding AI policies and innovations; (ii) AI Stewards manage AI best practices use in each mission area, one assures compliance with AI governance policies, all report to Council; and (iii) Communities of Practice (CoPs) led by AI Stewards for education, research, practice, administration & operations to promote AI use and share experiences within and across COPs to enhance learning by all. Cogniti: enables faculty to design course-specific AI agents with curated learning materials and give educators oversight of how AI interacts with students and what content it references. Cogniti is particularly useful for Assessment for learning enabling student self-learning with faculty monitoring progress; Assessment of learning using predictive analytics to classify mastery, detect learning gaps identify at-risk students, informing outcome prediction and early intervention. At SUSoP, Cogniti is used widely in the pharmacy curriculum and at CUSSPPS it is being applied as well to a graduate-level machine learning course and a credentialed Lunch & Learn series for faculty and staff.

Discussion and/or Conclusion: This structured approach demonstrates how faculty development, curricular design, and robust data foundations can position generative AI as a reliable, pedagogically grounded partner in higher education.

Mobilising and advancing pharmacy leadership in emergencies (MAPLE): A tabletop simulation workshop

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Background and Statement of Aim(s): In response to the increasing risk of extreme weather events across Canada due to climate change, personal experiences responding to emergencies in clinical practice, and a recognition of the need to prepare pharmacy students for their future working in increasingly unstable healthcare systems and environments, the MAPLE Collective was formed. This study aimed to develop an interactive disaster preparedness workshop designed for pharmacy students to simulate a community pharmacy disaster response.

Methods: This educational workshop was designed for senior level PharmD as part of the skills course to introduce students to the principles of emergency preparedness as it relates to pharmacy practice. Development was a collaboration across four Canadian pharmacy schools - Memorial University, University of Waterloo, University of Alberta, and University of British Columbia, who met weekly for four months in 2025 to create the tabletop exercise and pilot the workshop.

Results: The tabletop simulation exercise (Preparing for the Unexpected in Pharmacy Workflows) has been delivered to 159 PharmD across Canada, with over 325 by July 2026. The workshop was designed as a simulation-style exercise designed to emulate community pharmacy practice in a constantly changing environment to reflect how students (as future pharmacists) can contribute to fostering a more resilient and prepared healthcare system. Students are presented with a community pharmacy scenario whereby a series of tasks, disruptions, and patients arise throughout a "day" that starts off typical and quickly takes a few unexpected turns. Students work in small groups to

collectively decide on their action as a pharmacy team in managing the various tasks and new developments that arise. The workshop has received positive feedback from students.

Discussion and/or Conclusion: This was a novel and innovative educational workshop to prepare PharmD students across Canada to undertake their roles as pharmacists working in community pharmacy and needing to respond to a disaster.

Theory-informed pharmacy simulation design: Developing patient-centred communication through supportive learning environments that enable interpersonal risk-taking

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Background and Statement of Aim(s): Contemporary pharmacy practice demands sophisticated person-centred communication skills for workforce readiness. Simulation-based learning (SBL) provides immersive opportunities for authentic practice, yet pharmacy education often lacks theory-informed approaches to simulation design. This study evaluates innovative theory-informed simulation design grounded in Healthcare Simulation Standards of Best Practice (1) and transformative learning theory (2), examining how intentional design creates psychologically safe conditions enabling meaningful engagement with vulnerability and interpersonal risk inherent in observed performance.

Methods: This three-year longitudinal action research study examines theory-informed simulation design across multiple learning activities. This presentation reports findings from Simulation 1, conducted in Semester 1, 2025. 133 Second-year Bachelor of Pharmacy (Honours) students participated in simulated over-the-counter consultations with simulated patients, either as direct participants or peer observers. Pre-post attitudes toward person-centred care were measured using the validated RUS-LatCon instrument (3). Post-simulation focus group interviews with eight students underwent systematic thematic analysis (4).

Results: Among 133 participants, 45 completed paired pre-post surveys. Quantitative analysis of these surveys revealed significant attitude changes toward person-centred care with medium to large effect sizes. Thematic analysis of focus group discussions with eight participants revealed five themes: 1) authenticity as foundation for engagement, 2) vulnerability and mistakes as catalysts for learning, 3) practiced frameworks as structural anchors, 4) differential learning by role, and 5) theory-practice dissonance.

Discussion and/or Conclusion: Intentional simulation design that builds trust, frames mistakes as learning opportunities, and employs evidence-based frameworks enables students to engage with risks inherent in participating in SBL while developing interpersonal competencies.

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Redesigning medicinal chemistry seminars to promote student engagement and research competences

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Background and Statement of Aim(s): Seminars in the medicinal chemistry course within the integrated undergraduate and graduate Pharmacy program at the University of Zagreb Faculty of Pharmacy and Biochemistry have traditionally been knowledge based (students were assigned a specific topic, based on which they prepared a short oral presentation). While this format supports independent learning, it often limits student engagement and active participation, as students primarily focus on their own topics. To address these limitations, a redesigned seminar format emphasizing collaborative, research-oriented learning was introduced. This study evaluated students' perceptions of the redesigned seminar format, with a focus on engagement, collaboration and relevance to medicinal chemistry research.

Methods: Students were organised into groups of three and assigned a structured medicinal chemistry research task within a therapeutic area corresponding to drug classes covered in lectures and later revisited in pharmacology and clinical pharmacy courses. Each group developed a research plan, identified and sourced relevant chemicals using appropriate identifiers, analysed key physicochemical properties related to drug design, and proposed new compounds. Student perceptions were evaluated using anonymous post-course questionnaires comprising Likert-

scale and open-ended questions. Based on feedback from the first year, the seminars were refined, and survey results from subsequent cohorts were compared.

Results: After the first year of implementation, student satisfaction with the seminars was rated with an average score of 4.39. Following the incorporation of student feedback and targeted improvements, satisfaction increased in the most recent cohort, reaching an average score of 4.80. Qualitative responses highlighted increased motivation and the perceived relevance of acquired skills for pharmaceutical research and professional practice.

Conclusion: The redesigned seminar was positively received by students. By linking medicinal chemistry concepts with therapeutic areas reinforced throughout the curriculum, this approach supports vertical integration and promotes the early development of research- and practice-relevant competencies in pharmacy education.

Rethinking assessment for future-ready graduates: Making learning visible through Objective Structured Practical Examinations (OSPEs)

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Background and Statement of Aim(s): There is a growing need for assessment approaches that authentically evaluate students' conceptual understanding, reasoning, and readiness for practice. Objective Structured Practical Examinations (OSPEs) offer a promising strategy to make learning visible by assessing how students apply and justify knowledge in practice-relevant contexts (1).

Methods: OSPEs were implemented in a large, second-year pharmacology unit/course (n = 153 students) as a summative assessment aligned with program learning outcomes. Multiple stations were designed to assess scientific reasoning, data interpretation, decision-making, laboratory-related competencies, and communication. Students engaged with authentic pharmacological scenarios requiring justification of decisions under time constraints. Examiner calibration, structured marking rubrics, and targeted student preparation activities were embedded to support reliability and transparency. The assessment was intentionally designed to make student learning visible by capturing how students apply, justify, and communicate their pharmacological knowledge.

Results: OSPEs enabled richer insights into student learning compared to traditional written assessments, revealing strengths and gaps in conceptual understanding, reasoning processes, and practical application. Student feedback (77% response rate) indicated that 78% agreed or strongly agreed that the OSPE assessed skills relevant to professional practice, and 72% reported that it required deeper understanding than traditional exams. Examiner feedback highlighted improved visibility of student thinking and greater confidence in assessing capability and practice readiness. While logistical complexity and examiner workload noted challenges, these were mitigated through careful planning and examiner preparation.

Conclusion: OSPEs represent a transformative assessment approach for science-based curriculum that supports future-ready graduates by shifting assessment focus from knowledge reproduction to visible learning, reasoning, and performance. In the GenAI era, OSPEs provide a robust, authentic, and scalable strategy for assessing capability and practice readiness in pharmacy and pharmaceutical sciences education.

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Utilising AI technology (SimConvese) to enhance MPharm drug history teaching in a UK school of pharmacy

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Background and Statement of Aim(s): The ability to obtain an accurate drug history and perform medicines reconciliation is a core competency for pharmacists. MPharm drug history teaching commonly relies on the use of role-play activities, which can be limited by reduced authenticity and clinical complexity. This study aimed to enhance drug history teaching for Year 2 MPharm students using AI technology.

Methods: SimConverse, an AI platform, was used to develop learning activities focused on conducting a drug history. Students were directed to obtain a complete and accurate drug history using multiple sources of information. AI characters were developed on SimConverse, each with

different complexities to improve authenticity. Students completed a self-reflection at the end of each consultation and were provided with feedback on 'soft' skills such as communication, questioning techniques and structure of consultation. Student feedback was obtained at the end of the session using an MS form.

Results: A total of 122 Year 2 MPharm students participated in the workshop, with 55 (45%) students completing the feedback form. Most students rated the workshop extremely useful or useful (96%). Relating to confidence in conducting a drug history, students reported feeling somewhat confident (53%), with smaller proportions reporting neutral (36%) or extremely confident (5%). Qualitative feedback highlighted the value of authenticity of the characters, including an appreciation for the complexity of the task.

Conclusion: Using SimConverse for drug history teaching was positively received by MPharm students and was perceived to enhance the authenticity and clinical complexity of the session. Integrating this approach into the Pharmacy curriculum may support the development in confidence and communication skills related to drug history taking in clinical practice.

Five years' experience of simulation-based learning in the therapy of serious infections: student satisfaction and learning outcomes

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Background and Statement of Aim(s): Simulation-based learning (SBL) provides pharmacy students with valuable opportunities to practice and develop clinical skills, however sustainable high-quality SBL can be challenging to maintain long-term. This study aimed to develop authentic video-based simulations focused on clinical decision-making for appropriate antibiotic selection, to enrich the learning experience for pharmacy students; and to evaluate their impact on student learning and satisfaction.

Methods: Two video-based SBL scenarios - tuberculosis and polymicrobial infection - were developed with expert input and produced using professional actors and a small film crew. Second-year pharmacy students enrolled in 2019, and from 2022 to 2024 were invited to participate in tutorial-based SBL activities using these simulations. Learning outcomes and perceptions were evaluated using pre- and post-tutorial questionnaires.

Results: Across the five-year period, completed paired questionnaires were obtained from 233 students (62.5%; 233/373) for the tuberculosis scenario and 275 students (54.9%; 275/501) for the polymicrobial infection scenario. Statistically significant improvement in pre- and post-tutorial scores were observed in all years except for the tuberculosis scenario in 2019. Most students rated the SBL activities as outstanding or excellent (tuberculosis: 80.0 – 98.2%; polymicrobial infection: 82.1 – 93.6%), with minimal variation across years. The majority reported that the activities helped them to acquire critical thinking skills (mean: 90.1% for tuberculosis; 93.2% for polymicrobial infection) and supported better learning (mean: 95.2% for tuberculosis; 97.7% for polymicrobial infection). Almost all students (93.6 - 95.0%) expressed a desire for more SBL activities to support their learning in the future. Positive outcomes were consistent across the five-year timeframe.

Discussin and/or Conclusion: Video-based SBL represents a sustainable and effective approach to enhancing pharmacy students' learning experiences, supporting consolidation of knowledge about antimicrobial agents and practice of clinical decision-making skills in selecting appropriate antibiotics to treat infectious disease.

Professionalised? How far have pharmacy technicians in Great Britain professionalised since mandatory registration?

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Background and Statement of Aim(s): Mandatory registration of pharmacy technicians (PTs) in Great Britain was introduced in 2011, followed by significant legislative and practice developments. Despite this progress, the absence of a clear post-registration career framework has resulted in variable expectations of accountability, responsibility and autonomy. This has created uncertainty for both employers and PTs, potentially limiting further professionalisation of the role.

Methods: A cross-sectional questionnaire exploring perceptions of PT , accountability, responsibility and autonomy was distributed to registered pharmacy professionals. Dissemination occurred via social media channels supported by the General Pharmaceutical Council and through email and social media networks of the Association of Pharmacy Technicians UK. Ethical approval was granted by the University of East Anglia.

Results: A total of 176 responses were received, comprising 145 pharmacy technicians and 31 pharmacists. Perceptions of current PT autonomy did not differ significantly between pharmacists and PTs, although pharmacists rated it marginally lower. Both professional groups agreed that PT

autonomy should be higher than that observed in current practice. Overall agreement was seen across statements relating to responsibility and accountability. Pharmacists were more likely than PTs to agree that PTs should take responsibility and accountability for the work of others, indicating some divergence in professional confidence and self-perception.

Discussion and/or Conclusion: As PT roles continue to expand, clarity around appropriate levels of autonomy, responsibility and accountability is essential to support safe and effective practice. Unlike other healthcare professions, such as nursing, the lack of a structured professional development and career framework risks constraining further professionalisation of PTs. Establishing clear progression pathways may enable better alignment of expectations across the pharmacy workforce and support PTs in realising their full professional potential and identity as healthcare professionals.

Identifying and developing leadership traits in PharmD students: Needs assessment and the Wizard, Warrior & Creative Leadership Programme

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Background and Statement of Aim(s): A 2021 study in Pharmacy[1] reported that industry leaders view leadership as an essential competency for future pharmacists. Yet leadership is practiced and perceived differently across individuals, and students' traits and maturity levels vary widely. Our aim: (1) examine leadership trait profiles across different levels of pharmacy students; (2) design a leadership development program tailored to address identified gaps and prepare for the future of pharmacy.

Methods: Three cohorts were studied: 1st-year PharmD students (Novice), PharmD students self-selecting for further leadership development (Curious), and advanced student leaders attending a Leadership seminar (Established). Each student completed the 60-item Enneagram and results were evaluated with an executive leadership coach[2]. Findings guided the design of our Wizard, Warrior & Creative Leadership program, a year-long certificate experience grounded in Bolman & Deal's four frames[3] with an emphasis on creativity for problem-solving. The program included spring onboarding, a June Boot Camp with workshops and simulations, ongoing coaching, and a required Bodacious Goal: a tangible organisational improvement to be completed by year's end.

Results: The assessment taken by > 400 pharmacy students revealed Novices (predominantly Arbitrators) needed accountability and clarity, so the program required individualised advisor communication plans. Curious leaders, often Entertainers with low maturity, received targeted coaching to foster collaboration. Established leaders showing higher maturity, were challenged with advanced goal-setting. Across cohorts, the Artist trait was least mature, prompting creative-thinking exercises. In year one, 17 of 24 organisations completed all steps, achieved measurable improvements (e.g. increased membership, community outreach, and addiction recovery kit distribution) and earned a certificate.

Discussion and/or Conclusion: Enneagram trait patterns informed tailored scaffolds, and integrating Bolman & Deal's multi-frame lens with creativity training equipped students to lead across diverse contexts. This program uniquely requires pharmacy students to demonstrate leadership through tangible, verifiable outcomes: moving beyond theory to applied impact.

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Embedding the pharmacist and patient conversation as part of assessment using AI tools in a UK School of Pharmacy

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Background and Statement of Aim(s): The aim of this study was to utilise AI technology in a communication exercise as an assessed element of Year 2 teaching when treating a respiratory condition.

Methods: Tasks were created on SimConverse, which is a generative AI platform used across the MPharm program, with one used as the summative assessment. Students were guided through a formative exercise to ensure accessibility and familiarity with format and rubrics. Students assessed a case study and suggested treatment changes referencing relevant guidelines for the written element (80%). A conversation task (20%) was released to the students requiring them to counsel the patient on the change to treatment, an AI character written with relevant prompts. The conversation task was assessed using a rubric focused on consultation skills and a reflective account.

Results: A total of 156 Year 2 MPharm students completed the conversation task with 68 (44%) receiving full marks (20/20), and four students receiving partial marks for the activity.

Discussion and/or Conclusion: The use of software like SimConverse allows students valuable practice to explain treatment changes to patients, and leads the way for developing more activities of various complexities across the MPharm program. Allocation of marks to the students which are standardised helps to reduce the subjective nature of assessments which might be seen in similar assessments such as Observed Structured Clinical Examinations (OSCEs).

Students engaged well with writing the required reflective accounts. This continuous skill which is expected for ongoing revalidation requirements when they register as a pharmacist with the General Pharmaceutical Council (GPhC).

The students undertaking this assessment for the first time have provided positive feedback on their experience. We were impressed by the students attainment and so will be exploring whether a more complex issue can be developed for the next assessment, and increasing the rubric to incorporate a wider range of behavioural indicators.

Gamification to enhance collaboration and engagement in online pharmacy technician education: A Flow Theory approach

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Background and Statement of Aim(s): Effective engagement and collaborative learning are essential in pharmacy technician education, yet these outcomes are often difficult to achieve in fully online environments. Gamification offers a potential solution by using game-design elements to increase motivation and participation.[1] When guided by Csikszentmihalyi's Flow Theory[2] (emphasising the balance between challenge and skill, clear goals, and immediate feedback) gamification can help create immersive learning experiences that support sustained engagement. However, most existing research focuses on gamification within face-to-face settings, with limited evidence on its use in online programmes. This gap is notable within UK pharmacy technician training. As an online course provider, this study explores how Flow-informed gamification can enhance engagement and collaboration in virtual learning environments. The aim of this study was to investigate the impact of gamification elements, designed using Csikszentmihalyi's Flow Theory, on learner engagement and collaborative behaviours in an online pharmacy technician classroom. A gamified learning activity incorporating challenge–skill balance, clear goals, and immediate feedback were embedded within an synchronous online classroom to replace traditional worksheet questions.

Methods: A mixed-methods design was used. Quantitative engagement metrics (e.g., activity participation, discussion interactions) were collected via a Likert scale questionnaire, while qualitative insights were gathered through additional comments. Data were analysed to explore changes in engagement patterns and perceptions of collaborative learning.

Results: Preliminary findings indicate that the gamified activities increased learner participation, promoted peer-to-peer support, and contributed to conditions aligned with Flow Theory (e.g., heightened focus, sense of progression). Learners reported that the gamified elements made collaboration more purposeful and reduced the sense of isolation often associated with online study.

Discussion and/or Conclusion: Gamification informed by Flow Theory shows promise for enhancing engagement and collaboration in online pharmacy technician education. As evidence in this area is limited, these findings contribute new insights for educators designing effective digital learning experiences for this workforce.

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Preparing for crisis: an evaluation of an interprofessional elective for undergraduate health students on primary care preparedness for health emergencies

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Background and Statement of Aim(s): Disasters overwhelm healthcare systems by compounding acute disaster-specific needs with chronic condition management and service disruptions. However, the resulting "permeable

environment" often flattens traditional hierarchies, necessitating a collaborative, collective-effort mindset. Primary care professionals must adapt their everyday roles to meet these unique demands. This study evaluated the impact of a novel interprofessional elective (IPE), "Health Emergency Preparedness for Primary Care," on health students' knowledge, skills, and attitudes regarding their primary care and disaster-response roles.

Methods: The IPE was piloted in November 2025 for a multidisciplinary cohort of pharmacy, medicine, and nursing students. The curriculum featured a hybrid design: asynchronous online modules followed by an in-person disaster simulation involving standardised patient actors. Post-simulation, students participated in a facilitated debrief and submitted written reflective statements. A thematic analysis of the students debrief reflective statements was performed.

Results: The pilot included 24 students (8 per discipline). Overall, the IPE was received well by the students in all three primary care professions, with calls for more learning opportunities for disaster preparedness and collaboration across disciplines. Thematic analysis revealed that the simulation successfully translated "systems thinking" theory into practice. Notably, medicine and nursing students reported a significantly clearer understanding of the pharmacist's scope and value as an equal team member. As one medical student noted: "During the SIM and throughout the modules my existing knowledge of how involved pharmacists can be in the community was reinforced and built upon."

Discussion and/or Conclusion: Results from the initial IPE iteration demonstrate its potential to train students for the unique pressures of disaster response while clarifying and advancing their professional roles in primary care. By fostering collaborative practice and clarifying interprofessional roles, this elective equips students to navigate the complex landscape of primary care during emergencies.

Hidden hours: National survey of time spent in preparation of course materials among US pharmacy faculty

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Background and Statement of Aim(s): Faculty workload in pharmacy education includes both direct instruction with learners and extensive preparation time for lectures, laboratories, and assessments. The time spent on these tasks is poorly characterised, especially on a national level. This study aimed to evaluate the duration of time faculty at schools of pharmacy spend preparing course materials such as didactic lectures and skills, compounding, or simulation labs with the intent to assist faculty and administrators better understand faculty workload.

Methods: This cross-sectional, descriptive analysis was a web-based survey distributed via Qualtrics to all United States (US) pharmacy faculty members within the American Association of Colleges of Pharmacy faculty email listserv. Eligible participants included faculty employed at accredited US schools of pharmacy who are at least 18 years of age. The 30-item survey was open for one month with two reminder emails sent to maximise response rates. Faculty workload patterns were analysed using descriptive statistics and by Chi-square or Fisher's exact tests; the number needed for power was 363.

Results: The survey was completed by 408/5270 faculty (response rate 7.7%). Most respondents were from 4-year PharmD programs (80.2%) and were members of pharmacy practice departments (69.0%). Preparation times scaled with the length of lecture with most reporting 5-6 hours for a new 50-75 min lecture. Respondents reported a similar distribution for new lab sessions with the most common responses of >15 hours or 5-6 hours. Most spent 1-4 hours on annual updates to lectures and lab materials. No significant differences existed between time taken and departmental association.

Discussion and/or Conclusion: This survey of AACP pharmacy faculty members identified varying distributions of time spent creating teaching materials, though most spend approximately 5-6 hours preparing new 50-75-minute-long didactic lectures. These values may help establish a baseline for individual workload analysis and development planning.

Fostering professional growth and leadership in pharmacy and pharmaceutical sciences education

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Background and Statement of Aim(s): Pharmacy education, including academic training and continuing professional development (CPD), has traditionally prioritised knowledge acquisition with limited emphasis on practical implementation, either independently or within healthcare teams. This imbalance is particularly pronounced in developing countries, where access to academic and professional resources is constrained. The Square Academy was established to address this gap through an innovative e-learning and workshop-based model in clinical pharmacy. The

aim of this initiative is to enhance pharmacists' professional competence by integrating applied practice with up-to-date knowledge, while supporting CPD accreditation across diverse regulatory contexts.

Methods: The Square Academy delivers modular, online clinical pharmacy education via a proprietary platform. Content comprises recorded lectures contributed by a virtual international faculty, including academics from institutions such as Monash University. Lectures are either personally recorded, allowing experiential commentary, or institutionally sourced to facilitate rapid updating. Modules are developed in collaboration with pharmaceutical societies and regulatory bodies to achieve approved CPD provider status. Most modules are reviewed and endorsed by the Academy of Pharmaceutical Sciences, enabling the issuance of certificates of completion. Participation, engagement, and learner feedback are systematically recorded through the platform.

Results: The program has been piloted across ten sub-Saharan African countries and two regions in India. CPD accreditation has been secured in two countries, with four additional submissions under review. Qualitative feedback demonstrates high learner satisfaction, and certification has been used by participants as evidence of professional competence in successful employment applications.

Discussion and/or Conclusion: Operating for four years, the program continues to expand in scope and sophistication, addressing both knowledge and practice in resource-limited settings. Its innovations include equitable global access to expert faculty, a deliberate focus on applied practice, and structured documentation of CPD participation. Supplementary workshops and forthcoming webinars further emphasise interprofessional competence and CPD harmonisation, with regional workshops already conducted or planned across Africa. This scalable model demonstrates significant potential to strengthen pharmacy practice and professional development in diverse healthcare systems.

Future-proofing Pharmacy Education: A programmatic assessment design approach for AI integration and authentic, integrated learning

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Background and Statement of Aim(s): The rise of generative AI tools has introduced major challenges for academic integrity and authentic learning in higher education, reshaping approaches to teaching and assessment. The Faculty of Pharmacy and Pharmaceutical Sciences at Monash University has initiated the PAAIR (Programmatic Assessment and AI Review) project, a two-year university-wide strategic review of assessment design across the curriculum to reshape and redefine assessment. The project aims to create a cohesive, integration of AI and secure, visible assessments throughout the pharmacy curriculum using a programmatic approach.

Methods: Units were clustered into themes to align with programmatic principles and manage workload. The initial 2025 pilot focused on six first and second-year units in the pharmacy course. Seven collaborative workshops, self and peer reviews, and curriculum mapping were conducted to critically evaluate AI-related teaching and assessment practices. Assessments were mapped to identify programmatic themes and ensure alignment with learning outcomes and professional standards.

Results: Collaborating with a senior educational designer, educators from the six units have shifted focus from single assessment events to a coordinated suite of diverse assessment tasks mapped to learning outcomes, professional standards and broad competency development. Reported outcomes included deeper understanding of the student learning journey and improved confidence in addressing AI through authentic assessment design.

Discussion and/or Conclusion: Programmatic approaches to assessment design across the Pharmacy curriculum effectively mitigates AI-related risks while promoting authentic, competency-driven learning. This approach offers an educational framework for other units in 2026 and a scalable model for other Pharmacy programs. Future work will provide a holistic programmatic view of student learning and assessment design across the whole curriculum.

Innovation and Novelty: This study introduces a curriculum-wide programmatic approach to address AI challenges through integrated, authentic assessment design, offering a framework adaptable across diverse higher education contexts.

Trajectories of logical, emotional and moral communication themes across repeated student GenAI-simulated patient interactions

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Background and Statement of Aim(s): Effective clinical communication is essential for pharmacy practice, yet traditional face-to-face training methods face scalability limitations (1). Generative artificial intelligence (GenAI) platforms offer opportunities for students to practice clinical

communication through realistic, repeatable interactions (2). Using the Professional Communication in Intercultural Contexts (PCIC) framework, clinical communication can be examined across logical (clinical reasoning), emotional (rapport building), and moral (professionalism) dimensions (3). This study aimed to examine how communication trajectories across these dimensions evolve with extended practice using a GenAI patient simulation platform, ATLAS.

Methods: A retrospective cohort study analysed 2,214 transcripts from 346 pharmacy students (230 Australian, 116 Malaysian) who interacted with avatars on the ATLAS platform. Transcripts underwent summative content analysis using the PCIC framework to quantify logical, emotional, and moral communication themes. Linear mixed models (LMM) examined: trajectories across sequential attempts, within-avatar learning through repetition, and knowledge transfer across avatar variety. Analyses were conducted by campus, with exploratory subgroup analysis by gender, student status, and English language L1/L2.

Results: Over sequential attempts, Australian students showed initial logical gains (attempts 1-3) then decreases (β=-0.35, $p = 0.002$), particularly in females (β = -0.49, $p < 0.001$), with increasing moral trajectories (β = 0.67, $p < 0.001$) and stable emotional patterns. Malaysian students showed increasing moral trajectories (β = 0.36, $p < 0.001$) and modest emotional increases (β = 0.10, $p = 0.013$), but stable logical patterns. When repeating the same avatar, logical themes increased in both campus cohorts (AUS β = 8.53, MY β = 3.24, both $p < 0.001$). Moral themes improved with repetitions in Australian students (β = 1.37, $p < 0.001$), but not in Malaysian students. Emotional themes did not improve with repetition in either campus. Diverse avatar practice enhanced moral and emotional dimensions more than logical dimensions across both campuses.

Discussion and/or Conclusion: PCIC analysis revealed distinct communication trajectories across logical, emotional, and moral dimensions, with differences by practice type and campus. These findings highlight the need for differentiated clinical communication training approaches tailored to campus contexts. Future research should investigate underlying pedagogical and cultural factors and incorporate multimodal communication analysis including non-verbal cues, prosody, filler words, and silences.

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An innovative digital wellness platform for mental health resilience for students at a minority serving institution

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Background and Statement of Aim(s): Mental health inequities disproportionately affect Black, Indigenous, and People of Color (BIPOC), particularly within higher-education settings where students report increasing rates of anxiety, depression, and social isolation.[1],[2] This project aimed to enhance student well-being at a Historically Black Colleges and Universities (HBCUs) by developing and implementing a pilot digital wellness program designed to reduce stigma, increase access to culturally appropriate resources, and foster a connected campus environment. The initiative leveraged curriculum design and digital-innovation strategies to embed mental-wellness literacy into the student experience.

Methods: A pilot digital-first mental-wellness program was developed, centered on a custom mobile application titled "Psyched Out". Key features included a mood diary, sleep and medication adherence trackers, standardised clinical screening tools, curated playlists for meditation and sleep, and best-practice tips for exercise, social connection, and restorative habits. The preliminary app also incorporated culturally specific mental-health resources and a peer-to-peer chat function to increase accessibility and reduce stigma. Users could connect directly to the campus counseling center, a 24/7 crisis hotline, and a social-events calendar. Implementation occurred during a campus-wide Mental Health Forum, supported by trained student ambassadors representing pharmacy, rehabilitation sciences, and computer science programs.

Results: Three faculty across pharmaceutical sciences, pharmacy practice, and computer science facilitated delivery of the pilot program, alongside four student ambassadors. Participants who engaged with the app provided positive feedback, emphasizing that the peer-support chat and resource links made mental-health support feel more accessible and less stigmatised. Culturally relevant content was particularly valued, suggesting strong alignment between resource design and student need.

Discussion and/or Conclusion: This pilot project illustrates an innovative curriculum-embedded digital approach to advancing mental well-being and professional readiness. Leveraging a mobile application as a centralised hub offers a scalable model for addressing mental-health disparities within HBCUs and supporting the development of future-ready graduates.

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A culturally grounded mental-health and substance-use education programme implemented through an HBCU-Community partnership

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Background and Statement of Aim(s): Mental health and substance abuse are persistent challenges within underserved communities, especially for minorities who continue to face structural barriers to accessing care.[1] Somerset County, Maryland has been identified as a priority region due to elevated suicide rates, tobacco use, and limited mental-health resources.[2] In response, a Historically Black College and University (HBCU) implemented Illuminate360, an innovative program aimed at increasing mental-health knowledge, improving access to services, and reducing stigma through education, peer support, and case management. This project aimed to evaluate the feasibility and early outcomes of this multi-component intervention.

Methods: Illuminate360 was delivered as a 10-week structured educational program incorporating mental-health and substance-abuse awareness, stigma reduction, coping strategies, and crisis intervention. Sessions were facilitated by an interprofessional team of pharmacists, counselors, and psychologists using a culturally responsive model. Workshops were offered in-person and virtually to maximise accessibility, employing interactive approaches such as storytelling and role-playing. Longitudinal case-management follow-ups continued after workshop completion. Program effectiveness was assessed through attendance tracking, participant self-report surveys, and clinical referrals.

Results: A total of 190 community members participated in Illuminate360. Participants demonstrated increased knowledge of mental-health and substance-abuse topics, with many reporting reduced stigma and improved coping behaviors following program completion. While twice-weekly scheduling created retention challenges, flexible hybrid delivery supported engagement and 100% participant satisfaction. Participants highlighted the cultural relevance of discussion topics and valued peer-connection opportunities.

Discussion and/or Conclusion: Illuminate360 demonstrates that culturally tailored interventions rooted in HBCU community partnerships can effectively increase mental-health literacy and reduce stigma in underserved populations. The program's innovative integration of education, peer mentoring, and case management provides a promising framework for scalable implementation. Future work will enhance retention strategies, expand community collaborations, and evaluate long-term behavioral outcomes.

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Development of resources to supplement onboarding new and early educators in higher education

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Background and Statement of Aim(s): Onboarding new and early educators in higher education is often fragmented, leaving gaps in understanding institutional expectations, theory-based teaching practices, and available support and resources. This project addresses these challenges by developing a sustainable, self-directed onboarding resource for new and early educators at Monash University's Faculty of Pharmacy and Pharmaceutical Sciences.

Methods: Designed collaboratively with PharmAlliance partners at UNC and UCL, the resource consolidates essential information into six themes: roles and expectations, course maps and key contacts, learning management system guides, teaching practices, profiles for community, and a jobs dashboard for faculty-wide teaching associated support.

Results: Hosted within a community of practice website, the onboarding resource provides clarity to the role, resources to

build confidence in teaching practice, and helps develop professional identity while supporting integration of research-based teaching practices. Evaluation data of the site shows strong engagement, with 76% of Assistant Lecturers enrolling within three weeks of launch and higher usage amongst newly appointed educators. Feedback from intended users highlights improved confidence, clarity on roles, and reduced stress, with comments such as "Having this site available gave me peace of mind" and "It's great to have an all-in-one starting point for key information".

Discussion and/or Conclusion: This innovation offers a scaffold for key modules to supplement onboarding processes for new and early educators that fosters belonging, builds confidence, and leadership readiness, bridging the gap in induction processes and supporting educators early on into their role which can be translated and adopted across institutions and faculties.

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Integrating diversity into OSCEs: An examination of gaps and priorities

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Background and Statement of Aim(s): Assessing diversity competence in healthcare education remains challenging. Objective Structured Clinical Examinations (OSCEs) are widely used to evaluate clinical skills, but their capacity to meaningfully assess diversity sensitivity is unclear. This study explored the extent to which diversity elements are integrated into OSCEs and examined perceived barriers and priorities for inclusion.

Methods: A sequential explanatory mixed-methods design was employed across four institutions in Australia, the United States, and the United Kingdom. Forty OSCE cases from the past two years were reviewed for diversity-related content. Findings informed semi-structured interviews with 26 participants across the globe (9 students, 17 faculty). Qualitative data were analysed using framework analysis guided by Fraser's Social Justice Framework.

Results: Diversity considerations were largely absent from OSCE cases; cultural identity appeared in only 2 of 40 cases, while aspects such as religion, socioeconomic status, disability, sexual orientation, and rurality were not referenced. Interviewees expressed strong support for integrating diversity but highlighted systemic and logistical barriers, including limited resources, standardised case constraints, and challenges in recruiting diverse simulated patients. Participants prioritised inclusion of cultural, religious, and socioeconomic factors but showed hesitancy toward disability and sexual orientation. Both groups questioned the feasibility of assessing diversity in OSCEs, citing time constraints, risk of bias, and lack of debriefing. Recommendations included embedding diversity for exposure rather than grading, focusing assessment on interpersonal skills (empathy, respectful communication), and introducing diversity early in curricula.

Discussion and/or Conclusion: OSCEs, in their current form, are perceived to be ill-suited for comprehensive diversity assessment. While diversity elements should reflect real-world representation, evaluation should remain centered on clinical competence, with optional marks for respectful engagement when relevant. Formative approaches and structured reflection are essential to foster genuine diversity awareness without compromising fairness or authenticity.

Impact of leader academy training on growth mindset and imposter phenomenon

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Background and Statement of Aim(s): Pharmacy students and pharmacists demonstrate high levels of imposter phenomenon (IP) (1), which is associated with feelings of anxiety, burnout, and decreased motivation to lead (2). A fixed mindset has been correlated with higher IP in pharmacy students (3), and additional literature suggests that supporting development of a growth mindset may help limit IP (4,5). This research aims to assess the impact of a cohort-based leadership training program ("Leader Academy") on growth mindset and imposter phenomenon experiences among student and pharmacist participants.

Methods: Pharmacy students and pharmacists enrolled in the Leader Academy completed online surveys before and after the five-month program. Surveys included the Clance Imposter Phenomenon Scale (CIPS), the Implicit Theories of Intelligence Scale (ITIS), and demographic questions. Only participants who completed both pre- and post-surveys were included in the final analysis. Data were analysed using descriptive statistics and paired comparisons.

Results: Of 53 initial participants, 45 completed the Leader Academy program, with 43 and 42 completing the CIPS and ITIS assessments, respectively. No statistically significant changes were observed in mean growth mindset or IP scores post-program ($p = 0.29$ and $p = 0.41$, respectively). A weak negative correlation was found between post-program growth mindset and IP scores ($r = -0.069$). Subgroup analysis revealed a significant decrease in growth mindset among pharmacists ($n=9$, $p = 0.026$), but not among students.

Discussion and/or Conclusion: While the leader academy program did not significantly impact growth mindset or IP experiences in the short term, it appeared to support early career self-reflection and identity formation. Cohort-based leadership training may foster self-awareness, but more targeted interventions may be necessary to meaningfully impact mindset development and IP.

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A qualitative multi-method investigation

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Background and Statement of Aim(s): Curricular reform, updated General Pharmaceutical Council (GPhC) standards and the integration of independent prescribing are accelerating expansion of experiential learning within MPharm programmes, creating challenges in scaling placements while maintaining quality and sustainability1.This rapid action research project evaluated the University of Birmingham MPharm placement programme to inform scalable, high-quality work-integrated learning across community, hospital and general practice (GP) settings. Informed by socio-constructivist perspectives on workplace learning and Harden's conceptualisation of teacher roles2, the study aimed to examine current placement strengths and limitations, alignment between intended, enacted and experienced curricula, barriers to supervisor engagement and scale-up, and priority enhancement strategies.

Methods: Semi-structured interviews were conducted with MPharm student representatives and placement supervisors or leads across community, hospital and GP sectors, guided by a framework comparing intended, enacted and experienced curricula and adapted teaching role domains. Reflexive thematic analysis supported interpretation. Findings informed a follow-up online survey of 41 supervisors to quantify training needs, perceived barriers and agreement with proposed development actions.

Results: Substantial variability was identified across sectors and sites in student experiences, supervisor expectations and opportunities for meaningful participation, largely driven by organisational capacity and limited protected supervision time. Hospital placements offered rich multidisciplinary exposure but were constrained by workload pressures and inconsistent supervisor preparation. GP placements demonstrated high educational potential but were restricted by service maturity and supervisory capacity. Community placements were widely available but often low-stakes, with many students reporting greater learning from paid employment. Overall, 87% of supervisors reported a need for additional training, and over 80% agreed that insufficient protected time undermined placement quality.

Discussion and/or Conclusion: Sustainable expansion of MPharm placements requires targeted investment in supervisor development, sector-specific induction, concise placement guidance, CPD-accredited online training, and an online community of practice, alongside advocacy for funding reform and regional coordination.

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Current approaches to coaching professional skills in health education: A scoping review xxx

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Background and Statement of Aim(s): Developing professional skills is essential to prepare future health professionals, such as those in pharmacy and allied health, for the complex demands of clinical practice.1 Coaching is one approach used to support students in developing these skills. However, the details of coaching programs in health professions education have not been synthesised. (2) This scoping review aimed to identify and examine the current methods used to coach professional skills in healthcare students within the existing literature.

Methods: The review followed the Joanna Briggs Institute framework. (3) Searches were conducted across multiple education research databases, including ERIC and Scopus. Screening and selection were managed in Covidence by five independent reviewers. Any conflicts were resolved through team discussion.

Results: Thirty-eight studies were included. Of these, 12 focused on nursing students, two addressed nurses alongside other health professionals, and the remaining 24 (63.2%) examined coaching in allied health disciplines. These findings highlight both the breadth of coaching across professions and the substantial nursing-focused literature. Coaching was implemented in diverse formats, including group coaching, one-on-one coaching, or a blended model with structured activities such as questioning and reflection, goal setting, and role play. Program duration ranged from two days to two years, comprising one to 32 sessions that were most delivered weekly or monthly. Individual sessions lasted between one and eight hours. Coaching impact was assessed using surveys (40%), interviews (24%), written reflections, feedback forms, and note reviews. Group coaching frequently improved self-awareness and provided opportunities for peer learning. (4) One-on-one coaching enabled tailored development of individual skills. (5)

Discussion and/or Conclusion: This review consolidates existing coaching approaches in healthcare education and identifies commonly targeted skills and evaluation methods. In the future, a tool could be designed to measure coaching effectiveness and best practice guidelines created for coaching curriculum.

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Exploring pharmacy student productive decision-making behaviours in MyDispense and clinical assessment performance

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Background and Statement of Aim(s): Clinical decision-making1 is an important competency for pharmacy students, particularly in managing complex conditions such as venous thromboembolism (VTE). Simulation platforms like MyDispense2 provide opportunities for students to practice clinical decision-making and be assessed on this skill in an environment whereby they can make mistakes without affecting patient safety. This project aimed to explore the relationship between student performance and their clinical decision-making behaviours during a MyDispense VTE assessment, regarding how productive and unproductive student actions affect their clinical performance.

Methods: Fifteen third-year pharmacy students were selected at random from three performance categories: low (<50%), mid (50–80%), and high (>80%). Students completed a VTE MyDispense assessment involving history-taking, review of discharge summaries and pathology reports, and therapeutic decision-making. MyDispense activity logs were analysed and behaviours were classified as productive, neutral, or unproductive. Correlations between student behaviours and performance were analysed using linear regression and ANOVAs.

Results: No significant correlations were found between assessment scores and time taken ($p = 0.083$), discharge summary access ($p = 0.334$), or counselling ($p = 0.554$). A significant positive correlation was found between assessment scores and productive behaviours ($r = 0.682$, $p = 0.005$), with high-performing students completing more productive behaviours than low-performing students ($p=0.006$). Unproductive behaviours were negatively correlated with performance ($r = -0.682$, $p = 0.005$), with low-performing students having more unproductive behaviours ($p = 0.002$).

Discussion and/or Conclusion: The study demonstrates that assessment results depend heavily on the number of productive and unproductive actions students perform which supports the need for clinical reasoning education to enhance their decision-making abilities. This suggests that simulation platforms such as MyDispense can be valuable tools for

identifying and addressing gaps in clinical reasoning. Further qualitative research is underway. MyDispense cases of increasing difficulty[3] were developed by pharmacists from community, hospital, and academia for each year level (1–4). Students will complete the cases in think-aloud interviews, with video and transcript data abductively analysed using the Clinical Decision-Making Model[1] and Walker et al.'s[4] cognitive and metacognitive framework.

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The core concepts of pharmacoptherapy in pharmacy education

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Background and Statement of Aim(s): Pharmacy education lacks an agreed-upon list of core concepts[1] (CCs), the big ideas that experts agree students must understand and apply across various drug and disease contexts to deliver effective pharmacotherapy, despite curricular overload and integration challenges. Evidence from 25+ higher education fields shows that identifying and utilising CCs facilitates domain-specific thinking, problem-solving in novel scenarios and curriculum prioritisation.[2] Despite established frameworks and resources guiding pharmacy education, there are limited resources that support this conceptual learning of pharmacotherapy. This study aimed to identify and obtain consensus on pharmacotherapy CCs in a national and international context for initial pharmacy training.

Methods: A biphasic mixed-methods design was used in an Australian and international context. Phase One generated potential CCs through textbook analysis and educator brainstorming. Phase Two used a modified Delphi technique with pharmacotherapy educators. Round one evaluated CCs against five criteria[1] with a three-facet Rasch measurement analysis. Round two assessed consensus via percentage agreement.

Results: In the Australian context, 21 CCs achieved ≥ 85% consensus among nine educators from seven schools of pharmacy, with 16 CCs reaching 100% agreement, including medication-related problems and patient-centred care. For Delphi round one of the international context, involving 25 educators from 16 countries, 45 potential CCs achieved ≥80% based on adjusted fair-average ratings, including clinical decision-making, medication-related problems, and rational prescribing. Round two for consensus development is ongoing. Some convergent concepts across both contexts include medication-related problems and evidence-based care, while divergent concepts include cultural safety (Australia) and high-risk situations (international).

Discussion and/or Conclusion: Identifying CCs is a first step towards meaningful conceptual learning in pharmacotherapy within pharmacy education. These CCs are not prescriptive but can support educators in developing an enduring understanding in students, alongside existing frameworks, and inform curriculum design, content prioritisation and assessment.

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What are the key ingredients? A stakeholder-driven curricular transformation for pharmaceutical compounding

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Background and Statement of Aim(s): Pharmaceutical compounding expectations for PharmD graduates are evolving, yet consensus on essential skills for experiential rotation and workforce readiness remains limited. Many curricula remain fixed in traditional formulations and resource constraints rather than systematic input from practicing stakeholders. This project aimed to identify contemporary compounding competencies to guide the redesign of a compounding laboratory course to better support practice readiness.

Methods: Semi-structured focus groups were conducted with current PharmD students, recent pharmacy graduates (residents/fellows), and inpatient and outpatient preceptors. Audio-recorded sessions were transcribed verbatim and analysed using inductive content analysis to generate priorities for core compounding competencies and curricular changes.

Results: Five focus groups involving 13 students, 13 preceptors, and four residents/fellows were completed. Across stakeholder groups, regulatory standards literacy (e.g., USP 795/797/800), foundational sterile techniques (e.g., aseptic technique, PPE use, proper garbing), common non-sterile formulations (e.g., suspensions, creams) and calculations skills emerged as core compounding competencies. Participants urged increased alignment with other foundational courses, such as pharmaceutics, pharmacy law, and pharmaceutical calculations, and streamlining in-class activities to focus on high-yield experiences that directly support rotation performance and licensure examinations. These findings highlight consistent expectations for practice readiness and identify essential competencies to guide course content and assessment.

Discussion and/or Conclusion: The results suggest opportunities for transformative curricular redesign by de-emphasising infrequent formulations and legacy technologies in favor of realistic practice scenarios and transferable skills. Increased integration of the compounding course with other foundational courses could help reduce the cognitive load across courses, improve knowledge retention, and enhance learners' ability to apply compounding principles during rotations and practice. This stakeholder-driven framework offers an adaptable solution for institutions seeking to "right-size" compounding education, ensuring compliance while advancing practice readiness.

Designing for partnership success: A scientific approach to international academic collaboration in health professions education

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Background and Statement of Aim(s): The internationalisation of higher education and health professions education has led to the development and growth of international university partnerships.(1,2) While some literature focuses on international academic research partnerships, much less is on education. This study aims to evaluate published articles on international health professions education partnerships between universities.

Methods: A scoping review was conducted between January 1, 2000 through October 20, 2024 featuring five health professions: medicine, pharmacy, nursing, dentistry, and public health. Methodology followed Joanna Briggs Institute (JBI) criteria.(3) Peer-reviewed articles in English were searched across Medline, Embase, Scopus, and CINAHL. Articles had to describe the purpose of the partnership and two of the following regarding its: development, outcomes, and/or insights. Qualitative data analysis used NVivo (v15.2) with two independent coders applying conventional content analysis and a living codebook.

Results: Eight thousand three hundred and ninety-eight abstracts were screened leading to 592 articles for full review and 58 articles meeting inclusion criteria. Most articles involved medicine (33) followed by nursing (21). Most partnerships (47/58) were global north-south collaborations and supported by external funding (38/58). The primary purpose for nearly 80% of partnerships was capacity building with a smaller number describing cultural enrichment and non-capacity building curricular innovation. Development aspects focused on communication, planning, goals, and relationships. Outcomes predominantly included new training programs and curricular changes. For insights, partners emphasised commitment, stakeholder engagement, relationships, funding, shared decision making, cross-cultural communication, trust, respect, and sustainability as success factors.

Discussion and/or Conclusion: Additional exploration is needed to determine why some health professions, such as pharmacy and dentistry, are not well represented despite several widely known university collaborations. Faculty may not be focused nor incentivised to evaluate and publish on the partnership itself. More research is needed to determine which success factors are most important.

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Supporting the transition to independent practitioner: Impact of an intervention to develop newly qualified pharmacists

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Background and Statement of Aim(s): Transition to independent practitioner is challenging for newly qualified pharmacists (NQPs), particularly for those in community pharmacies where many experience isolation from peers and

opportunities to benchmark practice, working in environments characterised as "noxious" and where isostrain is high (Magola *et al*, 2018). The aim of this paper is to establish the impact of the NQP Pathway, an intervention designed to support NQPs' development and transition.

Methods: Using Normalisation Process Theory (NPT) to investigate if and how the intervention was embedded in practice, NPT constructs were mapped against evaluation themes (purpose, resources and supervision). Semi-structured interviews with NQPs on the Pathway (n = 7) and NQP supervisors (S) (n = 14) were completed exploring understanding of the purpose and benefits of the Pathway, perceived value of Pathway components (online learning resources, an e-portfolio, and supervision), and challenges in completing the Pathway. Data analysis drew out the Pathway's impact on learners' development, factors promoting or inhibiting implementation, and integration of learning into practice.

Results: Findings suggest learners and supervisors were clear about the purpose of the Pathway. Resources were viewed as dispersed which created confusion; recording reflection in the e-portfolio was experienced as challenging by some. Supervision emerged as instrumental in supporting NQPs' application of learning and professional development, helping learners gain clinical, management, and leadership skills. Sectoral differences in the contribution of supervision to learning and development were - those in community pharmacies in particular valued it because of isolation in practice. However, the way supervision was deployed, and its quality, varied, with likely impact on learning and development.

Discussion and/or Conclusion: Transition for NQPs takes place in high-strain jobs, where workplace demands are also high. Interventions such as the NQP Pathway have a role to play in nurturing learners, affording them with a sense of psychological safety, with supervision in particular contributing to professional development.

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Embedding Clinical Reasoning (CR) & Clinical Decision-Making (CDM) into Pharmacy Education at NewGiza University, Cairo

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Background and Statement of Aim(s): University College London (UCL) School of Pharmacy (SoP) created a partnership with NewGiza University (NGU) SoP, Cairo. Embedding CR and CDM into their existing pharmacy curriculum was priority. UCL SoP delivered four webinars to NGU academics, some whose background was not prescribing. The webinars ensured NGU academics understood both the processes of CR/CDM as well as elements of curriculum development, additionally exploring teaching and assessment strategies for CR/CDM. One webinar included change models assisting incorporation of CR/CDM into their curriculum[1]. The aim of this study was to evaluate awareness of CR/CDM and curriculum design, both PRE and POST workshop delivery.

Methods: A self-administered electronic questionnaire (nine-items) was completed PRE and POST workshop delivery. Descriptive statistics were used to analyse numerical responses.

Results: A PRE-webinar response rate of 87.5% was achieved (n = 7). Three NGU academics (43%) stated they felt confident teaching CR/CDM, while two NGU academics (29%) indicated they felt confident in assessing CR/CDM skills currently. Only one NGU academic felt confident designing curricula for CR/CDM currently. A POST-workshop response rate of 63% was achieved (n = 5). Five NGU academics indicated they better understood the processes of CR/CDM, including hypothetico-deductive-model and dual-process-theory. One-hundred percent stated they felt confident/very confident in teaching and assessing such skills. Positive feedback is demonstrated by the POST session questionnaire. All indicators improved to 100%. Whilst this is a one-off intervention, it was a unique opportunity for academics at UCL and NGU to consider all aspects of CR/CDM by means of horizontal and vertical alignment[2].

Discussion and/or Conclusion: This collaboration demonstrated how an innovative structured webinar series moved beyond knowledge transmission, enabling faculty to engage in reflection, apply CR/CDM processes to their own curricula, and collaboratively trial and present curriculum and assessment innovations, including spiral design, constructive alignment and Script Concordance Testing (SCT).

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Evaluating trainee independent prescribing pharmacists (tIPs) perceptions of a simulation workshop designed to enhance cinical decision-making

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Background and Statement of Aim(s): During the Clinically Enhanced Pharmacist Independent Prescribing programme (CEPIP) at University College London (UCL) a simulation-based-education (SBE) workshop was piloted, whereby tIP students were immersed into the role of pharmacist independent prescribers. The aim of the workshop was to develop both Clinical Reasoning (CR) and Clinical Decision-Making (CDM) skills. These skills are crucial with expansion of pharmacist prescriber roles in the UK[1]. The aim of this study was to evaluate the impact of this SBE workshop.

Methods: A self-administered electronic questionnaire (ten-items) was completed after the workshop. Descriptive statistics were used to analyse numerical responses, free-text responses were highlighted as quotes.

Results: A 60% response rate was achieved (n = 41). Sixty-six percent of tIP students stated the workshop felt realistic, with community pharmacist trainees commenting this session was useful but out of their prescribing scope. Eighty-eight percent felt scenarios were clinically relevant, 63% stated the workshop was extremely relevant and 32% stated highly relevant to their learning about CDM. One-hundred percent stated they could relate stages of the workshop to the Royal Pharmaceutical Society (RPS) competency framework for prescribers[2]. One student commented '[I] learned a lot [as it was] independent work with lots of real-life references such as bloods, actors, test-results, observations etc. being discussed in small groups'

Discussion and/or Conclusion: The results demonstrate that students enjoyed the workshop and found it useful, and that the component elements of the session could easily be related to the competencies outlined by the RPS and GPhC for their portfolio.

Innovation and novelty: The session ensured an immersive simulation workshop was delivered to 70 students in one day which was important for sustainability, allowing possible enhancements to the large undergraduate MPharm cohort at UCL.

Relevance to the section: This new style of workshop for the prescribing course at UCL allowed immersion into the role of prescriber and application of prescribing skills previously learned ensuring students have the necessary skills befitting of independent prescribers.

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Supporting pharmacists' journeys to become independent prescribers

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Background and Statement of Aim(s): From 2026, all UK pharmacists will be independent prescribers (IPs) upon registration. To support existing pharmacists wishing to become IPs, the Centre for Pharmacy Postgraduate Education implemented 'Preparing to Train as an IP' (PTTIP). This study explored course effectiveness in supporting pharmacists to gain confidence for academic study prior to a postgraduate IP course.

Methods: Semi-structured interviews with course participants in 2024 (pre-) and 2025 (post-PTTIP completion). Interviews explored motivations for becoming IPs and enrolling on PTTIP, course experiences, whether it met expectations, and possible improvements. With consent, interviews were audio-recorded, transcribed, and analysed thematically.

Results: Six participants were interviewed in 2024, 18 in 2025, three in 2024 and 2025. Of the 21 interviewed in 2025, 11 worked in community pharmacy, nine in hospital, two in general practice. Seven of the 21 pharmacists interviewed in 2025 had qualified as IPs, eight were accepted for/ undertaking IP training.

Interviewees' motivations for qualifying as IPs were consistent, with most providing several reasons: Upskilling, career progression and job opportunities, feeling pressured by the 2026 cohort of IP pharmacists, and hopes to improve patient outcomes. Interviewees described PTTIP course expectations, which mapped well onto perceived benefits and outcomes. Interviewees described how PTTIP offered a

starting point for their IP journey, increased confidence, supported a return to academic study, and provided practical guidance. When discussing challenges, some suggested improved clarity regarding target audience and PTTIP content. Peer support networks (e.g. WhatsApp) were considered important but not sustained. A few felt preparation for academic demands could be strengthened. Guidance on securing a designated prescribing practitioner (DPP) would be appreciated.

Discussion and/or Conclusion: This study offers evidence that PTTIP was effective in building pharmacists' confidence to return to academic study for IP. Wider support may be required to ensure access to DPP supervised practice.

Embedding digital literacy and artificial intelligence (AI) into pharmacy and pharmaceutical sciences education: a programme-level curriculum transformation

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Background and Statement of Aim(s): Standards for the initial education and training of pharmacists require digital skills development for improving patient outcomes.1 This is reiterated in the International Pharmaceutical Federation Development Goals (for example, '5: Competency Development' and '20: Digital Health').2 The work, undertaken from 2023 to 2025, aimed to review programme content, identify digital literacy and/or AI related gaps and required changes, and implement these.

Methods: Programme content was reviewed by the Directors of Education for the Pharmacy and Pharmaceutical Sciences programmes, in tandem with the Senior Lecturer (Digital Education). Digital frameworks were employed 3,4 and digital technologies used in practice ascertained through stakeholder meetings. Gaps and proposed changes were subsequently discussed and new activities introduced.

Results: Digital literacy-related activities that were evident in the programmes included digital competency (with Microsoft Office, science-based packages, and dispensing software), digital search skills, digital communication skills, critical thinking, e-poster and video creation. Implementation of a virtual learning environment and digital capture of teaching, coupled with the appointment of a 'digital education' academic and 'laptop for loan' scheme, supported the digital culture. Gaps (which were addressed) included training in cyber security and information governance, AI training including assessing AI-generated content, and the development and implementation of other innovations. These related to an e-portfolio and tracker for experiential learning, digital diagnostic devices workshop, digital patient records, a virtual patient, and virtual reality sessions. Learner experience was assessed through user testing, and module evaluation and student experience surveys. The Pharmacy (MPharm) accreditation outcome, linked to the Standards,1 was positive.

Discussion and/or Conclusion: This work, conducted at one institution only, highlights the level of input (including from the university, national frameworks, digital education organisations and employers) and expertise required to successfully embed digital education. Regular evaluation and further development are required given the vast and evolving nature of the field.

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Collaborative and immersive learning: Outcomes from a large-scale interprofessional simulation experience

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Background and Statement of Aim(s): Interprofessional education (IPE) is required in pharmacy curricula to improve collaboration and quality of care.[1] However, implementing meaningful IPE experiences can be challenging. Simulation is an innovative pedagogy and well-suited to IPE. This study aimed to evaluate the impact of a large-scale interprofessional simulation activity on interprofessional attitudes and confidence.

Methods: Students from four healthcare disciplines (nursing, medicine, social work, pharmacy) and two universities with campuses in western North Carolina participated in an educational session: 20-minute orientation to the activity and role of different professions, including a video demonstrating interprofessional "rounding" on a patient; 20-minute "get to know you" activity in assigned interprofessional teams with prompted questions to better understand the background,

education, and role of the other professions; 60-minute simulation in the same teams, including a standardised patient encounter for an inpatient substance use disorder case; and 30-minute debrief to discuss experiences. Students completed an immediate-pre-survey and immediate-post-survey. Primary outcomes were changes in modified Brief Attitudes for Interprofessional Collaborative Learning (BASIC-L)[2] and self-efficacy/confidence responses for all participants. Secondary outcomes were the above for pharmacy learners and reflection responses for all participants. Paired t-tests were used to assess outcomes using Microsoft Excel with alpha 0.05.

Results: One-hundred twelve students participated, and 93 (83%; 43 nursing, 24 medicine, 11 social work, 15 pharmacy) completed both surveys. A statistically significant improvement was seen in 6 of 11 modified BASIC-L[2] items and 5 of 5 self-efficacy/confidence items. For the subgroup of pharmacy students, four modified BASIC-L[2] and four self-efficacy/confidence items improved. Overall, participants strongly agreed that working in an interprofessional team was beneficial, and they would recommend this activity to others.

Discussion and/or Conclusion: This interprofessional simulation activity improved attitudes and confidence related to working in an interprofessional team.

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Student perception of an online inter-professional workshop for veterinary pharmacy

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Background and Statement of Aim(s): Interprofessional education (IPE) is an effective approach to strengthening collaboration and communication between healthcare professionals. Challenges to establish IPE as part of the pharmacy course include financial, timetabling and availability of suitable teaching spaces [1,2]. Knowledge of prescription requirements, dispensing, storage of veterinary medicines are overlapping components of veterinary and pharmacy curricula. An online IPE workshop was developed and delivered on aspects of veterinary pharmacy. The aim of this study was to determine veterinary and pharmacy students' perception of an online IPE workshop and gain valuable insights to assess the effectiveness of online IPE workshop and gain valuable insights to assess the effectiveness of online IPE to inform the design of future interventions.

Methods: Veterinary and pharmacy students were assigned to inter-professional groups of 6-8 students. The workshop was conducted on Zoom; students joined from home. Groups worked through questions relating to medicines for animal patients, dose calculations, prescription reviews and safe storage and dispensing of medicines. Academic staff facilitated the session and provided support. Students provided feedback following the workshop.

Results: The session was attended by 205 students (137 veterinary, 68 pharmacy); 99 students completed the feedback survey (61 veterinary, 38 pharmacy). Overall, 76% of respondents (42 veterinary, 33 pharmacy) reported interaction with students from another discipline enhanced their learning; 91% (53 veterinary, 37 pharmacy) stated the session will improve their communication with other professions after graduation; 92% (53 veterinary, 38 pharmacy) said the session helped them understand the value of collaboration with other professions; and 94% (56 veterinary, 37 pharmacy) said the session should be run again in future years.

Discussion and/or Conclusion: Online teaching became routine during the Covid-19 pandemic and presents an additional opportunity for IPE. Student feedback from this IPE workshop was overwhelmingly positive, providing compelling evidence of student perceived benefit and overcame financial, timetabling and availability of suitable teaching space challenges.

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Embedding programmatic assessment in an accelerated PharmD programme: Early evidence from a new curriculum

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Background and Statement of Aim(s): Assessment practices are increasingly shifting towards approaches that emphasise learning, feedback, and longitudinal development rather than

high-stakes summative grading. Programmatic assessment (PA) supports this shift by integrating multiple low-stakes data points to inform holistic progression decisions; however, its application within pharmacy curricula has been limited. This work describes the design and early implementation of a PA framework within a newly developed accelerated three-year PharmD program and examines initial outcomes related to assessment structure, learner experience, and performance monitoring.

Methods: A PA framework was implemented across Year 1 of a newly developed accelerated three-year PharmD curriculum, incorporating frequent low-stakes assessments, longitudinal progress testing, and structured student feedback, with holistic progression decisions overseen by a Student Progress Committee (SPC). Assessment scheduling was redesigned using an integrated, block-based course design. Learner performance indicators, including assessment completion, assessment grades, attendance patterns, and cross-course performance trends, were synthesised using predefined criteria to inform progression and targeted remediation. Faculty development supported implementation through training in assessment design, including the use of artificial intelligence tools to support multiple-choice question development.

Results: Full implementation of the PA framework was achieved in Year 1, including progress testing and regular SPC review cycles. The redesign of assessment scheduling resulted in a more than 50% reduction in the number of discrete assessments compared with traditional four-year models. Early implementation data indicate that this approach improved visibility into longitudinal performance patterns and enabled earlier identification of learners requiring academic support. Student feedback highlighted greater clarity regarding performance expectations and reduced assessment-related stress relative to prior high-stakes examination structures. Psychometric analysis demonstrated acceptable reliability of assessment instruments, supporting their use in longitudinal performance monitoring.

Discussion and/or Conclusion: Early evidence suggests that programmatic assessment can be successfully implemented within an accelerated PharmD curriculum while reducing assessment burden and supporting student well-being. While longer-term outcomes related to learner capability and practice readiness are still being examined, this model offers a viable and scalable approach for accelerated professional programs by shifting assessment from episodic judgment toward continuous learning and informed progression decisions.

From insight to impact: Mapping longitudinal student assessment performance that promoted future ready graduates

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Background and Statement of Aim(s): As pharmacy programs continue to transform their educational approaches to address emerging pharmacy practice models, more information is needed on strategic and effective approaches for assessing students' capabilities and practice readiness. Currently, most academic institutions systematically monitor final course grades (macro),[1] which limits insights provided by in-course assessments (micro) that can be used to identify students at risk as well as those exceeding expectations across the curriculum prior to final course grade determination.[2,3] This project describes a systematic approach to monitor real-time individual student academic performance longitudinally across the curriculum that promotes practice-ready graduates.

Methods: Scores on major exam assessments (micro) and final course grades (macro) from all required coursework in the pharmacy curriculum were collected and transformed into a longitudinal data visualisation platform. Assessment data represented both the required didactic curriculum and experiential curriculum. Data were presented at the individual student-level and organised by semester, required course, final course grade, and in-course exam score. A heat map visualised each student's performance on all assessments. Benchmarks were used to identify students performing above, at, or below expected benchmarks.

Results: Over 97,000 data points representing 841 students' performance on required didactic and required experiential assessments in 43 courses over three academic years were included in the initial data visualisation. An overall flag frequency metric quantified student performance above, at, or below expectations. Patterns of performance variability emerged across semesters.

Discussion and/or Conclusion: A longitudinal, student level performance dashboard integrating micro- and macro-level assessment data provides a more comprehensive view of learner progression across the curriculum. The system supports proactive, individualised academic interventions and strengthens efforts to graduate practice ready pharmacists.

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Advancing a future ready pharmacy workforce: Longitudinal interprofessional education assessment strategies involving multiple health professions education programmes

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Background and Statement of Aim(s): Developing future-ready pharmacists who can excel in collaborative, team-based care requires intentional integration of interprofessional competencies throughout the curriculum. As programs expand didactic interprofessional education (IPE), pharmacy educators continue to seek evidence-informed approaches to assessing competency development [1,2]. The purpose of this session is to examine assessment considerations for evaluating interprofessional competency growth within didactic IPE activities involving pharmacy learners alongside multiple health professions.

Methods: A coordinated assessment strategy was implemented across pharmacy and several other health professions programs to evaluate students' development of IPE competencies through participation in intentional didactic IPE experiences. Assessment strategies included student self-evaluation of their self-efficacy of their IPE competency [1-2] using a retrospective-pre and post-evaluation.

Results: More than 7,500 students across 18 disciplines participated in IPE activities assessed. Pharmacy learners, consistent with peers from other professions, reported increased confidence in several IPE competencies after participating in these didactic curricular activities. These findings suggest the didactic IPE curriculum is supporting measurable growth in IPE competency development.

Discussion and/or Conclusion: As pharmacy education continues to transform its education models for emerging practice needs, scalable strategies to evaluate interprofessional collaborative-practice readiness are essential. Insights from this multi-disciplinary assessment effort highlight key design elements for assessing student growth and practice-readiness. These considerations can help pharmacy programs strengthen alignment between curricular structure, competency expectations, and the evolving demands of collaborative practice [1-2].

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Viva assessment supports personal authenticity, engagement and skills development in pharmaceutical sciences education

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Background and Statement of Aim(s): Viva assessments are often positioned as hallmark examples of authentic assessment, yet empirical research on students' lived experiences of authenticity remains largely confined to clinical education contexts. In non-clinical settings such as pharmaceutical sciences, where oral examinations are increasingly introduced to support professional readiness and address academic integrity concerns in the age of generative AI, little is known about whether students experience vivas as personally meaningful, engaging, or conducive to skill development. Drawing on authenticity as an emergent, learner-centred construct, this study examined how students experience viva assessments in terms of personal authenticity, and how these perceptions relate to engagement and perceived skills development.

Methods: A cross-sectional survey was administered to students enrolled in a Master of Pharmaceutical Sciences programme following completion of a coursework-based viva assessment. The survey measured perceived personal authenticity, engagement, and perceived skills development. Of 209 eligible students, 196 completed the survey. Data were analysed using descriptive statistics and latent variable modelling with robust estimators.

Results: Students reported high levels of perceived authenticity, particularly in relation to real-world relevance and competence development. Perceived authenticity was positively associated with engagement and with confidence in verbal communication, problem-solving, and professional self-concept. Exploratory modelling further suggested that experiences of choice and challenge were salient in shaping perceptions of skills development.

Discussion and/or Conclusion: These findings suggest that viva assessments can function as authentic learning experiences in pharmaceutical sciences education when they support agency, challenge, and professional meaning. Beyond replicating real-world scenarios, authenticity appears to be experienced through how students are positioned as thinkers and emerging professionals, informing future-ready assessment design that supports engagement, skills development, and professional identity formation.

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Embedding cultural diversity in pharmacy education: Evaluating the impact of CulturaLearn on student engagement and inclusion

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Background and Statement of Aim(s): Cultural competence is essential in healthcare education to educate future practitioners for diverse populations.[1] Embedding diverse case studies in pharmacy curricula aligns with inclusive pedagogy, fostering belonging and engagement while enhancing motivation and relevance.[2] This project aimed to enrich pharmacy education with CulturaLearn, a repository of culturally diverse case studies and narratives, to cultivate cultural competence, support awareness, inclusion, and reflexivity, and evaluate its impact.

Methods: In 2024, CulturaLearn was piloted as a curated resource embedding culturally diverse case studies into a second-year undergraduate pharmacy course. A pre- and post-evaluation design was used, including Likert-scale items on cultural representation, satisfaction, and attitudes, plus closed- and open-ended questions on cultural awareness and curriculum relevance. Quantitative data were analysed descriptively, and qualitative responses were analysed using inductive thematic analysis.

Results: Pre-implementation responses (n=110) indicated only 16% of students had formal cultural diversity training, yet perceived curriculum diversity was moderately high (mean=3.8/5). Students highly valued incorporating cultural contributions (mean = 4.41/5) and representation in pharmacy education (mean = 4.16/5). Awareness of global scientific contributions improved slightly post-intervention, and 20% of students engaged with culturally diverse case studies, reporting them as impactful. CulturaLearn enhanced understanding of pharmacy topics for 50% of respondents, but confidence in working with diverse populations declined (4/5 to 3/5), suggesting increased awareness of knowledge gaps. A common theme identified was that students valued diversity, inclusion, representation and open cultural dialogue. Overall satisfaction was high (97%), with recommendations for broader integration of cultural content and increased representation of Aboriginal and Torres Strait Islander people.

Discussion and/or Conclusion: Students value diversity and perceive benefits to learning and engagement when integrated into pharmacy education. CulturaLearn improved awareness and understanding but highlighted complexities in confidence and inclusion, suggesting sustained, embedded approaches are needed rather than isolated activities. Future curricula should combine implicit representation with explicit instruction to foster cultural competence and confidence.

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A pilot study to assess the impact of a longitudinal Work Integrated Learning Placement for 2nd year Pharmacy Students

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Background and Statement of Aim(s): Work Integrated Learning (WIL) is a core component of pharmacy degrees, though its delivery varies between programs. Accreditation standards take an outcomes-based approach, specifying required performance outcomes rather than mandating WIL hours. WIL is typically delivered as block placements in the later years of study. The study hospital network offers WIL placements for pharmacy students and also employs students as casual pharmacy technicians, providing flexible shifts

aligned with course requirements. In 2024, the authors explored the feasibility of providing second-year students with regular workplace exposure across a semester and evaluated this model against a traditional third-year block placement.

Methods: A convergent mixed-methods design was employed to compare two models. Second-year pharmacy (P2; n=12) students completed a 12-week longitudinal WIL (one day per week) focused on operational tasks. Third-year pharmacy (P3; n=10) students completed a two-week intensive block WIL focused on clinical experiences. Data were gathered from surveys and focus groups with students and supervisors.

Results: P3 students reported greater placement enjoyment than P2 students (Median [Q1 – Q3]: 5 [5 – 5] vs 4 [4 – 4]). Qualitative analysis revealed cohort differences: P2 students described observational and operational engagement, whereas P3 students reported active clinical participation. Regarding workplace contribution, only P3 students reported a significant increase from pre- to post-WIL. Supervisors perceived P3 students as more prepared for entrustment with clinical tasks.

Discussion and/or Conclusion: The longitudinal and block WIL models fostered different but stage-appropriate outcomes. The longitudinal model proved effective for developing foundational, operational skills in early-stage students, while the intensive block model was better suited for promoting active clinical participation and a sense of workplace contribution in later-stage students. Educators can therefore purposefully tailor WIL models to align with students' developmental stages and specific learning objectives.

A dose of mentorship

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Background and Statement of Aim(s): The importance of mentorship programs in academia has been recognised for over a decade. The benefits of mentorship for faculty members are extensive, including enhanced self-perceived abilities in teaching, research and service activities, as well as support in achieving career goals, increased job satisfaction, productivity, retention and career progression. The main objective of this program is to highlight a digital badging/micro-credentialing program on mentoring for faculty members.

Methods: A digital credential badge titled “A Dose of Mentorship” was created within the health science schools for faculty members. A badge is a visual item that represents skills and knowledge learned and acquired and is earned by completing the program requirements. Faculty members who earned this badge attend three seminars with workshops, discuss and create mentor-mentee case studies, and complete assignments involving mentoring. The earner is ready to mentor faculty members, postgraduate trainees, and students using the four pillars of mentoring: communication, aligning expectations, fostering independence, and promoting professional development.

Results: The badge adapted the concepts from The Center for the Improvement of Mentored Experiences in Research (CIMER). Evidence based mentoring results show the achievement of four goals: matching and linking mentors, training to improve mentoring, increasing access and network, and promoting the value of mentoring. Diversity across research roles, reduction in faculty turnover, improvement in job satisfaction, and the value of academia has been reported with mentoring programs.

Discussion and/or Conclusion: Mentoring is a collaborative learning relationship among the mentor and mentee. The digital credential badge is a part of faculty professional development to enhance and develop their skills in mentoring, especially for faculty members who have mentees. The effectiveness of mentoring is well-documented in the literature. Successful mentorship is strengthened by professional development, assessment, and a formal mentoring program.

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Embedding systems thinking for responsible chemistry in pharmaceutical and cosmetic science education

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Background and Statement of Aim(s): Calls to innovate curricula have urged that "an ethic of responsibility must be woven deeply… (into) education at every level" [1]. Recently, the International Union of Pure and Applied Chemistry launched the Guiding Principles of Responsible Chemistry, identifying systems thinking (ST) as core competency for responsible innovation. Research shows that ST strengthens students' ability to recognise chemistry's role in societal and environmental challenges [3]. ST commonly involves mapping components and relationships, linking production and material use with waste and impacts on social and environmental systems, to reason about implications of design formulation and human activities. This presentation reports on the integration of ST within a final-year pharmaceutical science unit (BPS3061-Industrial Project). In an intensive, industry-facing curriculum, over 150 students worked in multidisciplinary teams to design, formulate, and present a cosmetic range, including a skincare brand, applying concepts from formulation chemistry, regulatory science, and product design.

Methods: Following instruction in Systems-Oriented Concept Map Extensions (SOCMEs), students visualised lifecycle and design decisions for their products in relation to sustainability. SOCMEs were used to examine material sourcing, manufacturing, end-of-life considerations, and alignment with green, sustainable, and responsible chemistry principles. These maps formed part of final presentations at a Cosmetic Expo judged by industry professionals. The SOCMEs were analysed using qualitative and quantitative approaches.

Results: Findings indicate that students meaningfully connected formulation and design concepts to sustainability challenges and demonstrated emerging systems-level reasoning. However, most did not deviate substantially from the initial map scaffold of sub-systems provided, suggesting ongoing uncertainty in independently being able to extend system complexity.

Discussion and/or Conclusion: While implemented through a cosmetic formulation project, this presentation will outline how the ST-oriented pedagogical framework is designed to be transferable across pharmacy contexts, including supply chains, patient use and environmental impact.

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Aligning capstone pharmacy course assessment with Australian Pharmacy Council performance outcomes: A step towards programmatic assessment

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Background and Statement of Aim(s): The University of Queensland (UQ) Bachelor of Pharmacy (Honours) program recently underwent a redesign which culminated in its capstone pharmacy practice course being developed and taught for the first time in Semester 2, 2025. The aim of the program redesign was to embrace new and authentic approaches to curriculum design, delivery, and assessment towards producing more practice-ready graduates. For this capstone course, the traditional GPA and hurdle assessments required to pass the course did not authentically align with or assess the wide range of skills and competencies required of graduates into the pharmacy profession. Thus, a new assessment approach was developed to assess student competency against the domains of the Australian Pharmacy Council (APC) Performance Outcomes Framework (2020).The University of Queensland (UQ) Bachelor of Pharmacy (Honours) program recently underwent a redesign which culminated in its capstone pharmacy practice course being developed and taught for the first time in Semester 2, 2025. The aim of the program redesign was to embrace new and authentic approaches to curriculum design, delivery, and assessment towards producing more practice-ready graduates. For this capstone course, the traditional GPA and hurdle assessments required to pass the course did not authentically align with or assess the wide range of skills and competencies required of graduates into the pharmacy profession. Thus, a new assessment approach was developed to assess student competency against the domains of the Australian Pharmacy Council (APC) Performance Outcomes Framework (2020).

Methods: Each individual criterion for all assessments in the course was aligned with one of the five domains of the APC Performance Outcomes Framework (Professionalism in

Practice, Communication & Collaboration, Professional Expertise, Leadership & Management, and Research, Inquiry and Education). The total marks available across the semester were tallied for each domain. In place of individual assessment hurdles, students were required to demonstrate competency by achieving at least 50% of the total marks in each of the five domains over the whole course.

Results: Approximately four percent of students who otherwise would have passed the capstone course on GPA alone were required to sit supplementary assessment for not achieving 50% of the marks in one or more of the domains, primarily Professional Expertise. Conversely, many students who would have failed due to a high-stakes hurdle assessment (e.g. OSCE) were able to demonstrate overall competency across domains and pass the course.

Discussin and/or Conclusion: This approach provides a means to assess pharmacy students against professional outcomes and capabilities without relying on individual assessments for each outcome or applying hurdles to all assessments. While this approach utilised whole domains, it paves the way towards programmatic assessment focusing on individual outcomes and capabilities.

From green chemistry to green pharmacy: A 90-minute interactive digital learning framework for sustainable pharmaceutical sciences

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Background and Statement of Aim(s): The role of sustainability in healthcare and pharmaceutical sciences has received increasing attention due to environmental, regulatory, and workforce-related challenges. Therefore, an interactive educational session was developed for pharmacy students to promote pharmaceutical life-cycle thinking, environmental risk reduction, and sustainability-related professional competencies. The primary aim was to support the application of sustainability principles to real pharmaceutical cases through collaborative and immersive learning approaches that facilitate decision-oriented reasoning.

Methods: The 90-minute session combined short conceptual inputs with digital tools and small-group collaborative work. Student engagement was supported using Slido for real-time polling and formative questioning, and Genially for visual, gamified content presentation. This was followed by a structured group-based activity in which students analysed real active pharmaceutical ingredients with respect to environmental risk, applied green chemistry principles, and proposed upstream and downstream mitigation strategies aligned with pharmaceutical decision-making contexts. The session design emphasised active participation, collaboration, and decision-oriented reasoning.

Results: The format resulted in high levels of student activity and collaboration among participating pharmacy students (n = 15). Students demonstrated the ability to apply green chemistry principles to concrete pharmaceutical cases, distinguish between upstream and downstream sustainability interventions, and articulate the pharmacist's role in mitigating environmental impact. Group outputs reflected coherent life-cycle thinking. Qualitative feedback indicated improved conceptual understanding and perceived relevance compared to traditional lecture-based teaching formats.

Discussion and/or Conclusion: This educational case indicates that a time-limited, structured interactive format can effectively integrate sustainability-related concepts into pharmacy education while supporting the development of collaborative and workforce-relevant competencies. The combination of digital interactivity and group work supported active learning, systems-level reasoning, and professional decision making. This framework may serve as a transferable model for embedding green chemistry and green pharmacy perspectives into pharmacy curricula, with potential for adaptation to multidisciplinary and practice-oriented educational settings.

Redefining the researcher's role: Sustainability, ethics, and professional identity formation in doctoral health sciences education

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Background and Statement of Aim(s): Sustainability is increasingly recognised as a critical challenge in healthcare, however, its integration into biomedical and pharmaceutical research education remains fragmented and often treated as an optional or technical consideration. To address this gap, an interdisciplinary doctoral-level course entitled Sustainability in Medical and Pharmaceutical Research was developed within doctoral pharmacy education. The course positions sustainability as a core professional value rather than a methodological add-on, explicitly integrating environmental, social, economic, and ethical dimensions. The primary aim was to support the professional identity formation of early-stage researchers, emphasizing responsibility, ethical

awareness, and long-term societal impact alongside scientific excellence.

Methods: The course was implemented as an early-stage pilot educational innovation with a small cohort of PhD students (n = 5), reflecting the typical scale of doctoral education. Teaching activities combined interactive lectures, guided discussions, reflective tasks, and collaborative exercises. Core topics included sustainability challenges in healthcare and research, ethical decision-making, sustainable research design, and circular approaches. Students critically analysed their own research projects using sustainability-informed decision frameworks.

Results: Early qualitative observations derived from guided reflective tasks and facilitated discussions indicated engagement and reflective depth. Students demonstrated an increased ability to articulate the environmental, ethical, and societal implications of their research and to position sustainability as an integral component of responsible research practice. Reflections suggested a shift in professional self-concept, with participants recognising future roles as research leaders, educators, and policy advisors responsible for shaping sustainable research cultures.

Discussion and/or Conclusion: This early implementation suggests that doctoral education provides a critical window for embedding sustainability with researcher identity and leadership development. By framing sustainability as a guiding value and decision-making lens, the course supports future-oriented research mindsets. The framework may be transferable to other doctoral and postgraduate health science programs, however, further evaluation with larger cohorts is required.

Custom AI tools in pharmacy and pharmaceutical science education: Construction, deployment, and student interactions

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Background and Statement of Aim(s): Generative AI presents new opportunities for discipline-specific, on-demand learning support, particularly in complex domains such as chemistry and physiology. This presentation reports on a cross institutional Monash-Warwick collaborative project that develops and evaluates custom GPTs designed to scaffold student problem solving in pharmacy and pharmaceutical science. Using the Goldilocks Help framework [1] as a pedagogical foundation, we constructed course-specific GPTs that offer Socratic prompts to support metacognitive engagement, while minimising the risk of reliance and over dependence on AI-generated answers.

Methods: The implementation process involved iterative refinement and rigorous testing, both for accuracy and for Socratic capability. Our mixed-methods study investigates how students interact with these custom GPTs compared to open-access chatbots, drawing on usage data, perception surveys, and think-aloud interviews. Preliminary findings suggest that students adopt distinct prompting strategies depending on their familiarity with the subject matter, problem-solving mindset (instrumental or concept-driven), and the perceived authority of the chatbot. The custom GPTs were more likely to elicit structured engagement aligned with learning objectives, while open tools tended to promote trial-and-error approaches.

Results: We discuss how the design of prompt scaffolds and model behaviour can influence student cognition, affect, and regulation during problem solving. We also highlight how student co-design contributed to the tool's usability and perceived relevance.

Discussion and/or Conclusion: As a practical take-away for others looking to design customised chatbots for their courses, we offer a skeleton template for a system prompt and simple steps to customise it for various contexts. This work has broader implications for the development of GenAI-driven support tools in STEM education and offers a scalable model for embedding discipline-aligned pedagogical principles into generative AI applications.

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OSCE cost drivers and use: A global perspective

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Background and Statement of Aim(s): OSCEs are an industry standard in the education of many healthcare professions, with positive perceptions from educators and learners from multiple fields [1-3]. However OSCEs are resource intensive and despite the increasing need for cost-effectiveness due to competing demands for resources in organisations, there is limited research on economic cost evaluations. The objective was to identify high costs related to OSCE delivery by comparing costs and faculty perspectives of OSCEs at pharmacy schools in four countries (Australia, Malaysia, United Kingdom, United States); with an overarching aim to better inform investment in these assessments.

Methods: A retrospective cost-analysis study was conducted. Total OSCE cost was measured at four institutions followed by expert panel discussions regarding reasons and drivers for costs. The Ingredients Method was used to measure and analyse costs. Panel discussions were analysed using content analysis.

Results: Average cost per student ranged from USD 291 for the United Kingdom-institution high-cost OSCE to USD 23 for the Malaysian-institution low-cost OSCE. Differences in cost resulted from different OSCE design choices, local/institution-specific pricing, and cohort sizes. Cost of examiners was consistently the largest contributor to total cost, ranging from 26% to 48% of total cost. Standardised patients, where used, were another substantial cost ranging from 15% to 24% of total OSCE cost. Panel discussion analysis highlighted choices to manage costs revolved mainly around exam integrity and complexity of skills to be assessed.

Discussion and/or Conclusion: Some costs are modifiable and astute design choices may help make OSCEs more cost-efficient. By identifying the main design levers that drive OSCE costs and classifying cost components by their modifiability, this study offers a practical framework that other programmes can adapt to their own context.

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Asking and appraising: How pharmacy students interact with Generative AI to answer clinical questions?

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Background and Statement of Aim(s): Generative artificial intelligence (GenAI) tools are increasingly used by pharmacy students to support learning and assessment tasks. However, limited empirical evidence exists on how students interact with GenAI and how such interactions influence knowledge acquisition, skill development, and learning outcomes.[1] This study aims to examine how pharmacy students communicate with GenAI, the factors influencing these interactions, and their implications for student learning outcomes.

Methods: Participants were asked to respond to an identical clinical question under two conditions: initially without GenAI support, followed by access to a GenAI chatbot (e.g. ChatGPT, DeepSeek). Student–GenAI interactions, including prompts entered into the GenAI platform, were analysed using qualitative coding to identify question-asking approaches, and student responses were compared before and after GenAI use to examine changes in accuracy, grammar, cohesion, and wording.

Results: Thirty pharmacy students (n = 30) enrolled at a university with campuses in Australia (n = 18) and Malaysia (n = 12) participated in this study. Most student prompts focused on confirming clinical information or refining wording, whereas less than half involved seeking clarification or feedback. Students with more complete initial responses typically asked one-off prompts, whereas others engaged in extended conversational exchanges and made more substantial changes to their initial answers. The majority of responses produced after GenAI use were clearer and more

structured, using more patient-friendly language. However, effects on clinical accuracy and conceptual understanding were mixed, with some inaccuracies introduced following GenAI use.

Discussion and/or Conclusion: Thus, GenAI can serve as a supportive bridge that helps students improve their learning and clinical communication, while improvement in clinical understanding appears to be influenced by how students ask questions of GenAI and critically appraise AI-generated responses. These findings highlight the importance of educational approaches that support responsible interaction with GenAI, including ethical use and critical appraisal of AI-generated content, to promote effective learning in pharmacy education.

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Preparation density: A quantitative, student- and staff-facing approach to assessment planning in an integrated MPharm curriculum

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Background and Statement of Aim(s): Assessment structures strongly influence how, what, and when students study outside scheduled teaching.[1] In assessment-intensive programmes such as pharmacy, overlapping preparation demands risk compressing engagement with learning activities. Constructive alignment emphasises designing assessment and curriculum structures that support intended learning processes.[2] Traditional assessment calendars display deadlines but do not represent cumulative preparation burden across concurrent modules. The aim of this work was to develop outputs to make assessment-driven workload compression visible and actionable.

Methods: Assessment data for one semester of an MPharm programme were collated, including module credit value, assessment weighting, release dates, deadlines and defined preparation windows. Weighted assessment value (module credit × assessment weighting) was distributed across preparation days and summed across concurrent modules to generate daily preparation density. Outputs included student-facing calendars and heatmaps and staff-facing analytics enabling inspection of individual- and cohort-level workload distributions. Pilot student feedback on the student-facing outputs was collected using a short Microsoft Forms survey.

Results: Preparation density visualisation identified workload peaks arising from overlapping preparation windows that were not apparent from deadline-only calendars. Fourteen students completed the pilot survey. Most respondents agreed or strongly agreed that the calendar was easy to understand (11/14), useful for planning study (10/14), and effective at identifying high-workload periods (13/14). Free-text responses highlighted improved awareness of busy periods and support for forward planning. Staff-facing outputs demonstrated the capability to examine assessment load at individual and cohort level; formal evaluation of staff use has not yet been undertaken.

Disussion and/or Conclusion: Preparation density provides a transparent and scalable method for modelling assessment workload aligned with evidence that assessment design shapes out-of-class learning behaviour[1] and with constructive alignment principles[2]. Early student feedback suggests the approach is intuitive and potentially useful. Staff-facing analytics offer a novel mechanism to support assessment sequencing, curriculum planning and programme-level quality assurance. Further evaluation is required.

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Student pharmacists take action on the social determinants of health

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Background and Statement of Aim(s): The importance of public health (PH) in the education of pharmacists has long been recognised as essential in the preparation of student pharmacists to generate social and physical environments that promote all inclusive health. An investigation into healthcare students' perceptions about their role, confidence and competence to deliver brief PH interventions and advice also found that there was a sense of insufficient time and appropriateness to deliver health promotion advice and signpost to services in the patient pathway (McLean *et al.* 2018). Even though prescribing and PH are core component of the pharmacists role within the curriculum they are often treated as distinct areas and there is a risk of graduates lacking competence and confidence in clinical decision making and meaningful engagement in population health initiatives (O'Neill and Rajiah 2025).

Methods: The vision of this project is to shape future development of Experiential Learning (EL) for student

pharmacists in Northern Ireland and agree an ambitious core PH element which will prepare student pharmacists to generate social and physical environments that promote all-inclusive health within Healthy Living Centres (HLCs) which promote stronger legacies for healthier communities.

Results: Ethical approval granted by UU FCBMS-25-087-B and approval affirmed by QUB faculty rec MHLS . Student pharmacists who would like to undertake one day of EL in HLC were invited to complete an expression of interest (EOI) form detailing each of the HLCs participating in the project. 20 students from each university were allocated to the HLCs. Following the completion of experiential learning and reflection on their entrustable professional activity (EPA) a focus group discussion (FGD) was conducted to gather feedback from participants.

Discussion and/or Conclusion: FGDs revealed both student pharmacists and project co-ordinators from HLC had a positive perception and grasped the gravity of the population health model and the relevance it has for them in supporting people within their communities. The project demonstrates undeniable need and yearning from student pharmacists and HLA to develop EL including a core PH model element within the MPharm as the results illustrate limited knowledge and training around the delivery of brief interventions at an early stage in their profession.

Factors influencing assessment outcomes in pharmacy students: Implications for curriculum design and student support

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Background and Statement of Aim(s): Despite equivalent educational provision, pharmacy students at XXX continue to demonstrate variation in assessment outcomes. While cognitive ability has traditionally been emphasised, growing evidence highlights the importance of non-cognitive, behavioural and lifestyle factors.[1-2] The aim was to identify student-specific factors associated with higher and lower academic performance in a Master of Pharmacy (MPharm) programme, to inform curriculum design and targeted academic support.

Methods: Following faculty ethical approval, an online questionnaire study was conducted among XXX MPharm students in 2025, with students in the highest (Q1) and lowest (Q4) academic quartiles invited to participate (n = 204). The questionnaire covered study environment, study habits, personal and lifestyle factors, and motivation and support, informed by Walberg's theory of educational productivity.[1] Data were analysed using chi-square tests in SPSS (version 29), with Holm–Bonferroni correction applied to control the family-wise error rate. Statistical significance was set at $p < 0.05$.

Results: Ninety students completed the questionnaire (response rate 44%; Q1 n = 50, Q4 n = 40). Higher-achieving students were significantly more likely to report motivation by high grades (extrinsic motivation) compared with lower-achieving students (corrected p = 0.002). Lower-achieving students more frequently reported fear of failure and personal expectations as primary motivators. Additional trends (not statistically significant after correction) associated higher academic performance with longer average sleep duration, lower social media use, home-based study environments, and greater use of active recall strategies (such as completing past-papers).

Discussion and/or Conclusion: This work highlights the complex and sometimes counter-intuitive role of motivation and lifestyle factors in students' assessment outcomes, albeit at one institution only. The prominence of fear-based motivation among lower-achieving students has implications for assessment design, academic support, and student wellbeing. Interventions that promote self-efficacy, growth-oriented goal setting, healthy study behaviours and active learning strategies may support improved assessment performance and the development of competent future pharmacists.

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Integrating social care into pharmacy interprofessional education through holistic collaborative learning

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Background and Statement of Aim(s): Pharmacy education is increasingly expected to prepare students to address social determinants of health (SDOH) and health inequalities through collaborative, patient-centred care. However, social care remains inconsistently integrated into interprofessional education (IPE) within pharmacy curricula [1]. To address this

gap, we developed a cross-disciplinary, case-based interprofessional learning activity that embeds social care decision-making and referral pathways within a multidisciplinary context. This study aims to evaluate the effectiveness of this activity and assess its impact on student's understanding, confidence and applied reasoning.

Methods: A pre–post social care IPE evaluation survey was administered following a structured, case-based IPE workshop for MPharm students at University College London (UCL) and MSc students in Public Health and Health & Social Care Leadership & Management at London Metropolitan University. The workshop used realistic patient scenarios embedding SDOH and social care challenges, with matched questionnaires assessing changes across four domains: SDOH understanding, social care and referral confidence, interprofessional collaboration, and public health and system awareness. Descriptive statistics, non-parametric paired tests, and thematic analysis of free-text responses were used.

Results: A total of 140 matched responses were analysed, with improvements observed across all four domains. The largest gains were in SDOH identification and understanding and in public health and healthcare system awareness, alongside increased applied social care and referral confidence, while interprofessional role clarity showed a ceiling effect due to high baseline scores but was further consolidated by the workshop. Qualitative findings showed a shift from abstract awareness to applied, action-oriented reasoning, including greater reference to referral pathways and multidisciplinary collaboration.

Discussion and/or Conclusion: These findings demonstrate the effectiveness of integrating social care into pharmacy IPE through case-based learning. This holistic, collaborative approach enhances strengthens interprofessional competencies, and promotes systems level thinking, preparing future pharmacists to address SDOH and contribute to equitable and sustainable healthcare systems.

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Introducing MyDispense as a tool to support placement and practice radiness in a new School of Pharmacy

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Background and Statement of Aim(s): In August 2024, The University of Bath began delivering its highly ranked MPharm programme at the University of Plymouth campus. Purpose built facilities enabled innovation within Applied Pharmacy Practice Skills (APPS), a long established, practice based component of the curriculum which is designed to support the application of theory taught in lectures through simulated pharmacy activities. MyDispense, an online pharmacy simulation platform1, has been embedded within APPS to complement existing teaching structures while translating paper-based activities into authentic digital equivalents across community and hospital practice. In particular, the Electronic Health Record (EHR) module replaced paper drug charts and notes, reflecting contemporary electronic prescribing and documentation systems and supporting the development of students' digital literacy.

Methods: Across nine Year 2 APPS classes, students completed MyDispense activities designed to deliver simulated experiences not previously feasible in the classroom and aligned to teaching elsewhere in the curriculum. End-of-semester evaluation used a Microsoft Forms survey (Likert scales and open responses). Data were extracted and analysed in Microsoft Excel.

Results: Students supported the continued use of the MyDispense platform in APPS classes and agreed that the hospital (EHR) activities were more realistic than paper drug chart activities when considering electronic systems encountered during secondary care placements, helping prepare them for future practice. Students reported:

"It's very realistic … and helps get used to seeing lots of information like the hospital system."

"It did help checking drug charts … which would be online in practice."

Discussion and/or Conclusion: We have demonstrated that MyDispense supports practice-focused learning in APPS, particularly through EHR-based hospital activities. Exposure to realistic electronic workflows may help bridge the gap between classroom learning and placement experience, supporting students' confidence when navigating clinical systems. Future work will explore longitudinal integration across the MPharm curriculum and evaluate impact on preparedness for practice.

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Immersive simulation for pharmacy education: A framework for collaborative learning

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Background and Statement of Aim(s): Immersive simulation (IS) is an innovative pedagogical approach in pharmacy education that enables learners to engage in realistic scenarios designed to enhance clinical judgment and collaborative skills. To strengthen experiential learning within the PharmD and international pharmacy graduate bridging program (QeP), the Faculty of Pharmacy initiated a project to integrate IS into its curriculum as part of the optimisation of skills laboratories. The primary aim was to design and implement authentic simulation environments and activities that complement existing skills laboratories.

Methods: A multidisciplinary working group—including professors, clinical instructors, coordinator, pharmacy technician, and program director—conducted a needs assessment and strategic planning process. Targeted competencies for IS were defined for each trimester of both programs. A focus group identified over 20 relevant professional situations, including crisis resource management cases. Infrastructure development involved collaboration with architects and IT specialists, to design simulated community pharmacy spaces, integrate audiovisual recording systems, and secure essential resources such as hardware, pharmaceutical supplies, and trained personnel (facilitators, simulated patients, support staff).

Results: By Fall 2025, construction of the simulation spaces was completed, and immersive simulation activities with structured debriefing were implemented. All 2nd- and 3rd-year PharmD students, as well as 1st-year QeP students, participated in IS activities, representing a total of 415 students. To date, seven of the 15 planned scenarios applicable to both programs have been developed and IS is progressively integrated into the curriculum.

Discussion and/or Conclusion: The integration of IS into pharmacy education offers students a safe and controlled environment to develop technical, interpersonal, and decision-making skills prior to real patients encounters. This pedagogical innovation enhances collaborative learning and better prepare graduates for the complexities of clinical practice. Future evaluations will focus on assessing the impact of IS on student performance, confidence and readiness for professional roles.

A novel use of Gradescope to manage MPharm OSCE marking - a case study

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Background and Statement of Aim(s): Objective Structured Clinical Examinations (OSCEs) are a time- and resource-intensive assessment used across many healthcare programmes. The use of technology to support the management of assessments has been developing in higher education in recent years. The use of an online assessment management tool, Gradescope, was developed and trialled to support the delivery of OSCEs for an MPharm programme. This is a novel use of Gradescope. The aim of the study was to trial the use of Gradescope to support the marking and mark management of OSCEs in an MPharm programme.

Methods: A small team of Technology Enhanced Learning experts from the university's staff development department and Pharmacy academic staff worked on converting existing OSCE resources into a format that would be compatible with Gradescope. The main adjustment was the reformatting of the OSCE marking schemes to be compatible with being scanned and then digitally 'read' by the Gradescope tool, which then 'marked' the scripts and compiled marks for individual students, as well as assessment statistics such as average marks and individual marking criterion mark distributions. The new format was piloted during the formative mock OSCEs for Year 2 students, which resulted in some refinements to the process, and the refined version was then used successfully in the summative OSCEs during the end of year assessment period.

Results: The new format was used successfully. Benefits included reduction of handling paperwork which saved staff time, accessing scans from any location to facilitate moderation; automatic production of assessment statistics, easier sharing of scripts with students for feedback. Limitations included Gradescope not being able to process anything it is not 'expecting', which then requires manual intervention.

Discussion and/or Conclusion: The use of Gradescope to manage OSCE marking was successful. Next steps include converting paper marking schemes into direct on-screen marking.

Using debating as a critical thinking and communication tool in the Pharmacy Curriculum at the University of the Western Cape

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Background and Statement of Aim(s): The South African Pharmacy Council specifies in its exit level outcomes and associated competencies that pharmacy students should be able to interrogate, critically analyse, evaluate and transmit knowledge based on current research in the pharmaceutical and relevant clinical and social sciences [1]. At the University of the Western Cape, structured debates were therefore developed and integrated at the second-year level to facilitate active participation in a co-operative and interactive process; introduce students to controversial topics in health and pharmacy in South Africa; exercise verbal communication; think deeply, logically and critically; clearly articulate arguments; use appropriate evidence to support ideas and to appreciate diverse opinions. This abstract details the implementation and evaluation of the structured debate assessment.

Methods: Debates are conducted in paired groups, with students assigned to argue either for or against a resolution. Topics include pharmaceutical care, feasibility of the National Health Insurance in South Africa, HIV prevention strategies, the Essential Medicines Programme, and interventions such as the sugar tax. Each debate follows a standardised format - assertion, reasoning and evidence based on published and grey literature. Assessment is guided by a rubric that considers argument quality, use of evidence, organisation, communication style and professionalism.

Results: The results are based on student evaluation of the debates and the course. Students generally reported positive perceptions of debate-based learning outcomes. This positive perception appears to have increased over time. The majority of students reported that participation in debates supported the ability to create new knowledge, apply information across a range of contexts, and develop a thorough understanding of ethical and professional issues. Debates also enhanced their capacity to work independently and collaboratively, and to communicate effectively using various formats. Engagement with peers from diverse perspectives was also rated highly.

Discussion and/or Conclusion: The debates are a useful tool for developing critical thinking skills, communication and professional identity formation among undergraduate pharmacy students. These skills are transferable to pharmacy practice in real world settings.

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Designing a transformative UK Master of Pharmacy undergraduate curriculum

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Background and Statement of Aim(s): The evolving landscape of United Kingdom (UK) pharmacy practice requires pharmacy graduates to be prepared for evolving clinical, prescribing and patient-facing roles.1 The aim of this work was to co-create a transformative Master of Pharmacy (MPharm) programme with key stakeholders.

Methods: Stakeholders representing community, hospital, primary care and industrial pharmacy, alongside the statutory education body, employers, patients, pharmacy students and foundation-year trainee pharmacists participated in a series of meetings. Stakeholder perspectives on the programme structure, placement model and assessment approaches were explored to ensure our future graduates are equipped with the knowledge, skills and behaviours required for contemporary practice.

Results: Stakeholders identified gaps in underpinning scientific knowledge among students, foundation-year trainees and early-career pharmacists. Confidence in communication and clinical reasoning were also highlighted as areas for student development. Stakeholders strongly supported the non-modular approach to curriculum design. Assessments embedding generative Artificial Intelligence in meaningful ways were considered beneficial. A continuum model, sequencing learning from the classroom through simulation to placement-based practice, was recognised as central to scaffolding learning and building confidence. Stakeholders favoured a multisector-rotation model to ensure that students are exposed to a diverse range of pharmacy practice settings. Patients as educators was identified as an essential component of student learning to prepare them for person-centred practice.

Discussion and/or Conclusion: The co-design of an integrated, non-modular MPharm curriculum ensures student readiness by integrating science and practice, ensures prescribing preparedness through enhanced interdisciplinary learning and supports integrated, authentic assessment reflecting emerging practice. Sustained stakeholder involvement is key to shaping curriculum design, development and delivery, ensuring graduates are prepared to meet evolving clinical, prescribing, and patient-centred demands in UK pharmacy practice.

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Exploring models to support the provision of pharmacy services in rural areas of the UK using pharmacy students

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Background and Statement of Aim(s): The South West of England has a large rural and coastal geography including areas of deprivation and poverty. Despite growing ease of healthcare access, many of these communities in the UK remain medically underserved areas.(1) The NHS 10-year plan describes a drive towards community driven initiatives, with pharmacy services playing a key role. (2) The aim of this study was to identify gaps in pharmacy services in rural regions of South West England and explore opportunities for pharmacy students to provide services as supervised extenders.

Methods: This study used a qualitative descriptive design employing semi-structured interviews. Qualified pharmacists in UK practice settings or professionals with a role in the commissioning of rural pharmacy health services were included. Purposive sampling was used, and interviews were conducted online via Microsoft Teams. Analysis was undertaken using a Consolidated Framework for Implementation Research (CFIR) informed thematic approach until consensus was achieved. The project received a favourable opinion from the University of Bath ethics process.

Results: Eight interviews were completed. Determinants influencing implementation spanned multiple CFIR domains, including inner setting (workload, workflow, staffing capacity), characteristics of individuals (supervisor readiness and student capability and readiness), intervention characteristics (alignment with nationally commissioned services), and outer setting (financial pressures). Participants perceived that pharmacy students could act as implementation supporters by extending capacity and improving access. However, barriers included supervisory capacity, variable readiness for student entrustment, training, and constraints related to travel and access to systems.

Discussion and/or Conclusion: The use of students to enable the delivery of some pharmacy services was seen as positive . This has been shown to be beneficial in other geographies. Successful implementation requires targeted strategies addressing supervision, entrustment, training, workflow integration, and financial sustainability. These findings inform future trials assessing acceptability, feasibility, and impact of student-supported services in rural and coastal communities.

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Evaluating student satisfaction with clinical skills teaching and the Clinical Skills Passport on the MPharm programme

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Background and Statement of Aim(s): The General Pharmaceutical Council (GPhC) Standards for the initial education and training of pharmacists (1) place increased emphasis on graduates developing competence in clinical assessment, consultation, diagnostic reasoning and physical examination skills. In response to these requirements, the University MPharm programme introduced enhanced clinical skills teaching from September 2024. This included structured face to face skills sessions alongside an online Clinical Skills Passport designed to support consolidation and progression of practical skills. This evaluation aimed to assess student satisfaction with the enhanced clinical skills teaching and the Clinical Skills Passport, explore perceived relevance to future pharmacy practice, and examine self-reported confidence in selected clinical skills and preparedness for future clinical roles.

Methods: All Year 3 and Year 4 MPharm students were invited to complete an anonymous online questionnaire in June 2025. The questionnaire used Likert style items to explore satisfaction, perceived relevance and confidence, alongside free text questions to capture qualitative feedback. Ethical approval was not required as this work was classified as a teaching evaluation. Quantitative data were analysed using descriptive statistics, and free text responses were analysed thematically.

Results: Thirty-three students responded from a cohort of 190, response rate 17%. Most respondents 63% (n = 21) reported enjoying the clinical skills teaching, with the

majority 90% (n = 30) perceiving the skills taught as relevant to future practice as pharmacists. Self-reported confidence in performing clinical skills in patient facing settings increased following the enhanced teaching. Qualitative themes highlighted the value of a safe and non-judgemental learning environment, enthusiastic facilitators, and the opportunity to practise skills. Suggestions for further development included increased opportunities for skills practice and expansion into additional assessment areas such as respiratory examination.

Discussion and/or Conclusion: Although response numbers were limited, findings suggest that enhanced clinical skills teaching supported by an online Clinical Skills Passport is valued by students and may improve perceived confidence and preparedness for future clinical roles. These approaches will be continued and further developed within the MPharm programme.

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The impact of interruptions and distractions on pharmacists' clinical decision-making and task prioritisation: A mixed-methods study using MyDispense

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Background and Statement of Aim(s): Interruptions and distractions during pharmacist dispensing are known to account for approximately 9.4% of medication errors, occurring as frequently as every two to six minutes. Such disruptions divert attention, prevent task completion, and pose significant risks to performance, accuracy, and patient safety. Using scenarios that reflect real-world interruptions can help prepare pharmacy students for these challenges. Furthermore, understanding the strategies pharmacists employ to cope with interruptions can inform the development of best practices for student training. This study aimed to explore the impact of interruptions and distractions on task prioritisation and the clinical decision-making ability of pharmacists by using interrupted scenarios in MyDispense.

Methods: Twenty-four pharmacists with prior experience using MyDispense participated in the study. A convergent mixed-methods design, informed by Cognitive Load Theory, was used. Quantitative data were collected during a 30-minute interrupted scenario, and semi-structured interviews explored pharmacists' experiences of interruptions, task prioritisation, and coping strategies. Interview transcripts were analysed thematically, and quantitative data were summarised using descriptive statistics.

Results: Only one-third of participants completed the scenario, and 66.7% prioritised tasks incorrectly. Most participants made the correct decision to dispense; however, key steps such as fact-finding and labelling were often incomplete. Counselling was particularly limited across all cases. Qualitative analysis identified seven themes. Most participants reported that interruptions, such as phone calls, are frequent, disrupt focus, and significantly impact dispensing accuracy and patient safety. They cite task allocation as a primary mitigation strategy and mainly prioritise tasks by order.

Discussion and/or Conclusion: The qualitative findings helped explain the quantitative results, showing how interruptions reduced focus and increased mental effort during task completion. These findings suggest that interruptions affect pharmacists 'performance, workflow, and perceived patient safety, and can inform the design of more realistic interrupted scenarios in MyDispense to better prepare students for real-world practice.

Generative AI and teamwork communication: Pharmacy students' experiences with interpersonal challenges

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Background and Statement of Aim(s): Generative artificial intelligence (GenAI) is increasingly integrated into health education to support communication and task management; however, its use in teamwork-focused educational contexts remains underexplored.[1] In pharmacy education, teamwork and interpersonal communication are essential professional competencies. To explore how GenAI may support these skills, a discipline-specific GenAI tool, CognitiAI, was made available to pharmacy students from March 2025 to support teamwork and collaborative activities. This study aimed to examine how pharmacy students interact with GenAI during teamwork-focused activities and to explore students' perceptions of its role in teamwork.

Methods: A qualitative study was conducted with third-year pharmacy students enrolled at an Australian university, conducted from 1st to 30th June 2025. Students completed a teamwork-focused scenario-based activity using two GenAI tools: a general-purpose chatbot, such as ChatGPT, and CognitiAI. Semi-structured Zoom interviews explored prior GenAI use for teamwork, interaction patterns during the activity, and perceived benefits and limitations. Student–GenAI interactions and interview data were analysed using qualitative coding.

Results: Thirty students participated in the study. Fewer than one third reported prior use of GenAI to assist with teamwork, with many indicating a preference for face-to-face interaction when managing group dynamics. Students who engaged with GenAI described it as supporting communication between team members in challenging situations, particularly for those who experience difficulty with interpersonal communication. In addition, most participants preferred CognitiAI for teamwork-related scenarios due to its contextual relevance and structure, while others favoured general-purpose tools for familiarity or quicker responses.

Discussion and/or Conclusion: Although participants were third-year students with established group work practices, GenAI appeared particularly helpful for supporting communication in specific teamwork situations, and its potential role in supporting students at earlier stages of learning should be explored further. Overall, these findings indicate that discipline-specific GenAI shows promise in supporting teamwork-related communication, while continued refinement is needed to optimise its use across learning contexts.

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Evaluating outcomes of a pharmacy administration and leadership short course across two cohorts of hospital pharmacy leaders

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Background and Statement of Aim(s): Pharmacy administrators and leaders play a critical role in ensuring high-quality patient care, workforce engagement, and organisational performance. However, many pharmacists advance into leadership roles without formal training in administration or leadership, resulting in gaps in confidence, skill acquisition, and preparedness. Traditional postgraduate degrees may be impractical due to time and financial constraints, while ad hoc learning lacks structure and depth. To address this gap, a structured Pharmacy Administration and Leadership (PAL) short course was developed for hospital pharmacy leaders in Australia. This study aimed to evaluate the impact and consistency of this programme by combining outcomes from two sequential cohorts.

Methods: A mixed-methods pre–post evaluation was conducted across two cohorts of hospital pharmacy leaders participating in a 12-module PAL short course delivered over six to eight months using a blended learning model. The programme incorporated in-person workshops, synchronous virtual sessions, case-based learning, and longitudinal applied assignments. Pre- and post-course surveys assessed demographics, prior leadership education, confidence in administration and leadership competencies, perceived skill acquisition, and programme value. Descriptive statistics and paired analyses were used where applicable.

Results: A total of 46 participants were included across both cohorts. Participants had extensive pharmacy experience (mean > 10 years), yet most reported little or no prior formal education in business, management, or leadership. Baseline confidence was moderate overall, with consistently lower confidence in financial management, strategic planning, and business plan development. Cohort 1 demonstrated statistically significant improvements in overall leadership and administrative confidence following programme completion ($p < 0.05$). Cohort 2 baseline findings closely mirrored Cohort 1, indicating reproducible training needs; early post-programme feedback demonstrated high perceived relevance, engagement, and applicability of course content. Across cohorts, participants reported improved confidence, practical skill development, and readiness to apply leadership concepts within their practice settings.

Discussion and/or Conclusion: Findings across two cohorts demonstrate that a structured, short-course leadership programme can address critical training gaps among hospital pharmacy leaders. This model represents a scalable, practice-oriented alternative to traditional degree pathways and supports the development of a competent pharmacy leadership workforce capable of advancing patient care and organisational outcomes.

Evaluating metacognitive development in an interprofessional education abroad experience

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Background and Statement of Aim(s): Immersive education abroad experiences provide rich opportunities for interprofessional and collaborative learning, yet limited evidence exists on how such courses shape students' learning expectations, professional growth, and readiness for practice. This interprofessional education abroad course engages healthcare and pre-healthcare students in examining the historical foundations and contemporary structures of United States (US) and United Kingdom (UK) healthcare systems through site-based experiential learning. A structured metacognitive assignment required students to articulate anticipated learning, describe actual learning, reflect on discrepancies between expectations and outcomes, and identify approaches to future learning. Metacognition, including self-regulation, planning, monitoring, and evaluating one's own learning, is essential for healthcare professionals to improve learning, develop critical thinking skills, prevent medication errors, and pursue life-long learning.[1] Student-generated metacognitive statements are underused in health professions education. The aim of this study was to evaluate how participation in an immersive, interprofessional, collaborative learning environment influenced students' learning, reflective capacity, and approaches to future learning.

Methods: This qualitative study analysed de-identified metacognitive learning statements from three course offerings. Reflections were aggregated and analysed using AI-assisted thematic analysis to support coding, theme identification, and cross-cohort comparison. Faculty reviewers validated themes to ensure interpretive rigor. Participant characteristics were summarised descriptively.

Results: Twenty-two reflections were analysed, representing learners from pharmacy (54%), public health (14%), nursing (5%), and pre-healthcare (27%) programs; 72% identified as female. Students initially expected a comparative focus on US-UK system structures. Post-course reflections confirmed these expectations but revealed deeper learning including recognition of historical and public health foundations for contemporary systems and enhanced understanding of interprofessional roles. Students acknowledged the complexity of healthcare systems, noting that no model is universally optimal. They described intentions to critically evaluate healthcare models and applying learning to future practice or policy. Themes were stable across cohorts, indicating reproducible learning outcomes.

Discussion and/or Conclusion: Immersive, interprofessional education abroad experiences can foster sustained collaborative learning, professional growth, and workforce-relevant competencies. AI-assisted qualitative analysis offers a scalable, rigorous approach to evaluating experiential learning while preserving analytic depth.

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Transforming student learning through collaborative experiential placements in specialist National Health Services

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Background and Statement of Aim(s): To strengthen Pharmacy students' workforce readiness and broaden their understanding of clinical pharmacy career opportunities by integrating collaborative, interprofessional and immersive experiential placements within specialist NHS services. The initiative provides authentic exposure to multidisciplinary practice and complex care environments, equipping students with the collaborative and practice-based skills required to meet current and future healthcare workforce needs.

Methods: Central and Northwest London NHS Foundation Trust (CNWL) and University College London School of Pharmacy (UCLSOP) co-developed a collaborative educational model offering 3rd-year students specialist placements. Since its launch two years ago, 350 students have undertaken placements across CNWL's diverse services, including Community integrated care, Adult and Children's Mental health, Mental health rehabilitation, Addictions and Prison health in male, female and young offender settings. Students completed a structured induction, used comprehensive placement workbooks and engaged in supervised experiential learning through patient consultations, MDT meetings, ward rounds and medication reviews. Interdisciplinary shadowing with pharmacists, technicians, nurses, paramedics and occupational therapists enhanced understanding of collaborative practice. It also incorporated QR-based clinical videos and virtual service tours to support flexible, technology-enabled learning.

Results: Supervisors and students provided predominantly open-response feedback. Students highlighted supportive supervision, well-structured days and valuable interprofessional shadowing. They reported significant gains in understanding the specialist areas, with many indicating changed career intentions toward these areas. Supervisor

feedback aligned with this, reporting high professionalism (75% 'Extremely Good', 10% 'Good', 10% 'Satisfactory', 10% 'Somewhat Good') and strong motivation (33% 'Extremely Good', 47% 'Good', 13% 'Satisfactory', 6% 'Somewhat Good'). The programme met its intended objectives. Students engaged meaningfully in interprofessional learning, gained valuable exposure to specialist clinical environments and benefited from supportive mentorship that strengthened reflective practice, confidence and career motivation. The placement environment was consistently described as supportive, inclusive and professional, reflecting CNWL's commitment to equality, diversity and respectful practice.

Discussion and/or Conclusion: This CNWL/UCL collaboration demonstrates that immersive, interprofessional experiential placements enhance students' preparedness for clinical practice. The model is scalable and offers a high-impact approach to developing a collaborative, capable and workforce-ready pharmacy workforce. This transformational approach to learning has recently won the UCL School of Pharmacy MPharm Placement Provider Award.

Developing a digital literacy framework for undergraduate pharmacy education: A mixed-methods study

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Background and Statement of Aim(s): Digital health technologies (DHTs) are widely embedded across pharmacy practice, yet digital literacy remains inconsistently integrated into undergraduate pharmacy curricula. The absence of clear, evidence-based guidance on required competencies is a barrier to curriculum development. This study aimed to develop a digital literacy framework to support the integration of digital literacy into undergraduate pharmacy curricula.

Methods: A mixed-methods design was used. Semi-structured interviews were conducted with foundation trainee pharmacists, pharmacists, and academics to explore essential digital literacy competencies and effective educational approaches. Data were analysed thematically and integrated with findings from a prior scoping review (1) and a content analysis (2) of UK undergraduate (UG) pharmacy curricula to develop an initial framework. A modified Nominal Group Technique with pharmacy academics (n = 9) was then used to refine the framework and achieve consensus on proposed learning outcomes.

Results: Thirty-five interviews revealed a wide variation in students' access to and experience with DHTs, highlighting a gap in preparedness for practice and key themes around curriculum Integration, practical experiences, key challenges, and the competencies essential for UG students. The analysis informed the development of a digital literacy framework comprising seven domains, with learning outcomes in each domain structured across three cognitive levels aligned with Bloom's taxonomy: digital health literacy fundamentals, digital health technologies use and applications, digital communication skills, information sources, data management and analysis, information ethics and regulation, and digital health leadership. After reviewing the 55 proposed learning outcomes, 48 met the predefined consensus threshold of ≥ 80%, resulting in a final digital literacy framework for undergraduate pharmacy education.

Discussion and/or Conclusion: This study presents an evidence-based digital literacy framework tailored specifically for UG pharmacy education, providing educators with explicit guidance on curriculum design, teaching, and assessment. As DHTs rapidly evolve, the framework will require ongoing evaluation and revision to ensure its relevance.

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128 An evaluation of in-person versus remote grading approaches in objective structured clinical examinations

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Background and Statement of Aim(s): Studies have demonstrated variation among faculty members in Objective Structured Clinical Exam (OSCE) grading and the standardised patients' impact on overall OSCE grades. Acquiring sufficient facilitators to grade students in a consistent, effective, and efficient manner continues to be a challenge at pharmacy schools. The aim of this study was to evaluate grading consistency among skills assessment evaluators through remote and in-person approaches.

Methods: Third professional year student pharmacists' non-prescription counseling OSCEs within a skills lab were recorded and evaluated by postgraduate trainee pharmacists using either real-time or remote grading methods. Postgraduate trainees (clinical residents or pharmaceutical industry fellows) were randomly assigned to either grade a student's OSCE in person with the student present, or upon completion of the OSCE by reviewing a recording. For baseline comparative purposes, all OSCE recordings were reviewed and graded remotely. Remote and in-person postgraduate trainee evaluator scores were compared to each other and faculty OSCE scores. The final OSCE grade was the highest score. A concordance of variance using Chi Squared plus or minus two points of fifty total points was performed for faculty versus in-person postgraduate trainees, faculty versus remote postgraduate trainees, and in-person postgraduate trainees versus remote postgraduate trainees.

Results: A total of 170 of 211 (80.5%) student pharmacists consented to participate in the study. Concordance was shown in 129 of 170 grades (75.9%) for the faculty versus in-person postgraduate trainees ($p < 0.001$), 128 out of 170 (75.3%) grades for faculty versus remote postgraduate trainees ($p < 0.001$), and 129 out 170 (75.9%) grades for in-person postgraduate trainees versus remote postgraduate trainees ($p < 0.001$). Grade averages were similar for in-person postgraduate trainees (88.2%), remote postgraduate trainees (87.2%), and faculty (88%). Grade average variance was within the ± 5 range for most evaluators. There were several outliers with the largest variance reaching a 19-point difference when compared to the control.

Discussion and/or Conclusion: Although grade averages and both in-person and remote grading methods' accuracy matched significantly among OSCE evaluators, large variations in certain cases could significantly impact a student's evaluation grade. Results can provide insight for pharmacy schools incorporating postgraduate evaluators into skill courses.

Tradition and transformation: Lessons learned from a large scale PharmD programme curriculum renewal

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Background and Statement of Aim(s): A curriculum renewal (CR) of our PharmD program began in spring 2023 in response to evolving health-care system needs, shifts in higher education, rising student debt, student wellness concerns, and workforce shortages that challenge traditional training models. This work describes our CR process and offers lessons and recommendations for others undertaking large-scale curricular change.

Methods: The CR process followed core change-management principles: articulating the need for change, defining a strategic vision, engaging faculty and partners, and establishing a communication and project plan. An international environmental scan and a series of faculty retreats informed early planning. Discipline-focused working groups reviewed the existing curriculum and proposed recommendations, complemented by groups focused on Student Success, Equity, Diversity and Inclusion, Pathways/Streams, and a Student Advisory Committee. Course design teams developed course outlines, supported by theme leads to promote integration. Backward design and adaptive expertise pedagogy guided curriculum development. Course content was refined through mini retreats with input from the Student Advisory Committee.

Results: The new program structure transformed our 4 Year PharmD program into an accelerated 3 Year program. It was approved in 2024, and the new program launched in Fall 2025. Key features include an integrated course structure, block scheduling with wellness breaks, early longitudinal experiential learning, and a programmatic assessment model with longitudinal progress testing. Success was driven by early engagement of pharmacy partners and employers, cross-disciplinary course design teams, a clearly defined design process leveraging local expertise, and a comprehensive communications and marketing strategy. Faculty development supported implementation, with sessions on Equity, Diversity and Inclusion, pedagogy, and programmatic assessment.

Discussion and/or Conclusion: Our program successfully conceptualised and implemented achieved a large-scale curriculum renewal within a short timeframe by capitalizing on strong momentum for change and establishing mechanisms to engage diverse students and faculty. Lessons learned relate to the importance of decision-making and conflict-resolution processes, effective communication and engagement strategies, and approaches to supporting faculty workload and recognition through rapid change.

Modernisation of pharmacy business management and patient-centred communications courses using specifications grading and artificial intelligence

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Background and Statement of Aim(s): Non-clinical pharmacy courses are frequently perceived as less relevant by learners, despite their alignment with Curricular Outcomes and Entrustable Professional Activities.1 Traditional grading systems have shown limitations in accurately measuring learning and reduced intrinsic motivation. While innovative grading strategies, such as specifications grading, are gaining traction, they remain under explored. This project aimed to evaluate whether modernising assessment through specifications grading and intentional integration of artificial intelligence (AI) could enhance students' knowledge, self-efficacy, and perceptions of course principles.

Methods: A phased course modernisation strategy was implemented; first piloted in a required 2-credit Pharmacy Business Management course and subsequently expanded to a required 4-credit Patient-Centered Communications course. Modernisation included use of a specifications grading system and integration of AI into various course activities. Student participants in the first offering of each modernised course completed pre- and post-surveys to assess knowledge, self-efficacy, and perceptions. Likert-scale responses were analysed using Fisher's Exact Test. Correlations between specifications assignment completion and final grades were analysed using Wilcoxon Rank Sum Test.

Results: In both courses, specifications-based assignment completion was strongly correlated with final course grades. Specifications grading supported student engagement and allowed students to feel in control of their course grade. Students in the communications course highly valued course relevance (98% strongly agree/agree) and applicability to practice (100% strongly agree/agree). In the management course, student-reported understanding of business finance fundamentals significantly increased from 24.2% pre-course to 69.2% post-course. Reported AI use increased by 22.1% in management, while use decreased by 4.7% in communications. Students in both courses demonstrated improved ability to discern appropriate AI applications.

Discussion and/or Conclusion: A phased modernisation strategy using specifications grading and AI integration supports student agency, course engagement, and AI literacy which are critical for practice-ready pharmacists. This pilot highlights a scalable, transferable approach to engaging learners in curricula.

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From playground to practice: A game-based capstone assessment of pharmacy practice readiness

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Background and Statement of Aim(s): Assessing practice readiness at the culmination of professional training requires strategies that authentically evaluate applied knowledge, decision-making, and performance under pressure. Traditional capstone assessments may inadequately capture learners' ability to integrate pharmacotherapy knowledge, accurately evaluate prescriptions, and rapidly distinguish brand and generic medications in high-stakes environments. To address this gap, a Squid Game–inspired, game-based capstone assessment was implemented using childhood-game mechanics aligned with practice-readiness competencies. The aim of this educational innovation was to evaluate whether an immersive, competitive assessment could enhance engagement while maintaining rigorous evaluation of practice readiness.

Methods: This innovation was implemented during a capstone course for graduating professional students. Learners participated in four sequential games incorporating both team-based and individual challenges. Games assessed pharmacologic site of action ("Pin the Tail on the Donkey"), applied pharmacotherapy and prescription verification (timed relay race), rapid brand–generic identification (Simon Says), and clinical monitoring knowledge (musical chairs). Standardised instructions, strict time limits, and faculty moderation ensured consistency and rigor. Learners who were eliminated from gameplay entered an alternative assessment pathway ("exam of hell") that required completion of mandatory surveys and cumulative, closed-book quizzes administered through UWorld. Learners were required to achieve ≥70% on each quiz, with a limited number of attempts; failure to meet the criteria resulted in a structured journal club assignment. Outcomes were learner's perceived readiness for practice.

Results: A total of 62 learners completed the pre-activity, and 34 completed the post-activity surveys. Most learners (56%, 19/34) recommended continuing the activity and reported higher engagement than with traditional capstone reviews. Learners reported improved perceived readiness for practice (65%, 22/34), particularly in brand–generic recall, prescription evaluation, and applying knowledge under time pressure. Although the activity was described as stressful, learners frequently characterised the stress as realistic and beneficial for identifying knowledge gaps.

Discussion and/or Conclusion: This immersive, game-based capstone assessment offers a novel, scalable approach to evaluating practice readiness through authentic, pressure-based tasks combined with structured remediation. By integrating engagement with rigorous assessment standards, this model supports meaningful evaluation of capability at graduation and may be adaptable across health professions education.

Formative development of a questionnaire and GenAI too for patient diversity training in pharmacy education

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Background and Statement of Aim(s): Language barriers pose a significant challenge to equitable healthcare delivery, influencing patient understanding, adherence, satisfaction, and health outcomes [1, 2]. This is particularly relevant in Malaysia, a multiracial society where Bahasa Malaysia is the primary language of patient interaction, yet English dominates tertiary education [3]. Consequently, pharmacy students may have limited opportunities to practise culturally and linguistically appropriate communication, potentially compromising patient-centred care. This study aimed to develop and validate (i) a questionnaire to assess students' perception and preparedness and (ii) a generative artificial intelligence (GenAI)-supported simulation tool to enhance Malay language competency and preparedness for diverse patient interactions among Bachelor of Pharmacy students at Monash University Malaysia.

Methods: Local contextualised cases incorporating hospital and community pharmacy were adopted and developed for the ATLAS (Authentic Teaching & Learning Application Simulations) platform. A student questionnaire was developed to assess perceived effectiveness of the simulations in improving communication skills and readiness for practice. Content validity was evaluated by three experts for relevance, importance, and clarity. Face validation (n = 10) involved qualitative feedback, which informed item refinement prior to pilot testing.

Results: Four GenAI avatars were developed and iteratively refined through internal trial testing. The questionnaire demonstrated excellent content validity, with S-CVI/Ave values of 0.96 (relevance), 0.96 (importance), and 0.97 (clarity). Qualitative feedback from face validation supported the clarity, contextual relevance, and comprehensibility of the instrument.

Discussion and/or Conclusion: This formative work supports the feasibility and validity of integrating GenAI simulations into pharmacy education to enhance culturally responsive communication.

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Collaborative delivery of mock OSCEs to support trainee pharmacists following national programme changes

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Background and Statement of Aim(s): In October 2025, NHS England announced a £2.6 million reduction to the 2026–27 postgraduate pharmacy education budget, placing long standing trainee pharmacist development activities, particularly mock OSCEs, at risk. (1) NHS Hampshire & Isle of Wight and the University of Portsmouth established a collaborative approach to ensure continuity of OSCE provision for the 2026 cohort, who will enter the register as independent prescribers and therefore require enhanced clinical readiness. (2). The aim of the study was to evaluate trainee pharmacist perceptions of a collaborative mock OSCE delivered in response to funding cuts.

Methods: Six OSCE stations were developed to assess clinical, consultation and prescribing competencies: manual BP, cardiovascular physical assessment, Epipen counselling, history taking, clinical decision making, and prescription writing. Ten-minute stations were followed by five minutes of individualised feedback. Group feedback concluded the

assessment day. Trainees were invited to submit feedback via Google Forms following favourable ethics approval.

Results: Thirty-four trainees attended and 20 provided feedback. Relevance of stations to training needs was rated highly, ranging from 80-100%. The most beneficial stations were history taking (70%), clinical decision making (55%), and Epipen counselling (55%). Three qualitative themes were identified:

1. Educational value and real-world relevance

2. Skill development and confidence building

3. Sector-based differences in prior clinical exposure

Discussion and/or Conclusion: Trainees reported limited prior experience in key clinical and prescribing skills, particularly those from community settings. Immediate feedback strengthened trainees' clinical reasoning, communication and examination technique. Some stations felt less realistic due to simulated equipment or limited sector relevance, and clearer written instructions were requested. Facilitator feedback highlighted strong OSCE design but noted logistical issues, unclear expectations, and gaps in clinical reasoning and physical examination skills, recommending more applied scenario based content. Despite financial pressures, collaborative working enabled high quality preparation. Trainees valued the supportive, relevant experience, demonstrating the importance of protecting such training.

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Addressing the physical assessment skills training gap for early career pharmacy professionals

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Background and Statement of Aim(s): The NHS Long Term Workforce Plan highlights the need to enhance support for newly qualified and early-career pharmacy professionals as they transition into practice (1). In alignment with the Initial Education and Training of Pharmacists reforms (2), a regional Southeast review identified a gap in access to structured physical assessment skills training for pharmacists and pharmacy technicians across primary, secondary, and community care settings across Hampshire and Isle of Wight, this was identified as a primary priority. The aim of this study was to develop and evaluate a bespoke physical assessment skills trianing workshop intended to improve the confidence and competence of early-career pharmacy professionals.

Methods: A multidisciplinary workshop was designed to address locally identified physical assessment skills development needs. Pharmacists and pharmacy technicians from a range of care sectors were invited to participate. Pre- and post-workshop self-assessed confidence ratings were collected using a numerical rating scale (1-10). Feedback was analysed to assess perceived value, relevance, and impact.

Results: Eighty pharmacy professionals attended the workshop, and 50 (63%) completed the evaluation. Mean confidence scores increased from 3.25 prior to the workshop to 7.2 following completion, indicating a substantial improvement in self-reported confidence. Qualitative feedback demonstrated high levels of participant satisfaction and highlighted the benefits of structured, hands-on training.

Discussion and/or Conclusion: The workshop effectively improved confidence in key physical assessment skills among early-career pharmacy staff. Based on these positive outcomes, further workshops are planned, alongside the development of supplementary clinical webinars targeting priority learning needs identified by participants.

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Training practice-ready pharmacist-vaccinators through a student-led immunisation clinic in the PharmD curriculum

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Background and Statement of Aim(s): Vaccination is a core competency in Canadian pharmacy curricula; however, opportunities for hands-on immunisation practice remain uneven due to variability in internship placement, seasonality, and preceptor engagement. Graduates with limited vaccination experience report lower confidence and are less likely to integrate immunisation into their practice. To address this gap, a structured student-led immunisation clinic was embedded within the PharmD curriculum. The project aimed to enhance students' practice readiness by improving their knowledge, self-confidence, professional identity, and clinical competence through direct patient care.

Methods: A pilot vaccination clinic was conducted in November 2025 with 56 third-year PharmD students at the Université de Montréal, in partnership with a community pharmacy. Over two full days, students rotated through three supervised stations: vaccine preparation, patient intake, and vaccine administration. The activity was grounded in cognitive apprenticeship and Kolb's experiential learning theory, providing structured guidance with progressive autonomy. A mixed-methods design compared pre–post outcomes using validated quantitative measures and qualitative feedback, with comparisons to peers from the same and a previous prior cohort.

Results: Students administered 346 vaccines to 220 patients aged six months to 87 years, across two sessions, demonstrating broad community acceptance. Student satisfaction was high, with 85% rating the activity as excellent (5/5). Mean self-reported confidence in vaccine administration increased significantly from 2.9 to 4.6 on a 5-point Likert scale. Knowledge scores and confidence improved across all stations. Qualitative data highlighted the value of individualised supervision, exposure to the complete immunisation workflow, and the structured yet authentic learning environment in fostering professional identity development.

Discussion and/or Conclusion: These findings support the value of integrating student-led clinics as a scalable, equitable curricular strategy to address variability in vaccination training. By combining experiential learning theory with real patient care, this model bridges the gap between classroom preparation and practice readiness. An expanded evaluation will launch in Fall 2026, with longitudinal data collection through 2030 to assess long-term impacts on immunisation practice integration.

Comparing GPT-4 and human raters in grading pharmacy students' exam responses in Malaysia: A cross-sectional study

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Background and Statement of Aim(s): Manual grading of written assessments is resource-intensive and subject to variability between raters, raising concerns about consistency and scalability in higher education. Generative artificial intelligence tools such as GPT-4 offer potential to streamline grading while maintaining reliability. However, their performance remains context-dependent, particularly in discipline-specific settings such as pharmacy education. This study aimed to evaluate the use of GPT-4 for grading pharmacy students' examination responses by assessing (i) agreement with human raters, (ii) consistency of grading over time, and (iii) the impact of prompt optimisation on grading performance.

Methods: A comparative study was conducted using archived student responses previously graded by trained university assessors. Responses were randomised prior to evaluation using GPT-4 (Plus version, April – September 2024). Prompt refinement was undertaken using a subset of responses, followed by comparison of three prompt delivery strategies. The optimised approach was then applied across multiple question types. Agreement and consistency were evaluated using intraclass correlation coefficients (ICC), alongside error analysis across grade bands.

Results: GPT-4 demonstrated moderate to excellent agreement with human raters (ICC = 0.617–0.933), varying by question type and prompt design. Improved alignment was observed following prompt optimisation. However, stratified analysis revealed reduced consistency in high-scoring responses, with significant variability detected ($Z = -5.71$ to 4.62, $p < 0.001$). While GPT-4 performed well for more structured or objective responses, it occasionally produced grading inconsistencies and basic errors.

Discussion and/or Conclusion: GPT-4 shows promise as a supplementary grading tool in pharmacy education, particularly when guided by optimised prompts. Nevertheless, variability in marking complex or high-quality responses highlights the continued need for human oversight. Future work should explore more advanced

models and broader assessment formats to enhance reliability and support scalable assessment practices.

Universal design for learning in pharmacy assessment design: leveraging student input to ensure cohort-specific inclusivity

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Background and Statement of Aim(s): Universal Design for Learning (UDL) provides a robust framework for learner-centred educational practices[1] however, integrating UDL within pharmacy programmes can be challenging. The need for practice alignment often limits flexibility in assessment design[2]. A further limitation is that assessments are often developed in advance rather than tailored to specific cohort preference, learning styles and development. These limitations may result in a loss of inclusivity, particularly if assessment review occurs at the end of a module. This project aims to build further opportunities for UDL in assessment by real-time modification of MPharm assessment in response to the current needs and preferences of the learners.

Methods: To achieve this an interactive map of assessments across the programme was created using Miro Board®; all assessments were colour-coded according to type (e.g. means of expression) and mapped to learning outcomes, professional competencies and Bloom's taxonomy. This Miro Board® assessment map enables reactive change in response to cohort-specific strengths, needs and preferences, while ensuring learning outcomes and competencies are still met. Student and staff feedback is elicited on an on-going basis, and in response to feedback, assessments are adapted using UDL formats appropriate to the cohort.

Results: Observations and feedback from semester 1 indicated that students appreciated the variety of means of assessment. Students reported they could "see evidence their feedback had directly influenced teaching and assessment in the programme" and the programme team observed a distinct change in engagement and motivation. More recent observations confirm a change in individual needs and preferences as the students adapt their own learning style and this has been accommodated for in real-time.

Discussion and/or Conclusion: It is intended this will be a longitudinal project designed to incorporate student-informed UDL preferences as cohorts progresses through the programme. By adopting such approaches, programmes can enhance assessment inclusivity and deepen student engagement.

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