



2024 Pharmacy Education Symposium

ORAL PAPER SESSION 4: Role of digital health in pharmacy education and practice / Generative artificial intelligence in pharmacy education

Chair: Prof Zanfina Ademi



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2024 Pharmacy Education Symposium

Generative AI as a Personal Tutor for
Research and Evaluation Skills

Dr Jacquie McLaughlin

Generative AI as a Personal Tutor for Research and Evaluation Skills



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Objective

Explore the use of AI for providing individualized feedback to students about evaluation skills

- Describe educational context of AI activity
- Provide prompts used for AI activity
- Detail findings from AI activity

1. Educational Context



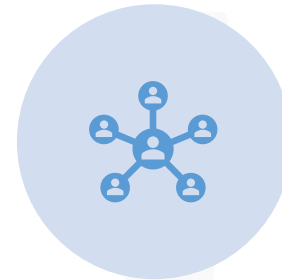
Research and Evaluation Skills



Research and evaluation skills are critical for healthcare providers



Small groups can mitigate time-consuming teaching tasks, but also benefit from facilitator feedback and support



Teaching these skills is resource-intensive, **requiring in-depth personalized feedback**



ChatGPT is a generative artificial intelligence (genAI) capable of creating humanlike dialogue that **may facilitate student learning**


Fuller et al (2024); Jowsey et al (2023); Morbitzer et al (2021)

1. Educational Context



Research and Evaluation Courses



- 2 courses 
- 75 students ($n=20$ UNC; $n=55$ UM)
- 14 breakout groups of 5-7
- Students worked collaboratively to complete prompts **describing the evaluation plan** of a health-system issue

No statistical differences were found between the two courses and data were subsequently aggregated.

2. AI Activity

AI Instructions

Act as an expert in the learning health systems framework with a focus on socio-technical evaluation plans. When provided with an evaluation plan table, meticulously analyse its content based on the specific categories:

1. **Method of Evaluation:** Assess the appropriateness, robustness, and feasibility of the chosen evaluation method.
2. **Theoretical Framework:** Ensure that the theoretical framework is relevant to the evaluation's objectives and is applied correctly. If the plan does not mention a theoretical framework then propose an appropriate theory based on the objectives.
3. **Justification for Evaluation and/or Theoretical Framework:** Critique the provided justification, ensuring it's coherent and aligns with the chosen evaluation method and theoretical framework.
4. **Data Collection Methods:** Evaluate the chosen data collection methods for their relevancy, comprehensiveness, and potential biases.
5. **Data Sources:** Critically examine the listed data sources for their relevance, reliability, and potential to address the evaluation's objectives.
6. **Brief Description of Data Analysis:** Analyse the clarity, comprehensiveness, and relevance of the data analysis description. Ensure it fits the context of the evaluation and theoretical framework. If it's missing, then propose a data analysis plan.

Provide both strengths and potential areas of improvement for each plan, ensuring feedback is constructive, clear, and actionable.



2. AI Activity



Student Prompt

I'd like to receive feedback on the socio-technical evaluation plan below.

Please provide constructive feedback on the criteria and offer suggestions for potential areas of improvement. Provide a rating from beginner to advanced on the overall evaluation plan based on how well it addresses the rationale and objectives.

Rationale and objectives: *your team's answers here*

Method of Evaluation: *your team's answers here*

Theoretical Framework: *your team's answers here*

Justification for Evaluation: *your team's answers here*

Data Collection Methods: *your team's answers here*

Data Sources: *your team's answers here*

- Students asked to complete brief survey after activity.
- Descriptive statistics used for Likert-type items and thematic analysis for open-text items.

3. Evaluation Findings

AI Feedback

Overall Rating:

The provided evaluation plan demonstrates a good understanding of the research objectives and uses appropriate qualitative methods. However, there are areas for improvement, including further elaboration on the application of the UTAUT framework and providing more detailed information on data sources and sampling methods.

Rating: Intermediate

Areas of Improvement:

1. Provide a more detailed explanation of how the UTAUT framework is applied to the clinical workflows and communication.
2. Include a clear data analysis plan that outlines how the data will be analyzed and how the results will be used to inform practice.
3. Specify the criteria and procedures for selecting participants and data sources.
4. Consider whether a socio-technical theory more precisely fits the research objectives and provides a more precise framework for analysis.

Strengths:

- The plan combines both qualitative and quantitative methods, providing a comprehensive understanding of the research question.
- Ethical considerations, such as patient anonymization and informed consent, are addressed.

Areas of Improvement:

- Provide more details on the design of surveys and other data collection methods.
- Clarify the role and training of students in data collection and analysis.
- Explain how the UTAUT framework will be applied or modified in this study.
- Develop a more comprehensive data analysis plan.
- Address potential biases in data collection methods.

Overall, the plan shows potential but needs further development and clarity in various aspects to enhance its effectiveness in addressing the research objectives.

4. Data Collection Methods:

Strengths:

- Mixed methods are appropriate for capturing a comprehensive view of the program's impact by combining quantitative and qualitative data.

Areas of Improvement:

- Specify the quantitative and qualitative data collection methods within the mixed methods approach.
- Provide details on how the integration of both types of data will occur.

5. Data Sources:

Strengths:

- Inclusion of readmission rates, patient interviews, and healthcare staff focus groups provides a well-rounded view of the program's effects.

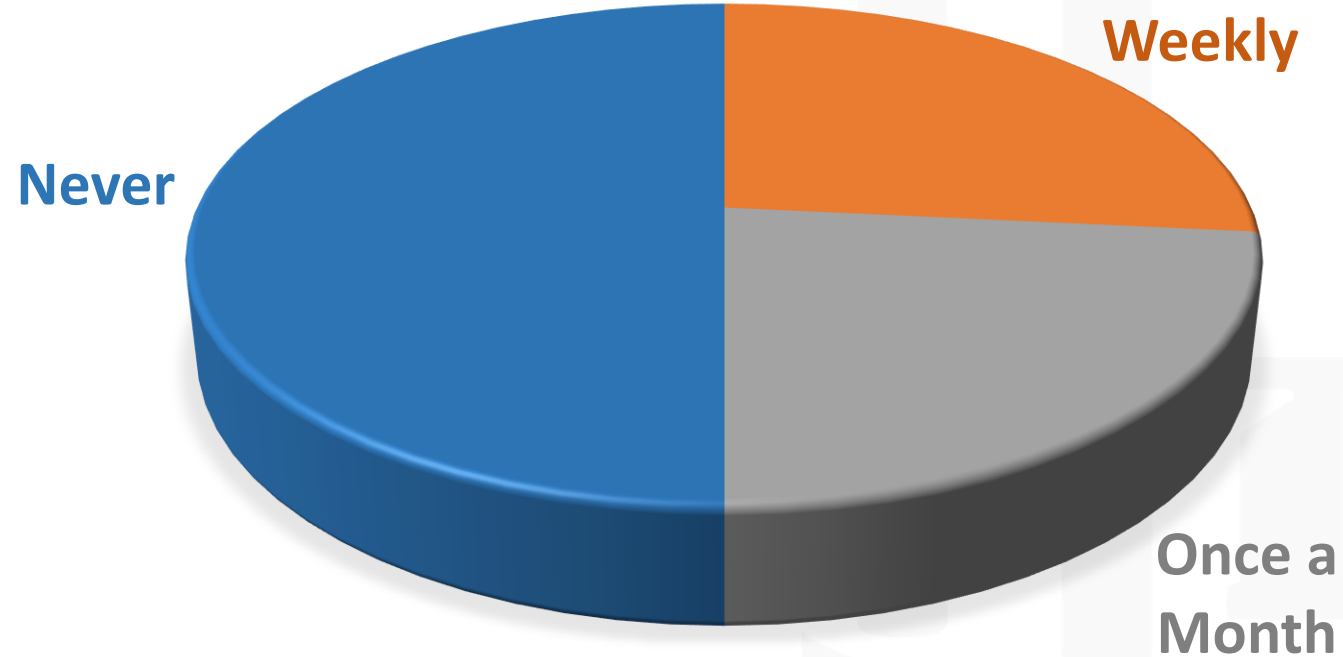
Areas of Improvement:

- Clarify the specific aspects of clinical workflows that will be assessed through readmission rates.
- Ensure that patient interviews and staff focus groups are representative of diverse perspectives.

3. Evaluation Findings

n=64, 85.3% response rate

How frequently do you use ChatGPT?



3. Evaluation Findings

n=64, 85.3% response rate

Survey Item: The ChatGPT feedback	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
...was valuable	30%	55%	9%	6%	0%
...helped me learn about evaluation	13%	58%	19%	11%	0%
...helped my group improve our evaluation plan	23%	55%	14%	2%	0%
...increased my interest in generative AI	48%	38%	9%	5%	0%

3. Evaluation Findings

Most (n=44, 68.8%) described adaptive responses to the feedback (Kelley, 1973)

...we needed to be more specific and go more in-depth in parts of our evaluation design

Following review of the feedback provided by ChatGPT, I would consider incorporating data from other institutions...

When asked about their feedback, rarely did participants not trust or disagree with what was provided

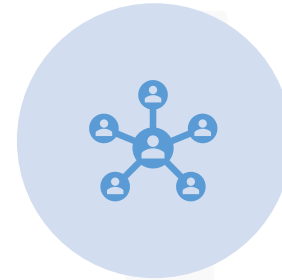
Summary



First known ChatGPT study to provide feedback to pharmacy and health professions students about research and evaluation skills.



ChatGPT provided **immediate individualized feedback** to 14 small groups, a feat otherwise unattainable



We demonstrated favourable perceptions from **learners who were mostly new to ChatGPT**



Future research should focus on design principles that can assist educators to **optimally utilise genAI within their courses**

References and Resources

Fuller, K., Morbitzer, K. A., Zeeman, J. M., M. Persky, A., C. Savage, A., & McLaughlin, J. E. (2024). Exploring the use of ChatGPT to analyze student course evaluation comments. *BMC Medical Education*, 24(1), 423.

Jowsey, T., Stokes-Parish, J., Singleton, R., & Todorovic, M. (2023). Medical education empowered by generative artificial intelligence large language models. *Trends in Molecular Medicine*.

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Morbitzer, K. A., McLaughlin, J. E., Ozawa, S., Beechinor, R., Dumond, J., Pomykal, C., ... & Lee, C. R. (2021). Implementation and initial evaluation of a research and scholarship training pathway in a Doctor of Pharmacy curriculum. *American Journal of Pharmaceutical Education*, 85(1), 8079.

Generative AI as a Personal Tutor for Research and Evaluation Skills



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A portfolio-based workplace learning plan to assess a pre-registrant (intern) pharmacists' advancing competencies

A/Prof Steven Walker

A portfolio-based workplace learning plan to assess pre-registrant (intern) pharmacists' advancing competencies

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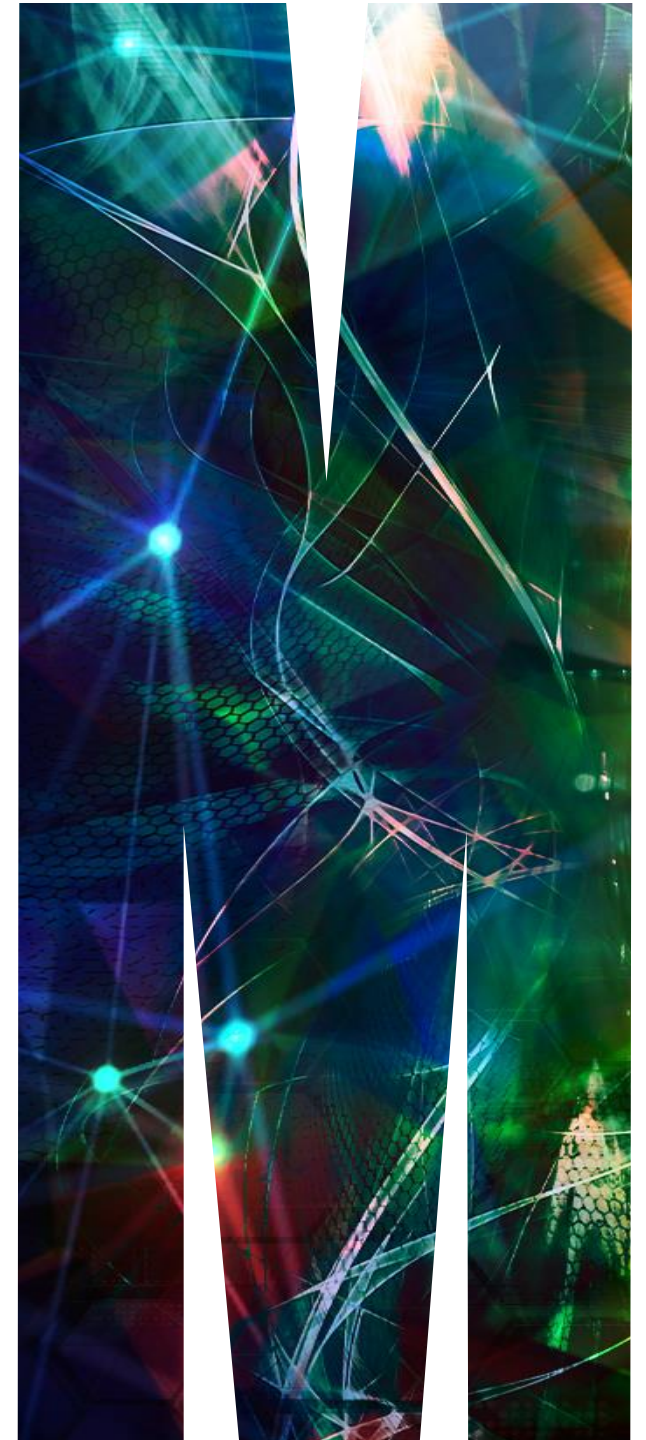
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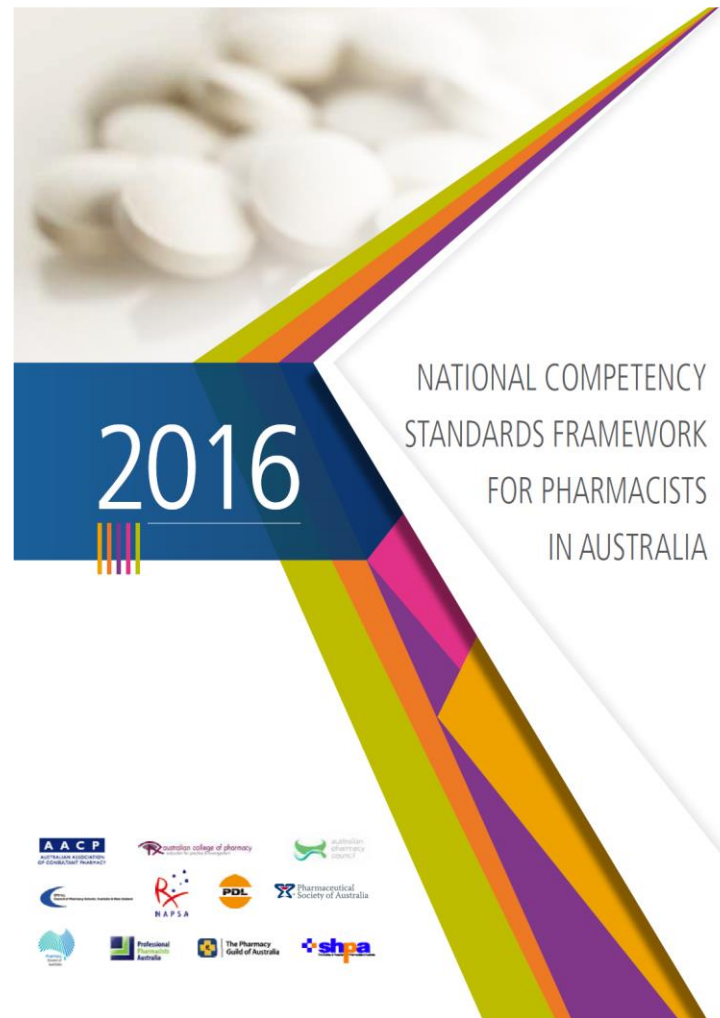


Introduction

- In Australia, pharmacy practice is underpinned by the **National Competency Standards Framework (NCSF)**.¹
- **Pre-registrant pharmacists (i.e. interns)** complete a **year-long supervised program** in either hospital or community setting to meet core competencies of the NCSF.

1. Pharmaceutical Society of Australia. National Competency Standards Framework for Pharmacists in Australia: Pharmaceutical Society of Australia; 2016. Available from: <https://www.psa.org.au/practice-support-industry/national-competency-standards/>

National Competency Standard Framework



Domain 1:
Professionalism and ethics

Domain 2:
Communication and collaboration

Domain 3:
Medicines management and
patient care

Domain 4:
Leadership and management
Standards 4.1 and 4.2

Domain 5:
Education and research

Dissecting a competency standard

Domain 1:
Professionalism and ethics

Standard 1.5: Apply expertise in professional practice					
Enabling competency	Performance criteria				
	General level	Evidence examples	Transition level Stage 1	Consolidation level Stage 2	Advanced level Stage 3
1. Apply expert knowledge and skills.	Applies general knowledge in core practice areas.	<i>Deals effectively with routine practice scenarios.</i>	Applies general knowledge in core practice area(s).	Applies comprehensive, high level knowledge in defined practice area(s).	Applies advanced knowledge in defined practice area(s).

General

Advancing



Introduction

- In 2016, an **extension work-integrated learning (WIL) program** was established to fast-track intern **development of more advancing NCSF competencies**.²
- Interns are expected to complete a series of **workplace-based assessments (WBA)** as part of a year-long **workplace learning plan (WLP)**.

Summary of work

- **In 2023, a more overt portfolio based WLP was established**
- For each of the 5 domains, interns were required to select a range of WBAs for their portfolio submission

Aim

The aim of this project was to determine **the most commonly performed WBAs** submitted by **pharmacy interns** completing a **portfolio-based assessment to demonstrate advancing competency.**

Results

- In 2023- 231 pharmacy interns were enrolled in the program
- N= 120 (52%) community interns
- N= 111 (48%) hospital interns

Domain 1

Domain 1:
Professionalism and ethics

1.5 Apply expertise in professional practice

Interns are required to submit evidence that demonstrates their initial development of expertise in a more advanced area of practice

Domain 1 Reflection Rubric

- Training received
- Lessons learnt
- Development plan



Evidence of Applying skill in practice

- (depends on activity)
- Use suggested rubric (see Moodle)

Results- Domain 1: Professionalism and ethics

Activity	Hospital (n=111)	Community (n=120)
Therapeutic drug monitoring	16%	-
Nicotine replacement therapy	19%	1%
Aseptic compounding	36%	-
Complex compounding	-	6%
Aged care services	14%	17%
Specialist training	15%	1%
Professional services	-	23%
Wound care management	-	37%
Opioid replacement therapy	-	15%

Domain 2

Domain 2:
Communication and collaboration

2.2.2 Engage in teamwork and consultation

2.3.1 Use appropriate communication skills

ONE piece of interprofessional
Verbal Communication evidence



ONE piece of interprofessional
Written Communication evidence

Results- Domain 2: Communication and collaboration

Activity	Hospital (n=111)	Community (n=120)
Doctor email/letter	4%	81%
Inpatient/progress note	60%	-
Medicines info report (Dr)	12%	6%
Medicines info report (Nurse)	1%	-
Medicines info report (Pharmacist)	3%	-
Text to Dr/Pharmacist	15%	-
Dispensing history note	-	12%
Pharmacist email	3%	1%
Riskman entry	2%	-

Domain 3

Domain 3:
Medicines management and
patient care

- 3.1 Develop a patient-centred, culturally responsive approach to medication management
- 3.2 Implement the medication management strategy or plan
- 3.3 Monitor and evaluate medication management

Simple Medication History	Simple Leave Certificate	Simple Diabetes MedsCheck
Simple Primary Care Encounter	Simple Med Reconciliation	Simple Mini-CEX

Results- Domain 3: Medicines management and patient care

Activity	Hospital (n=111)	Community (n=120)
Best Possible Medication History	43%	13%
Primary health care case	1%	44%
Medication reconciliation	33%	12%
Medication chart review	11%	-
Mini-CEX	3%	2%
MedsCheck	-	14%
Medication order review	4%	-
Clinical intervention debrief	3%	1%
Carer/leave certificate	-	14%
ClinCAT	2%	-

Domain 4

Domain 4:
Leadership and management
Standards 4.1 and 4.2

4.3.1 , 4.3.2, 4.3.3 , 4.3.4, 4.5.3, 4.7.1, 4.7.2, 4.7.3, 4.7.4, 4.7.5, 4.7.6, 4.7.7

Governance, resource management, risk management, guideline development

Interns are required to submit evidence that is mapped to one of the enabling competencies in this domain



Results- Domain 4: Leadership and management

Activity	Hospital (n=111)	Community (n=120)
MedSafety Audit/QUM	55%	-
Payroll tool	1%	12%
Policy procedure checklist	2%	7%
Contribution to QCCP audit	-	3%
Stocktake tool	8%	75%
Guideline review/development	24%	3%
Ward finance report	6%	-
Adverse drug reaction review	3%	-
Formulary submission review	3%	-

Domain 5 :Education

Domain 5:
Education and research

5.1.2 Conduct education and training consistent with educational practice

5.1.3 Contribute to continuing professional development of others

5.1.4 Link practice and education

Evidence of delivering education

Supervision OR Presentation

Results- Domain 5: Education and research

Activity	Hospital (n=111)	Community (n=120)
Learner Feedback	-	22%
Learner supervision	9%	59%
Educational presentation	78%	18%
Journal club presentation	13%	1%

Discussion

- This is the **first pharmacist pre-registrant program in Australia** which uses a **portfolio-based WLP to assess advancing competencies**.
- Similar **portfolio-based assessments** have been used in **medical education** with WBA tools as evidence³
- **Student-centric approach** allowing for flexibility and promoting **self-regulated learning**³
- **Opportunities to align with global advanced competencies framework**⁴

3. Tan, R., Qi Ting, J. J., Zhihao Hong, D., Sing Lim, A. J., Ong, Y. T., Pisupati, A., Xin Chong, E. J., Chiam, M., Inn Lee, A. S., Shuen Tan, L. H., Chew Chin, A. M., Wijaya, L., Fong, W., & Radha Krishna, L. K. (2022). Medical Student Portfolios: A Systematic Scoping Review. *Journal of Medical Education and Curricular Development*, 9. <https://doi.org/10.1177/23821205221096022>

4. Meilianti S, Galbraith K, Bader L, Udoh A, Ernawati D, Bates I. The development and validation of a global advanced development framework for the pharmacy workforce: a four-stage multi-methods approach. *Int J Clin Pharm*. 2023 Aug;45(4):940-951. doi: 10.1007/s11096-023-01585-x.

Limitations

- Influenced by selection of activities available
- Self-reported data
- Limited assessment of impact

Conclusions

- **Utilising portfolio-based WLP evidence allows for structured documentation of development in NCSF domains of competency.**⁵
- Similar portfolio-based WLPs may be adopted by other pre-registrant or early career training programs

Follow up questions or comments?
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References

1. Pharmaceutical Society of Australia. National Competency Standards Framework for Pharmacists in Australia: Pharmaceutical Society of Australia; 2016. Available from: <https://www.psa.org.au/practice-support-industry/national-competency-standards/>
2. Monash University. (2023). Intern Training Program and Intern Foundation Program. Available from: <https://www.monash.edu/pharm/future/courses/postgraduate/internship-training-program>
3. Tan, R., Qi Ting, J. J., Zhihao Hong, D., Sing Lim, A. J., Ong, Y. T., Pisupati, A., Xin Chong, E. J., Chiam, M., Inn Lee, A. S., Shuen Tan, L. H., Chew Chin, A. M., Wijaya, L., Fong, W., & Radha Krishna, L. K. (2022). Medical Student Portfolios: A Systematic Scoping Review. *Journal of Medical Education and Curricular Development*, 9. <https://doi.org/10.1177/23821205221076022>
4. Meilianti S, Galbraith K, Bader L, Udoh A, Ernawati D, Bates I. The development and validation of a global advanced development framework for the pharmacy workforce: a four-stage multi-methods approach. *Int J Clin Pharm*. 2023 Aug;45(4):940-951. doi:
5. Peeters, M. J. (2017). Targeting assessment for learning within pharmacy education. *American Journal of Pharmaceutical Education*, 81(8)



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The Use of Artificial Intelligence in Pharmacy
Education to Create Opportunities for Change

Dr Maryann Wu



The Use of Artificial Intelligence in Pharmacy Education to Create Opportunities for Change

Ian Haworth, PhD

Vice Chair and Associate Professor
of Pharmacology and
Pharmaceutical Sciences

Ying Wang, PharmD, APh

Director of Professional Experience
Programs and Assistant Professor
of Clinical Pharmacy

Maryann Wu, EdD

Assistant Dean for Assessment and
Assistant Professor of Clinical
Pharmacy



USC University of Southern California

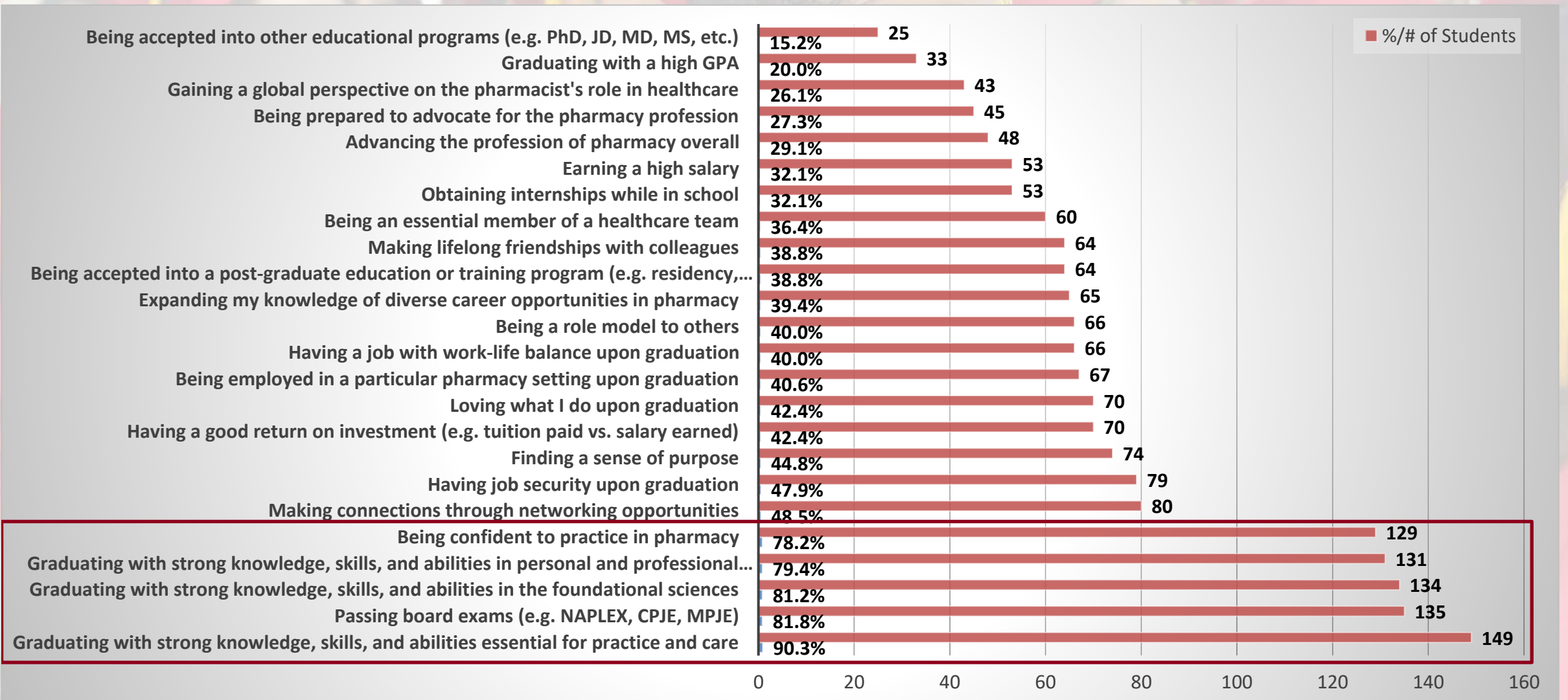
- Located in Los Angeles, California
- Private research university
- Student body (2023-2024 academic year)
- **47,000 total students at USC**
 - 21,000 undergraduates
 - 26,000 graduate and professional students
- **1,187 students at USC Mann School of Pharmacy and Pharmaceutical Sciences**
 - 673 professional practice (PharmD) students
 - 71 doctoral research (PhD) students
 - 32 doctoral other (DRSc) students
 - 239 master's students
 - 8 graduate visitors
 - 164 undergraduates



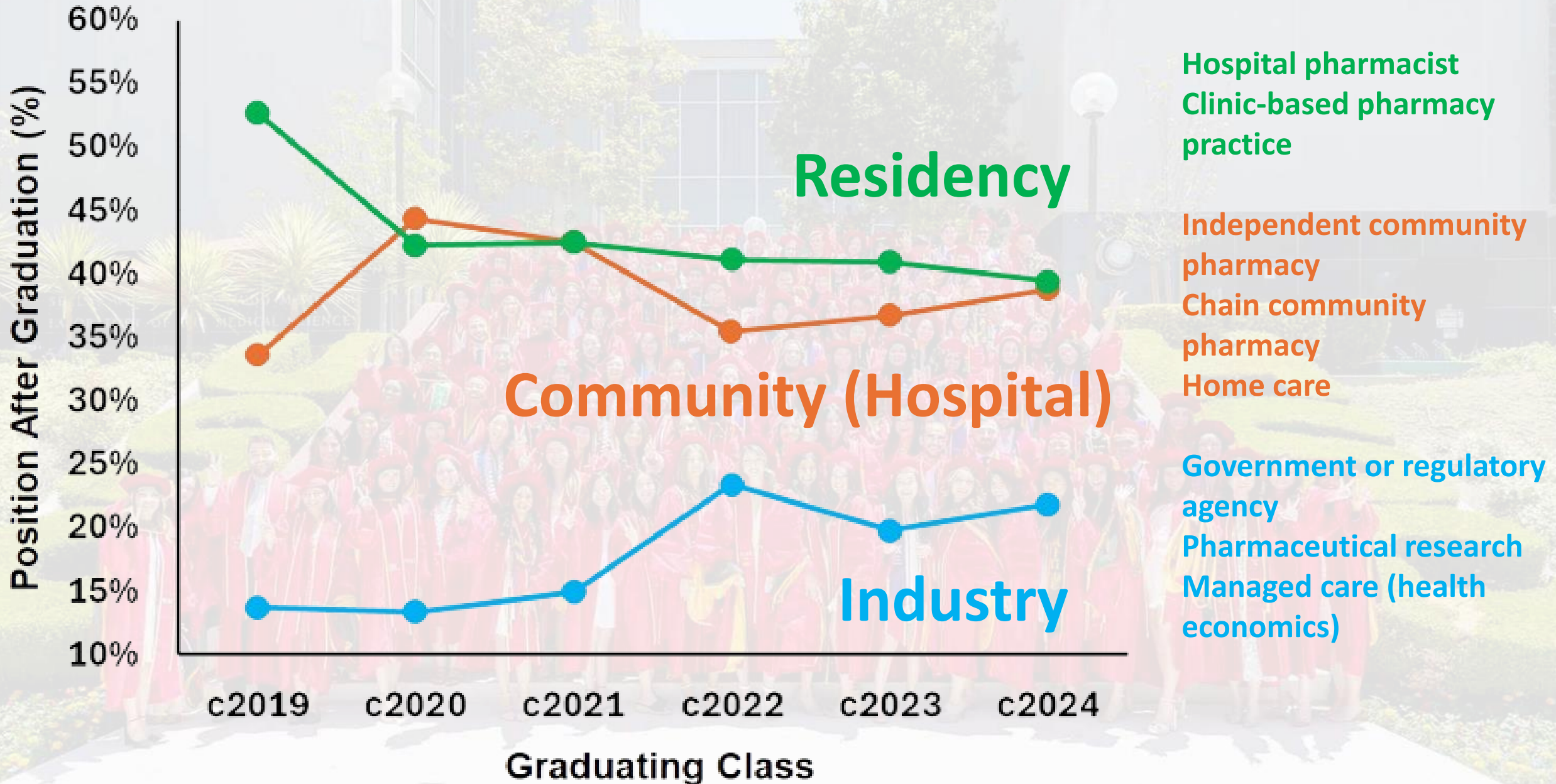
Background

- The 2023 American Association of Colleges of Pharmacy (AACCP) indicates an **average loan of \$167,711 USD** to finance a **three-to-four-year PharmD education**.
- **Career aspirations are becoming wider and more diverse** (e.g. hospital, ambulatory care, community, pharmaceutical industry, managed care).
- **Needs of pharmacists are changing rapidly.**
- Students are **seeking further education and training** upon graduation (e.g. residencies and fellowships).
- There is a **responsibility to maximize student success outcomes** while also **meeting the healthcare needs of society**.
- This may be facilitated through the use of **AI-SiPS (Artificial Intelligence - Success in Pharmacy School)**.

How Our Class of 2024 Graduating Students Defined “Success” in Pharmacy



Actual Outcomes Upon Graduation: “RIC(H)” Outcomes



Objectives

- To collect and curate **curricular and co-curricular data** related to student outcomes at **multiple stages** of the **PharmD program**.
- To build a **multi-step AI model (AI-SiPS)** that utilizes these data to identify variables that can facilitate **student success** upon graduation.

Node-Based Data Analytics using KNIME

- AI-SiPS model built using KNIME (Konstanz Information Miner)
- A free, low-code/no-code software
- Intuitive and opens up data analytics to content experts
- Allows assessment questions to be driven by real-time data
- Can “convert” data into a narrative conversation
- Widely applicable to all fields
- Lots of help online



<https://www.knime.com>

Sample AI-SiPS KNIME Workflow

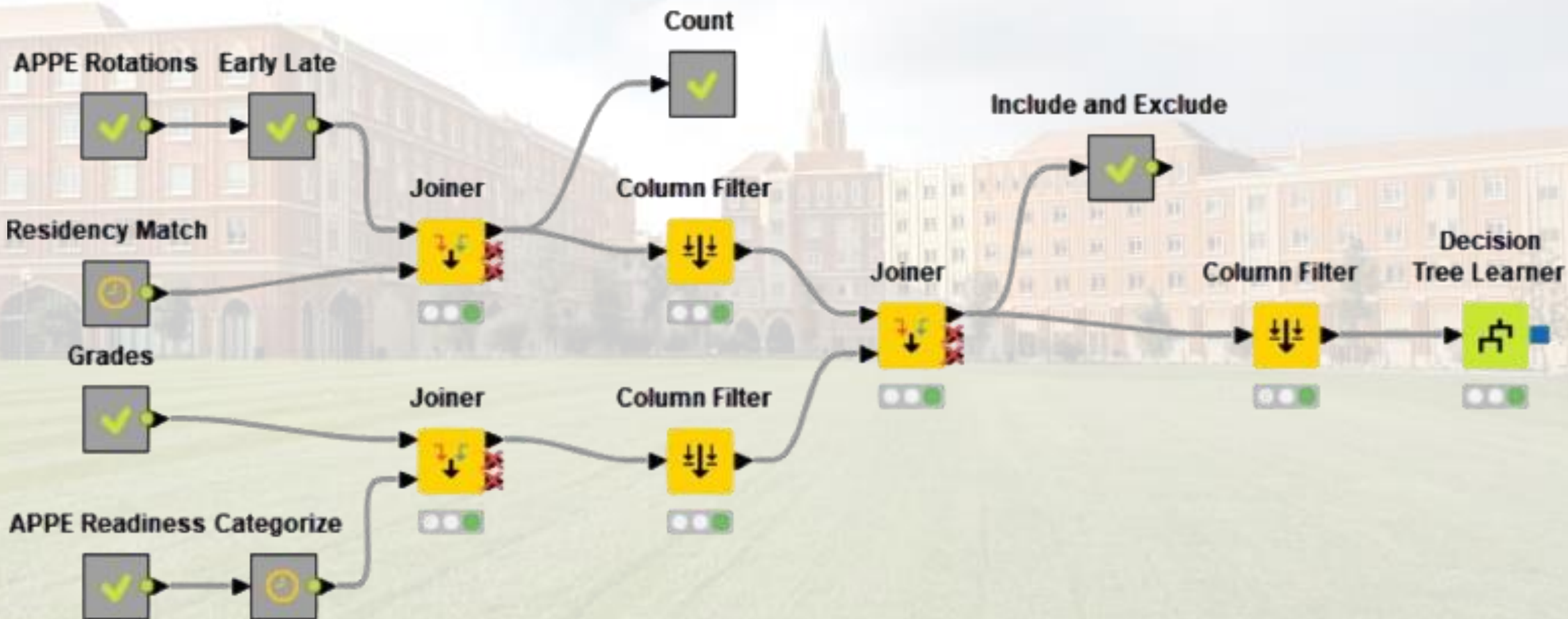
Read and Process
Input Data



Combine Data and Choose Data Set for Analysis

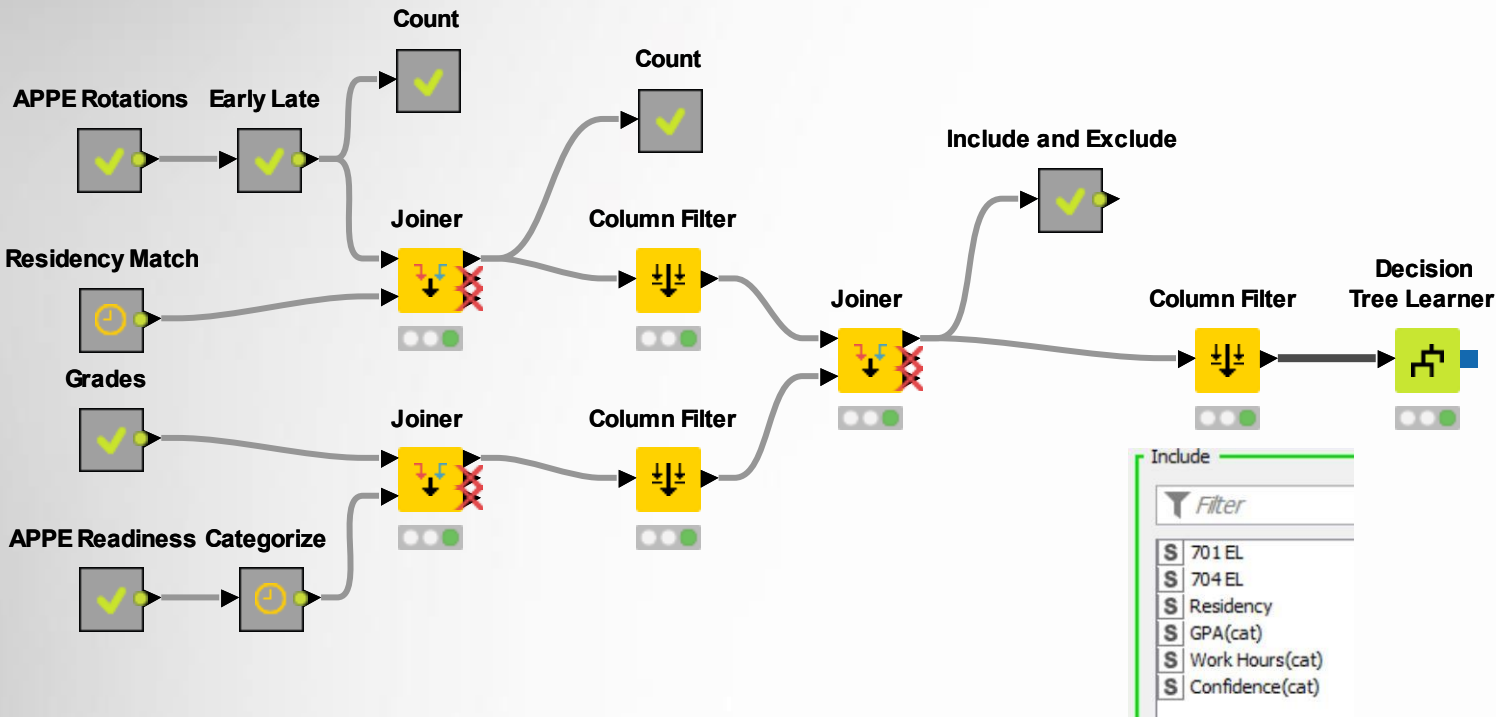


Calculate and
Visualize Output

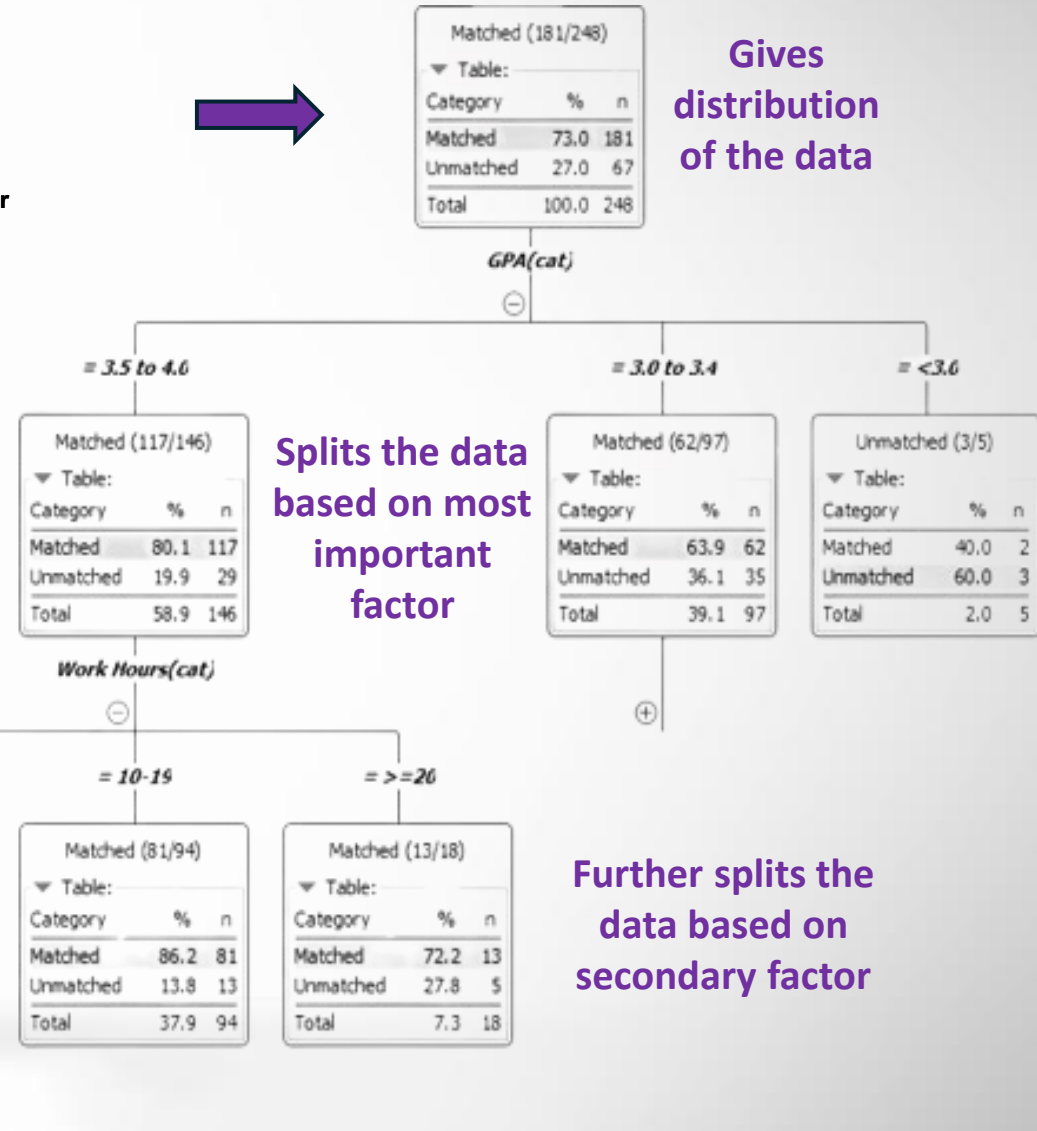


What Leads to Success in Matching for Residency?

KNIME Workflow



Decision Tree



Gives distribution of the data

Splits the data based on most important factor

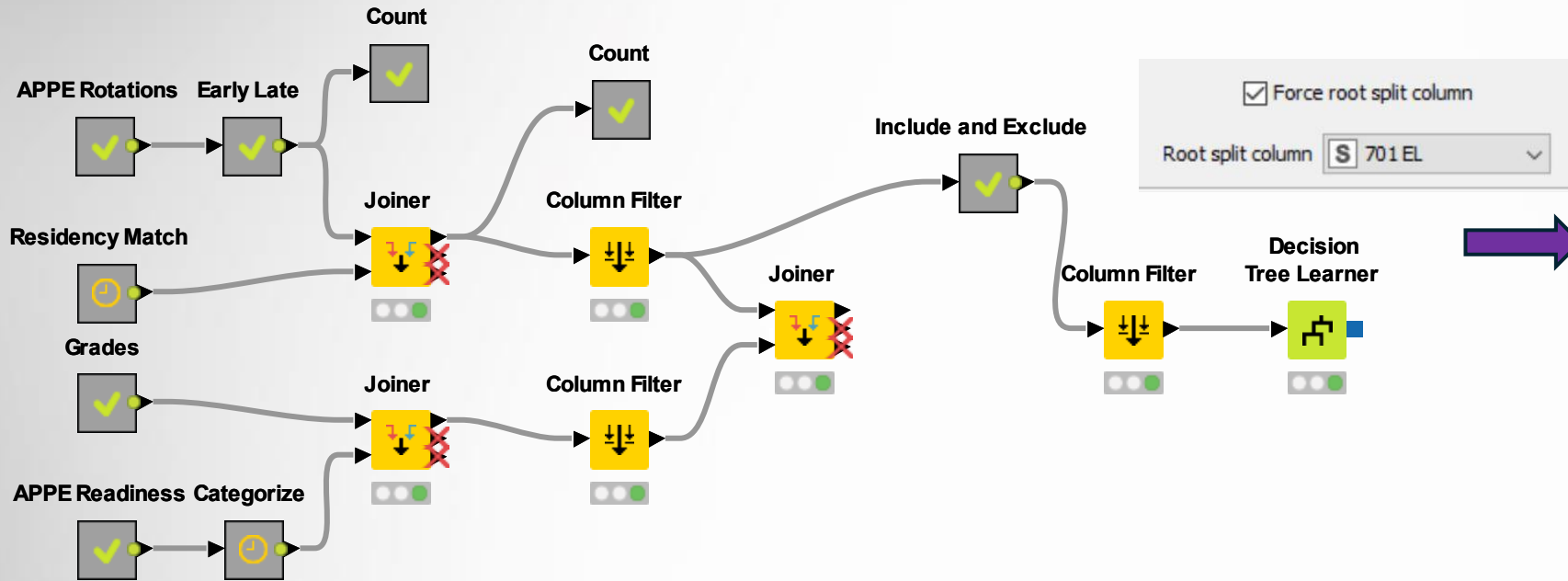
Further splits the data based on secondary factor

Narrative for Matching to Residency

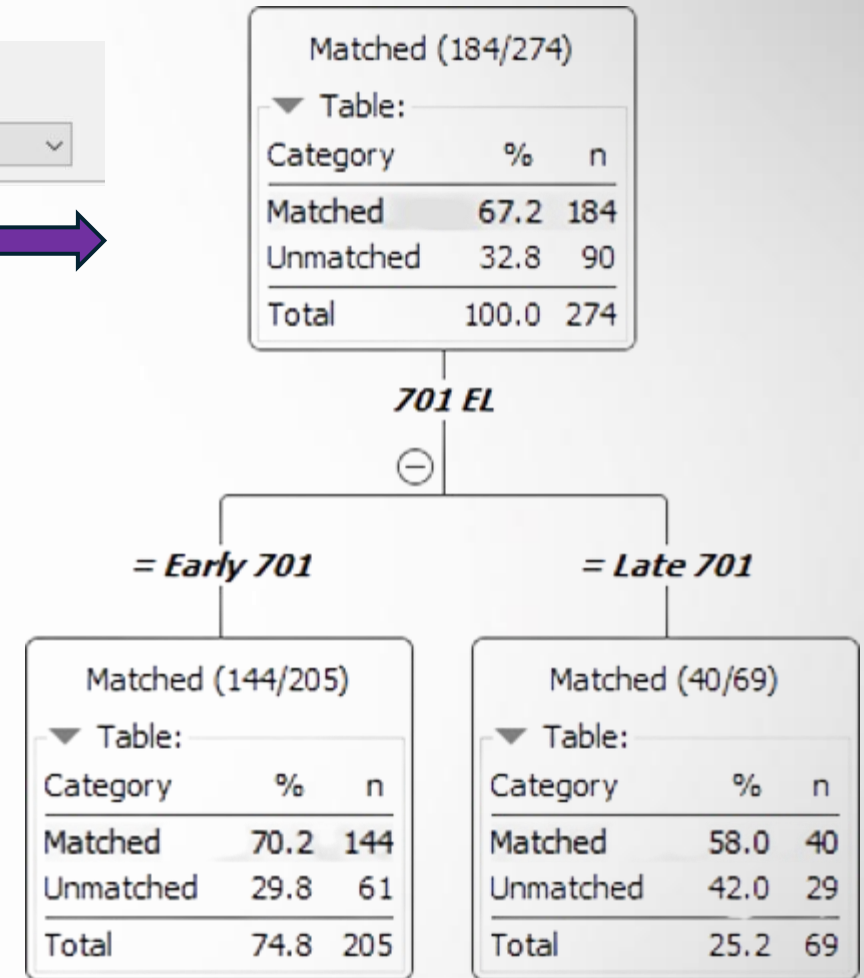
- Classes of 2019-2024
- Data for 248 students (limited by survey response)
- Match rate to residency: 73.0%
- Matching to residency driven by GPA: a match rate of 80.1% for GPA >3.5
- For students with GPA >3.5, working from 10 to 19 hours is optimal: match rate is 86.2%
- **Key takeaway: A balance of academic success and professional experience is important**

Does APPE Rotation Order Affect Residency Match?

KNIME Workflow



Decision Tree



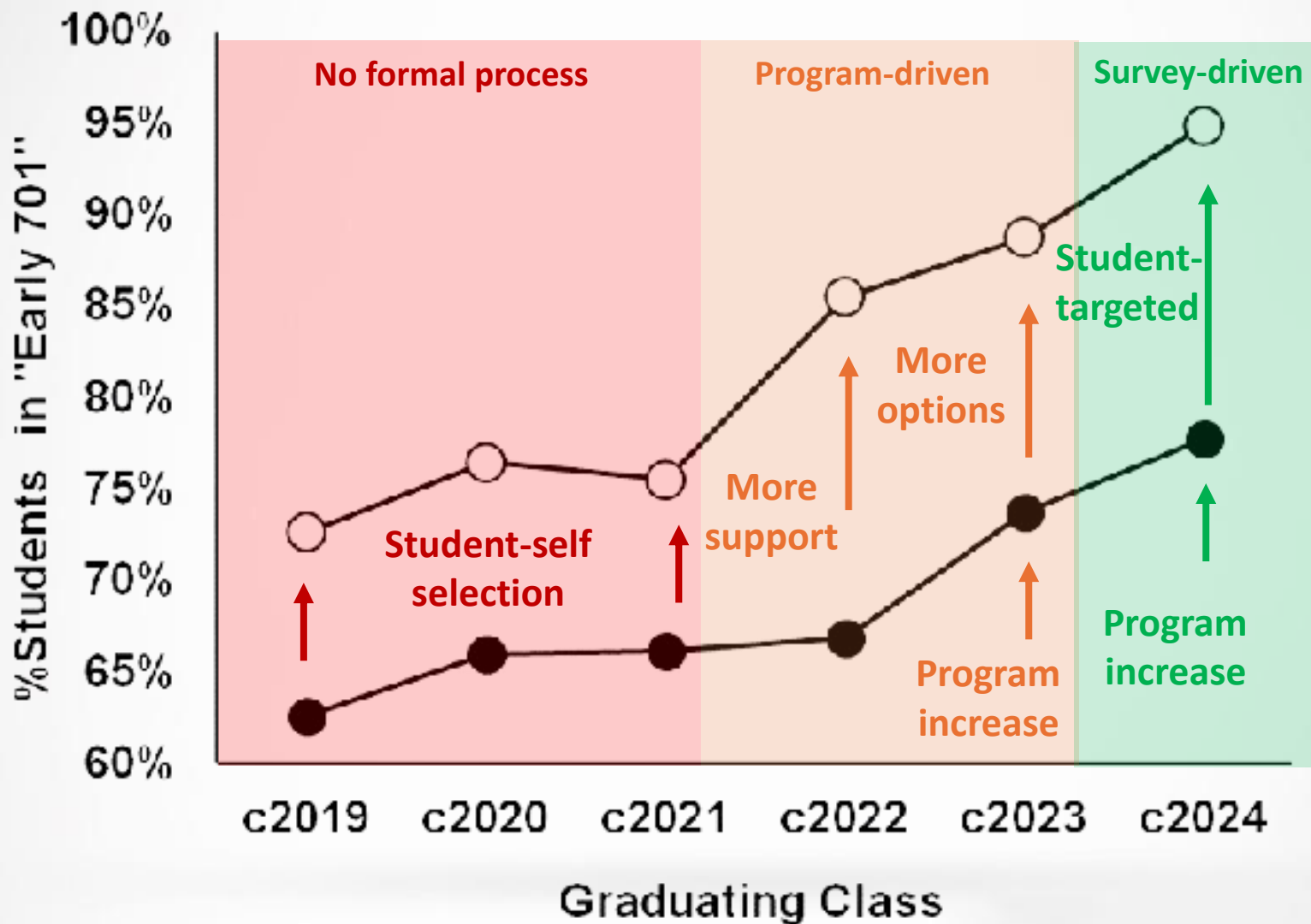
Narrative for Matching to Residency

- Classes of 2019-2021
- Data for 274 students
- Match rate to residency: 67.2%
- Matching to residency is improved if a student is assigned an “Early 701”: 70.2% vs. 58.0%
- **Key takeaway: Can we ensure that students who want a residency have more opportunity to take an “Early 701”?**

Intervention from AI Results: Survey in Fall for Residency Plans

Only 75% of students desiring a residency had an "Early 701" (acute care rotation)

- Residency Applicants
- All Students



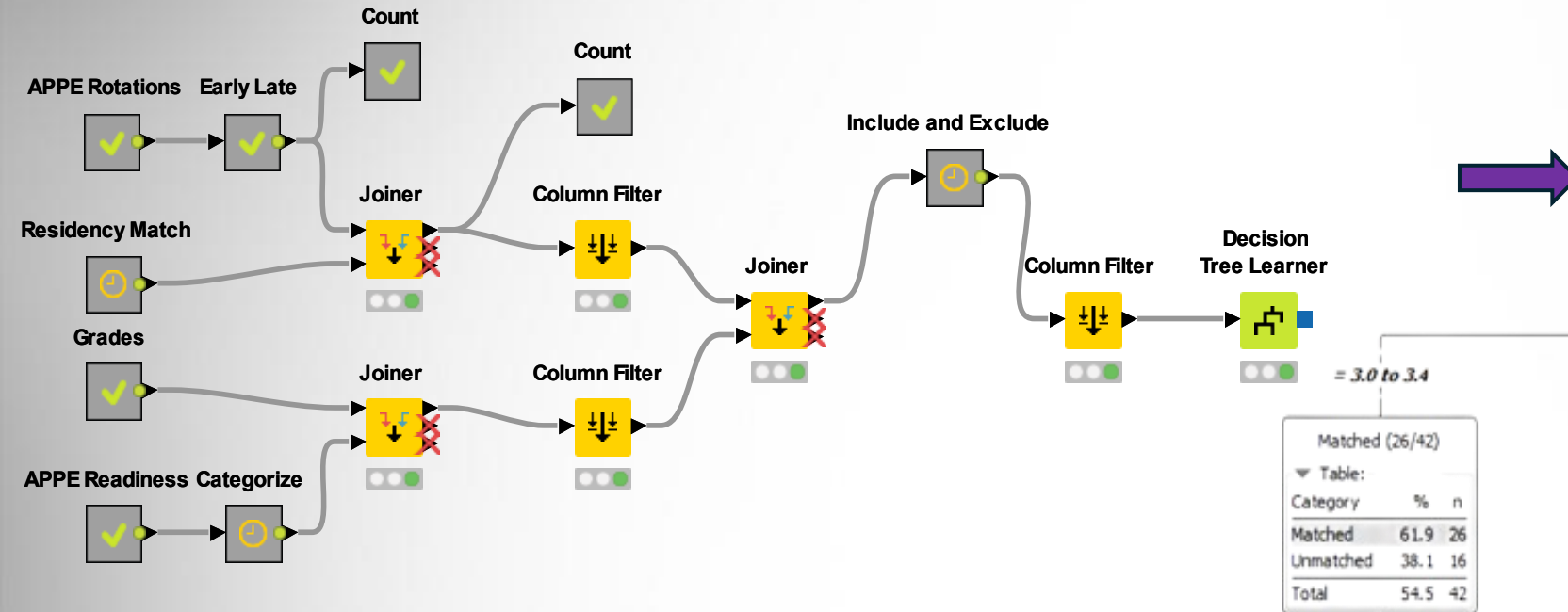
95% of students desiring a residency now have an "Early 701" (acute care rotation)

Workload effect: Reduction in change requests

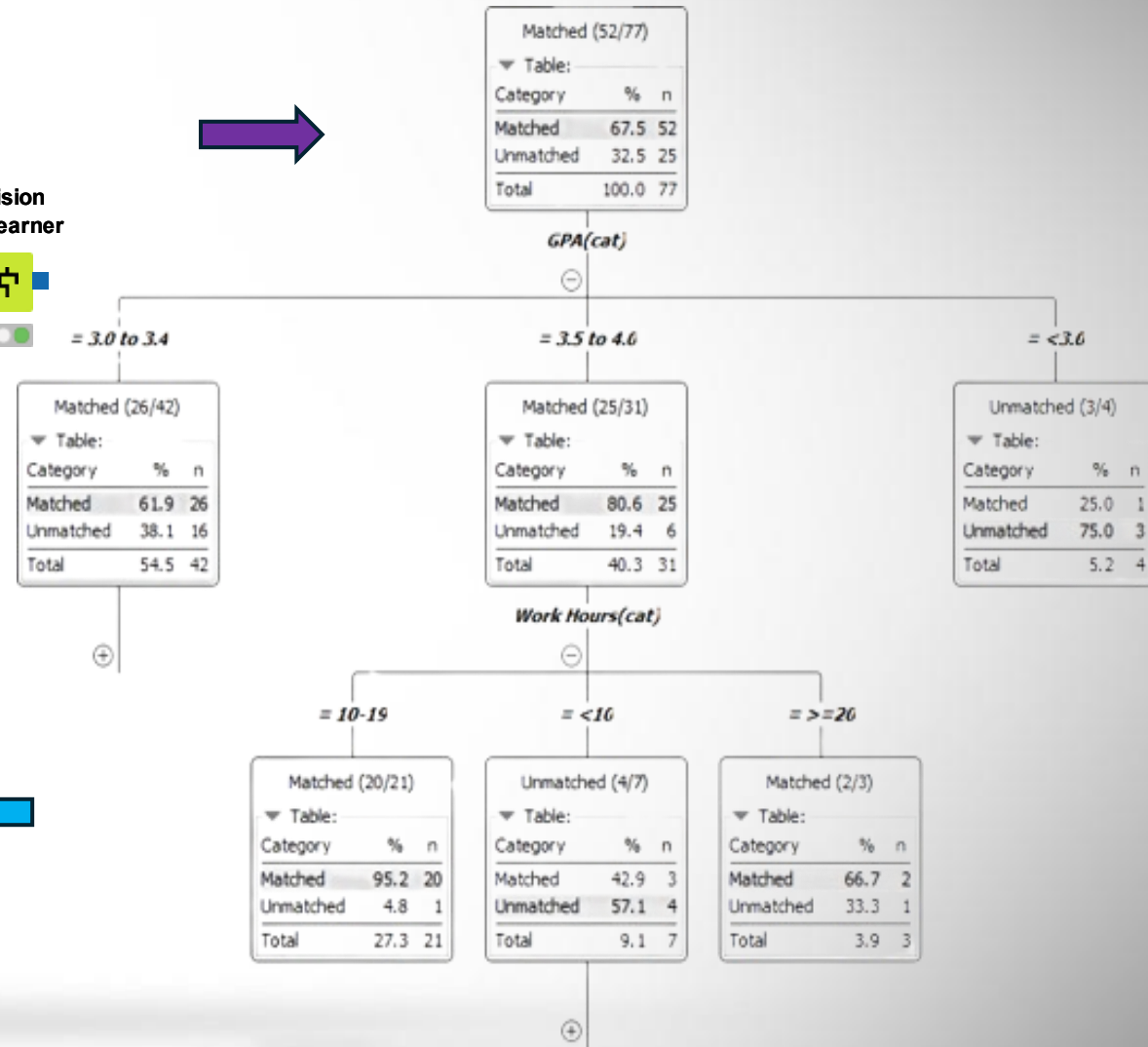
... but no clear increase in rate of residency matching

What Other Factors Are Important in Residency Match?

KNIME Workflow



Decision Tree

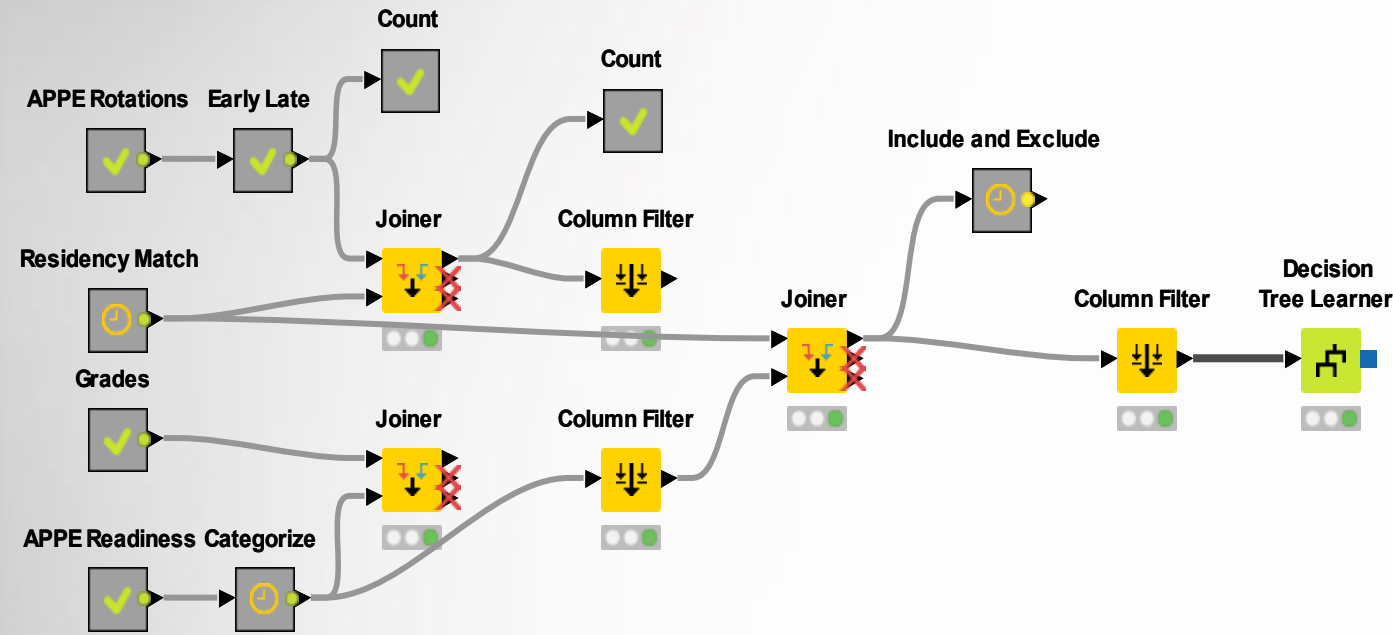


Narrative for Matching to Residency

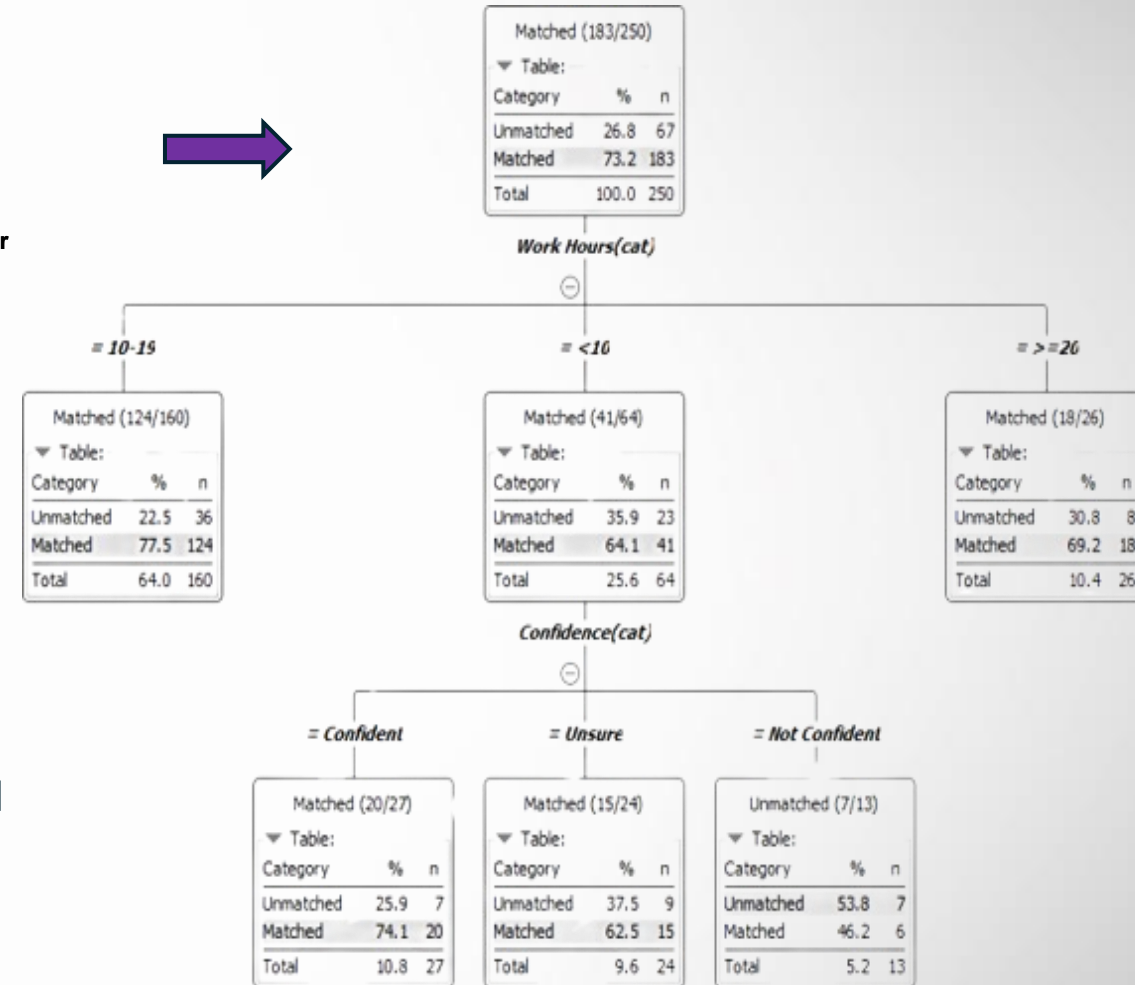
- Class of 2024 only
- Data for 77 students
- Match rate to residency: 67.5%
- Almost everyone has an “Early 701” (not shown here)
- Results are clarified for GPA and work hours
- **Key takeaway: A student who maintains a GPA >3.5 and works an average of 10-19 hours per week is almost certain to match for a residency (>95%)**

What Happens If We Exclude GPA from the Calculation?

KNIME Workflow



Decision Tree

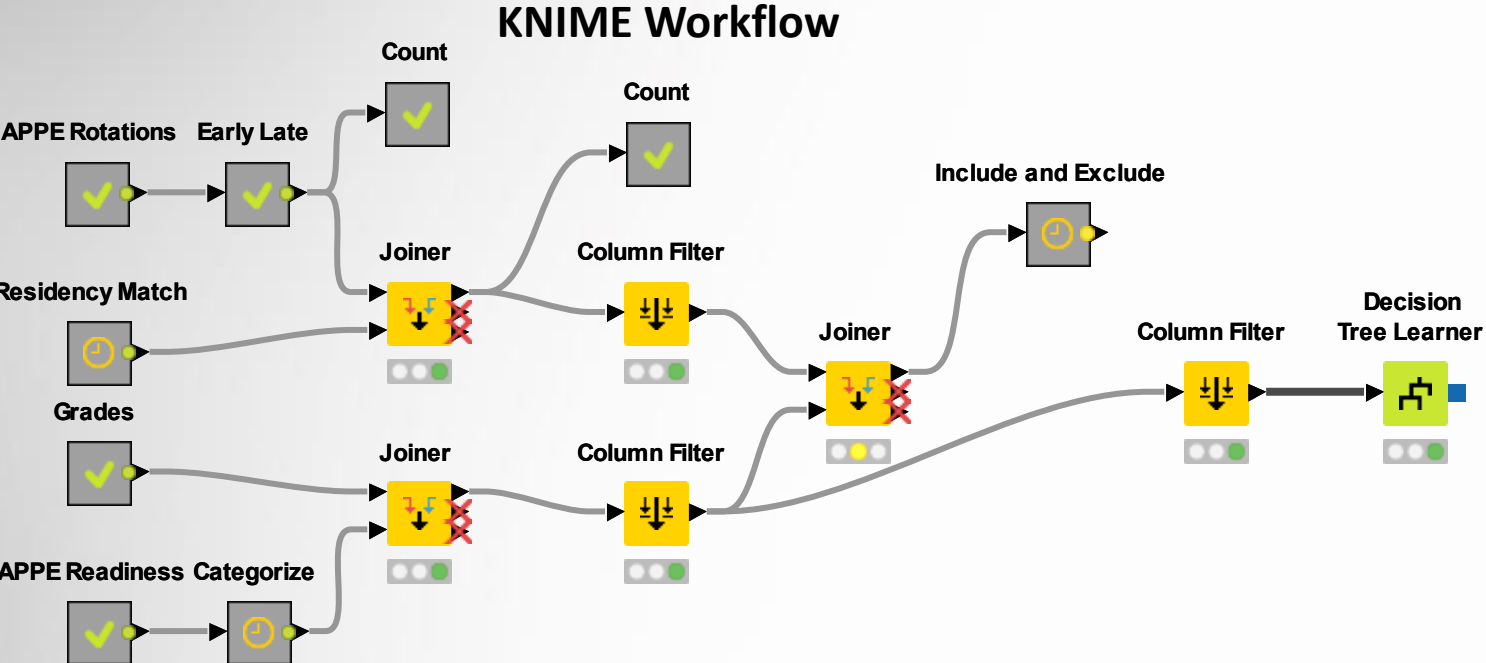


Narrative for Matching to Residency

- Classes of 2019 to 2024
- Data for 250 students
- Match rate to residency: 73.2%
- Work hours remains important: 77.5% for 10-19 h
- Confidence is also important for those who work less: 74.1% if confident
- **Key takeaway: Working 10-19 hours per week is positive for residency regardless of GPA, but confidence can compensate. Where does confidence arise from?**

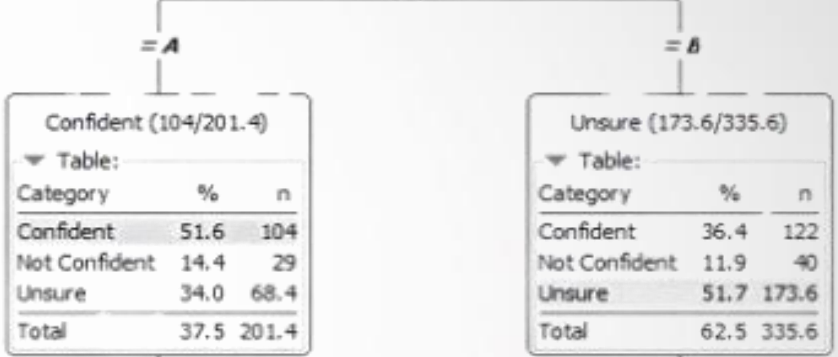
Where Does Confidence Come From?

Decision Tree

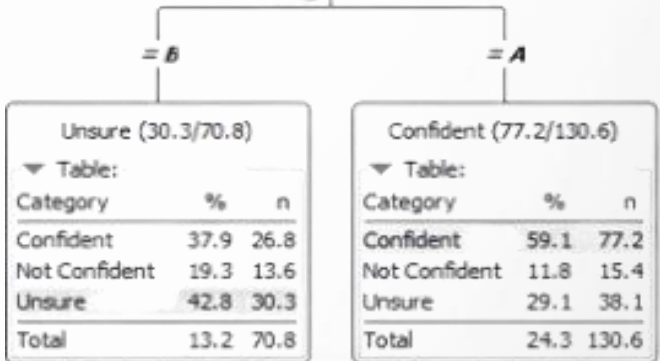


Unsure (242/537)		
Table:		
Category	%	n
Confident	42.1	226
Not Confident	12.8	69
Unsure	45.1	242
Total	100.0	537

PHRD-619



PHRD-516

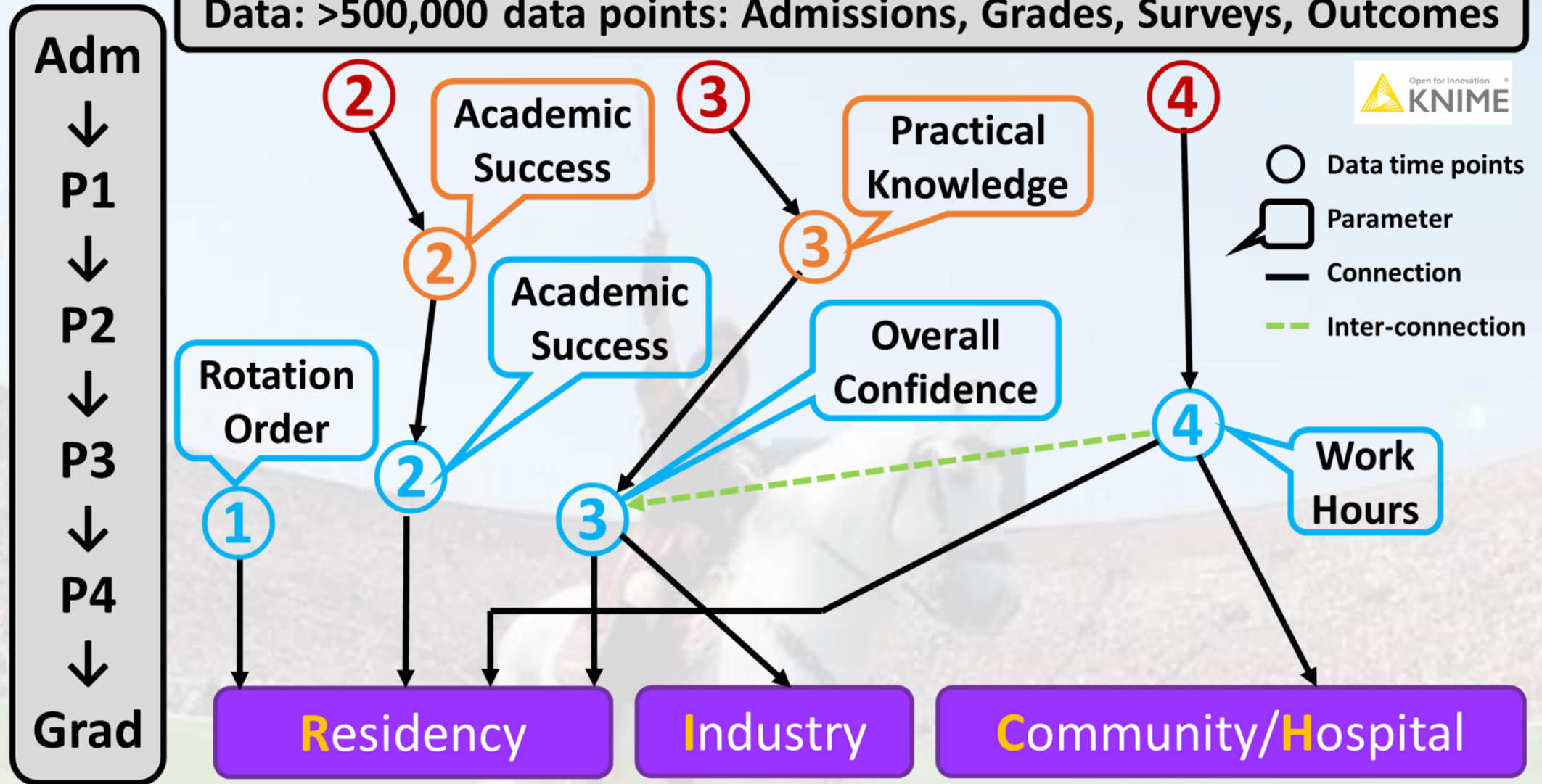


Narrative for Matching to Residency

- Classes of 2019 to 2024
- Data for 537 students
- Analysis is for confident vs. not confident vs. unsure
- Based on a survey in Spring P3 (APPE Readiness)
- PHRD 619 (Fall P3 cardiology) grade is most important
- 77.2% confident if A in PHRD 619 and PHRD 516 (P1 OTC course)
- **Key takeaway: Success in a practical first year course can lead to later improved performance and increased confidence**

An Overview of AI-SiPS: RIC(H) Outcomes

Data: >500,000 data points: Admissions, Grades, Surveys, Outcomes



- Data time points
- ◻ Parameter
- Connection
- - - Inter-connection

- ① Rotation Data
- ② Grades
- ③ APPE Readiness
- ④ Work hours



Take Home Points

- Our **working AI model (AI-SiPS)** is beginning to identify factors related to student outcomes upon graduating from a four-year PharmD curriculum.
- Identification of factors may **allow schools to modify their program, curriculum, career planning, and other interventions** to optimize students' post graduation outcomes.
- **More data** (e.g. admission and co-curricular involvement) may lead to improved accuracy to predict a student's outcome.
- Future plans are to **share KNIME workflows with other institutions** interested in using AI to support student success.

THANK YOU



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Ying Wang, PharmD, APh
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Maryann Wu, EdD
maryann@usc.edu





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2024 Pharmacy Education Symposium

VitOOLs: virtual and immersive medical pharmacology

Presented by *Lisa Tee* on behalf of *Dr Rima Caccetta*

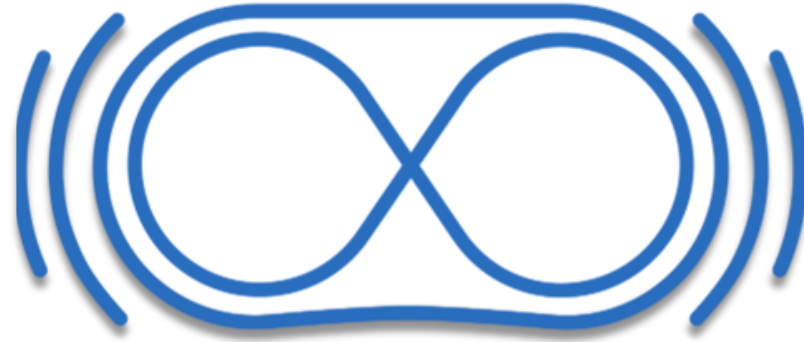
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VITTOOLS

Virtual and Immersive Medical Pharmacology

DR RIMA CACCETTA
CURTIN MEDICAL SCHOOL
FACULTY OF HEALTH SCIENCES



Curtin University



Curtinnovation Prize in Humanities 2021



Problem/Target Consumer(s)

- (1) Pharmacology knowledge is expanding but hands on training is constrained.
 - ▶ Diminished laboratory & tissue availability
 - ▶ Inadequate placement capacity
- (2) Ineffective Clinician to Clinician and Clinician to Patient communication.
 - ▶ Hastening recovery by empowering patients and improving connectivity
 - ▶ Globally growing problem complicated by language, broad effects & interactions of medication



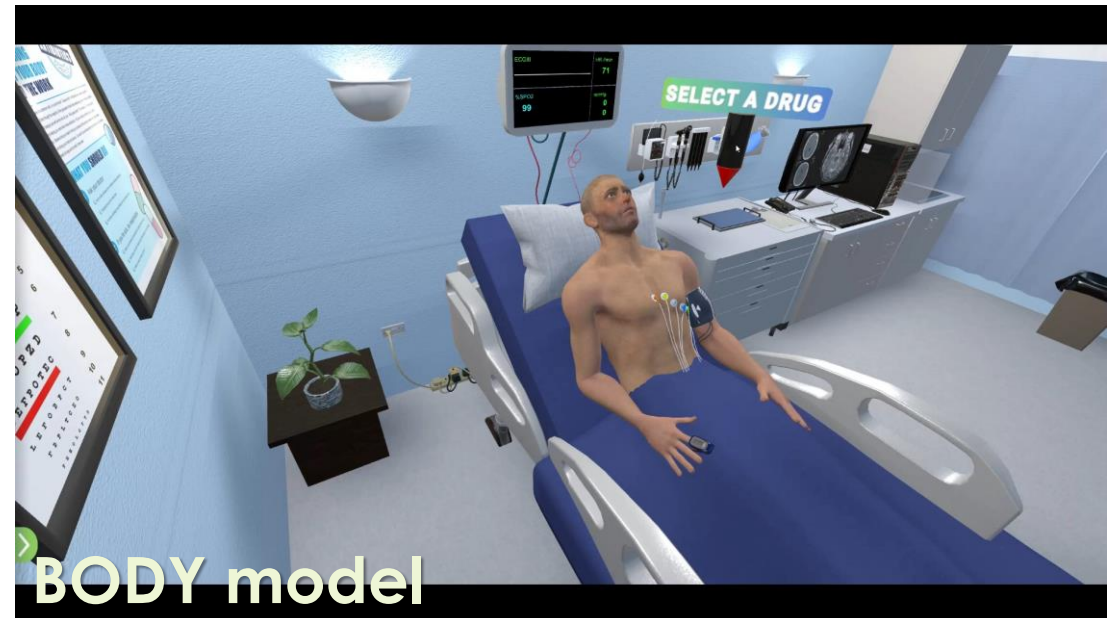
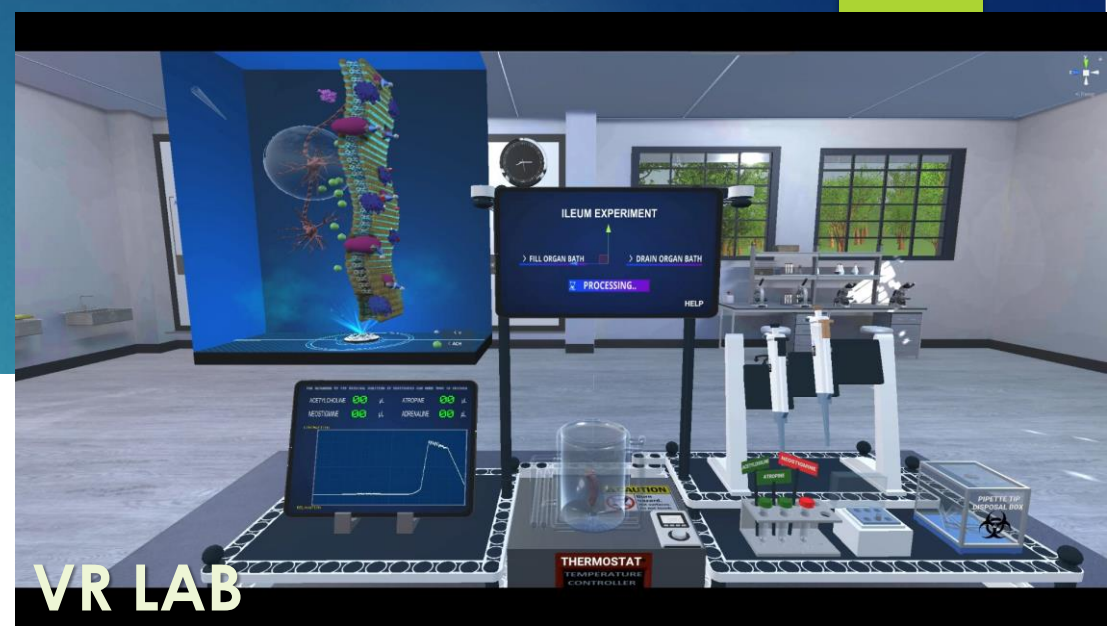


A virtual platform that visually assists learning by explaining **processes** involved in

- ▶ medical conditions
- ▶ treatment options
- ▶ medications

by integrating cellular detail, organs/tissues and body processes.

VitOOLs modules use various settings including **labs, clinics, hospitals** and **incorporates the visible and the invisible.**





Evaluation of prototypes

Phase 1

- Piloted in the undergraduate pharmacology and human biology units.
- Students were invited to complete the system usability scale (SUS) survey.



Phase 2

- a one-on-one session conducted with students in a usability study using SUS and emotional response evaluation (ERE) assessment.





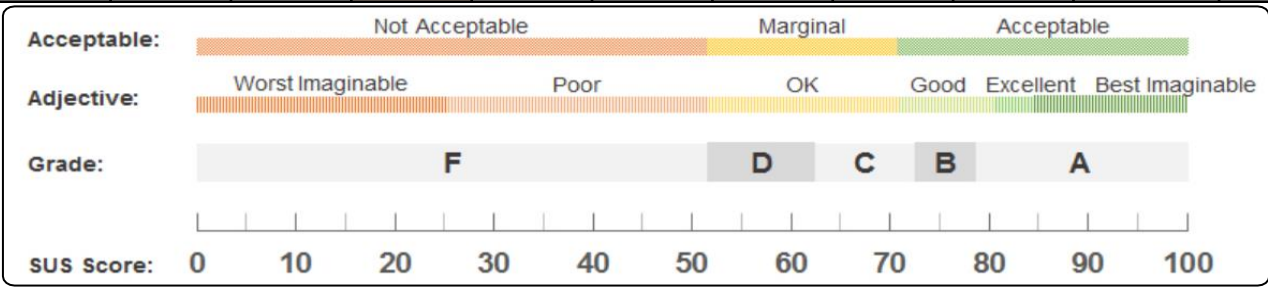
Usability Scores of prototypes

SUS Assessment (Average)

	Desire to use frequently	Unnecessarily complex	Easy to use	Need technical support to use	Functions well integrated	Too much inconsistency	People would learn quickly	Very awkward to use	Felt confident in using	Need to learn a lot of things before use	SUS Score	Adjective Rating
SUS	1	2	3	4	5	6	7	8	9	10		
Body Model	3.43	1.43	4.43	2.23	3.86	1.86	4.13	1.86	4.23	1.43	79.23	Good
VR Lab	3.25	2.57	3.14	4	4	2.29	3.29	2.86	2.86	2.57	55.63	Average

The SUS quantitative data indicated a usability score for **Body Model is good** and **VR LAB is average**.

- Learners unfamiliar with VR-headset reported
- difficulty in using controller
 - which impacted on time to complete task
 - felt overwhelmed



Interpreting SUS scores. Obtained from <https://measuringu.com/interpret-sus-score/>

Reference is made to Copyright Regulation 1969 on first page



Curtin second year unit data 2023

67

Challenging Biochemical-Pharmacology unit:

- ▶ First discipline unit following first year common core.
- ▶ Pre-requisite to 3 (out of 4) semester 2 units.
- ▶ For in-depth understanding of receptors, drug interaction and cell signalling.

Observations:

- ▶ Tutorial attendance increased to 98%
- ▶ Student engagement increased
- ▶ Significant (26%) increase in pass rate





Evaluations (with NDAs) 2024

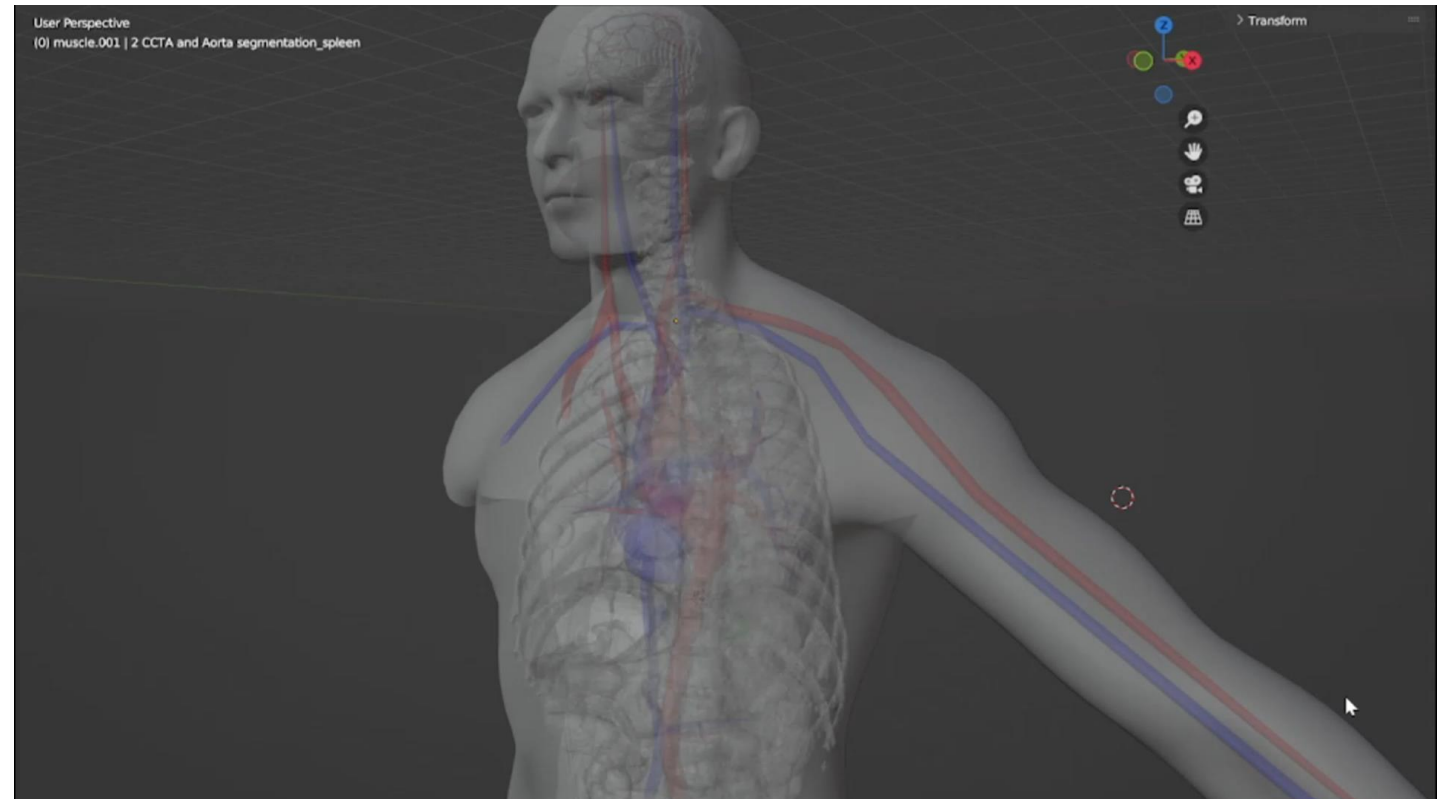
- ▶ Curtin (since 2022 and ongoing)
- ▶ UWA
- ▶ Monash University
- ▶ University of Queensland
- ▶ ASCEPT – will report on UWA and VR versus On Screen LAB





Virtual Twins

- ▶ Single communication platform
- ▶ All data in one place
- ▶ Visualised, explicit data with reduced misinterpretation
- ▶ Connection of symptoms
- ▶ Connection of side effects
- ▶ Faster diagnoses
- ▶ Less trial and error in treatment
 - Healthier, happier people
 - Reduced health burden





continuing active members

- Dr Rima Caccetta (Founder of VitOOLs; Development Lead).
- A/Prof Lisa Tee (Co-Founder of VitOOLs; Evaluation Lead).
- Prof Zhonghua Sun (Curtin Medical School, Faculty of health Sciences, Medical Imaging Expert).
- A/Prof Aneesh Krishna (School of Elec Eng, Comp and Math Sci (EECMS), Faculty of Science & Engineering, Curtin, Programming and Artificial Intelligence Advisor).
- Mr James Alex (PhD candidate in Mathematics, VitOOLs Programmer & Tech Advisor).
- Mr Limian Ci (PhD candidate in Maths, VitOOLs intern programmer).



+ GROWING NATIONAL & INTERNATIONAL COLLABORATORS



Acknowledgements

- ▶ Optus
- ▶ Curtin
 - ▶ ROC
 - ▶ HIVE
 - ▶ All Faculties
 - ▶ CMS
 - ▶ EECMS
- ▶ WA Department of Health – Prof Gareth Baynam (Director of Rare Care Centre, Practicing Clinical Geneticist)
- ▶ City of Canning



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2024 Pharmacy Education Symposium

Mobile application to assist training and uptake of deprescribing practice: A study exploring perceptions from the aged care workforce

Dr Chang Han Kuo

Mobile application to assist training and uptake of deprescribing practice:
A study exploring perceptions from the aged care workforce



Mobile application to assist training and uptake of deprescribing practice: A study exploring perceptions from the aged care workforce

Chong-Han Kua¹, Ira Syukrina¹, Ying Tong Ng¹, Sharlynn Danisha¹, Melody Loh¹,
Chantel Ng¹, Bryan Rai¹, Garion Goh², Sok Kem Tay³

¹School of Applied Science, Republic Polytechnic, Singapore

²School of Technology for the Arts, Republic Polytechnic, Singapore

³School of Infocomm, Republic Polytechnic, Singapore

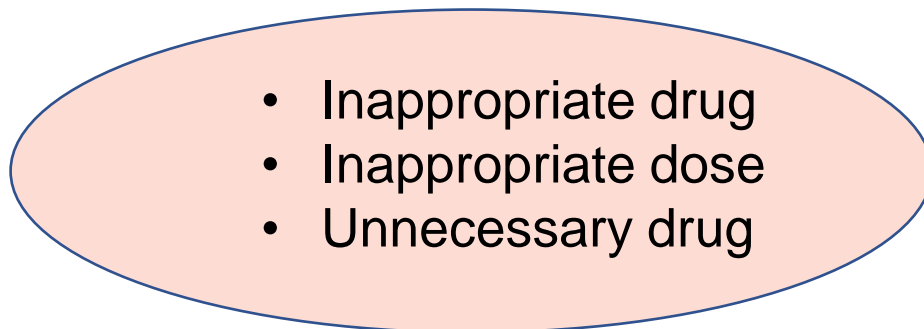
Correspondence email: kua_chong_han@rp.edu.sg

Introduction

Polypharmacy in Older Adults: A growing concern

More prevalent in older adults due to an increase in chronic diseases

Challenges: Pharmacodynamics and Pharmacokinetics changes make prescribing more difficult



Mobile application to assist training and uptake of deprescribing practice:
A study exploring perceptions from the aged care workforce

Deprescribing

The process of withdrawing, substituting or tapering inappropriate medication can:

- Reduce adverse effects
- Decrease fall risk and hospitalizations
- Reduce polypharmacy and medication cost

Current barriers in the nursing homes:

- Uptake of deprescribing practice is low
- Medical staff not familiar with the process or find the process of referring to resources too tedious

A mobile app can assist in training and practice.

Mobile application to assist training and uptake of deprescribing practice:
A study exploring perceptions from the aged care workforce

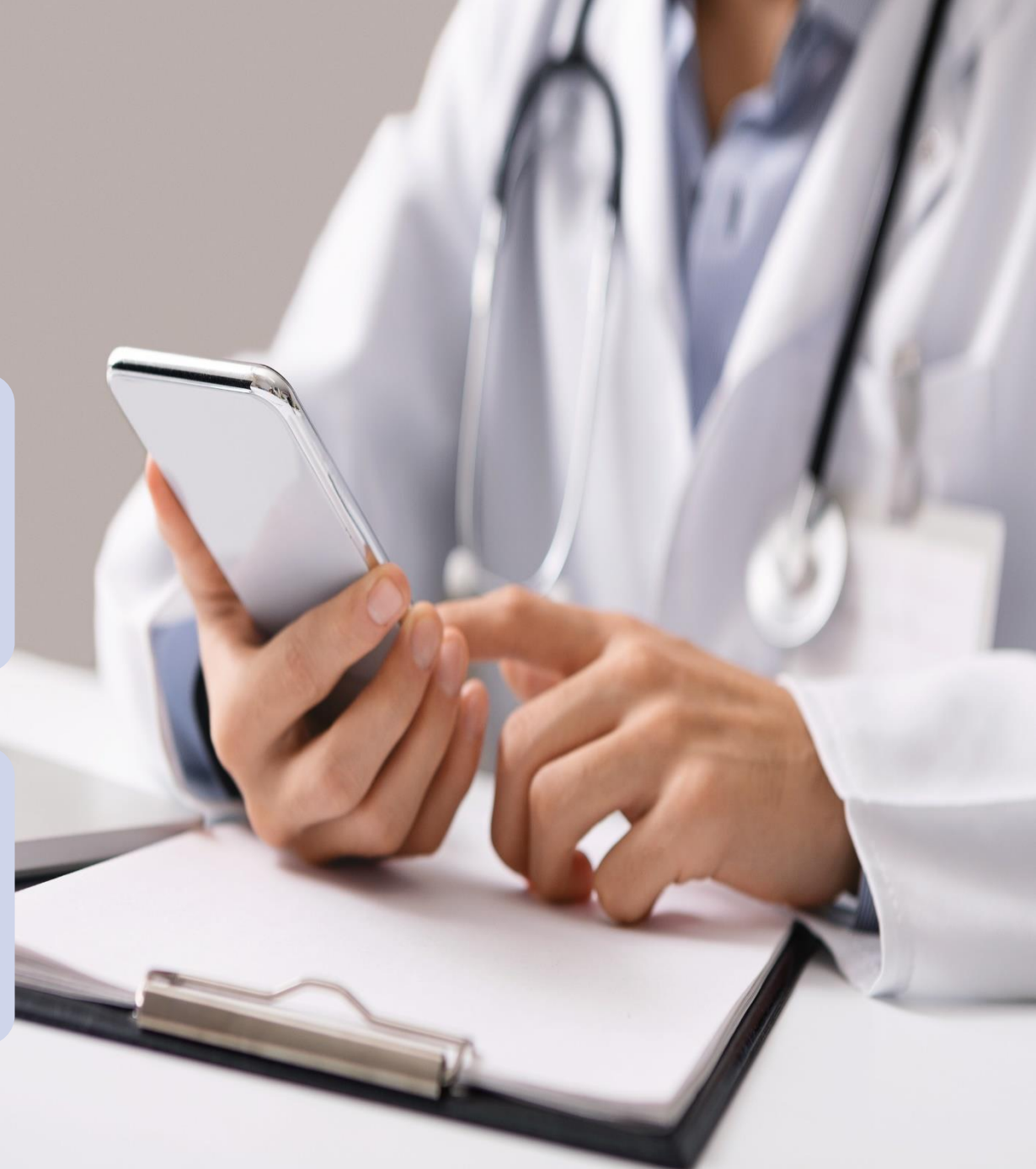
Objectives



To develop a sustainable deprescribing application to improve patient's outcomes, we need to adopt the principles of **user-centered design**.



The objectives of this study are to explore end-user perceptions and to assess the requirements and preferences for a deprescribing application.



Methodology

A survey was developed to explore the perception of the nursing home workforce toward the use of mobile applications for deprescribing.

- Literature review was done on the following electronic databases: Google Scholars and PubMed.
- Search terms included 'deprescribing app', 'prescribing app', 'mHealth', and 'app preference' for papers published in the last 10 years.
- 23 papers are assessed to be relevant. The deprescribing app survey questionnaire was developed after reviewing the papers' findings.
- Our survey was divided into major categories: 1) medical aspect, 3) technical aspect, and 4) the functional aspect of the application.
- The survey was validated by 5 experts comprising of doctors and pharmacists.

Mobile application to assist training and uptake of deprescribing practice:
A study exploring perceptions from the aged care workforce

Methodology

An online Likert scale survey was conducted with healthcare professional from aged-care facilities (nursing homes) in Singapore, involved in the prescribing, dispensing, administration and monitoring of medications.

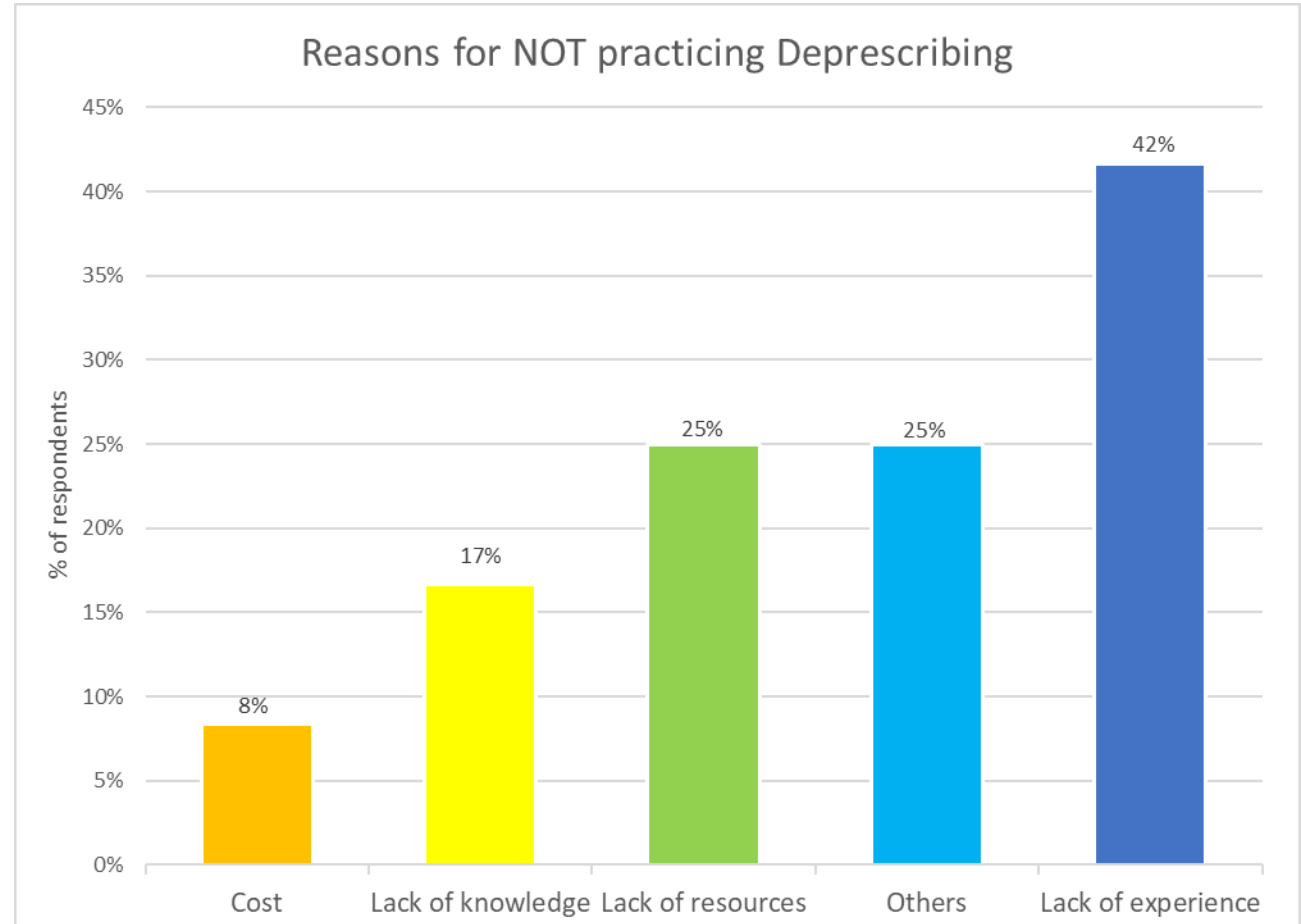
Doctors, pharmacists and nurses with at least 6 months of experience in the aged care facilities were recruited.

Informed consent was sought, and the survey is anonymous.

The targeted sample size is 40 participants from around three nursing facilities.

Results

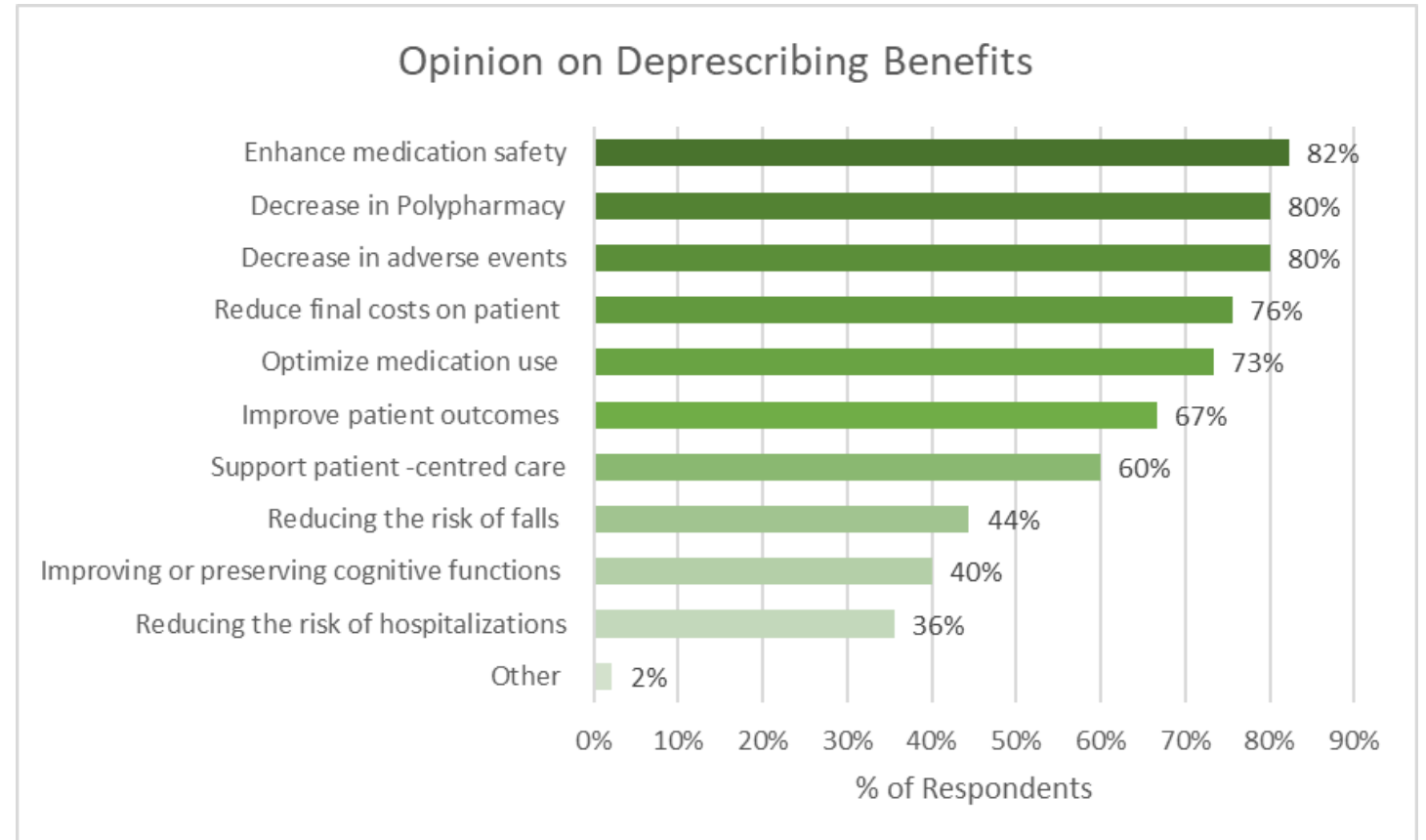
Forty-five participants, comprising of 24 (53%) aged-care nurses, 16 (36%) pharmacists and 5 (11%) doctors completed the survey. The main reasons for not deprescribing are lack of experience and resources, but most (91.1%) are receptive to using an application to aid in deprescribing.



Results

Most participants believed that deprescribing can reduce polypharmacy and adverse events while enhancing medication safety.

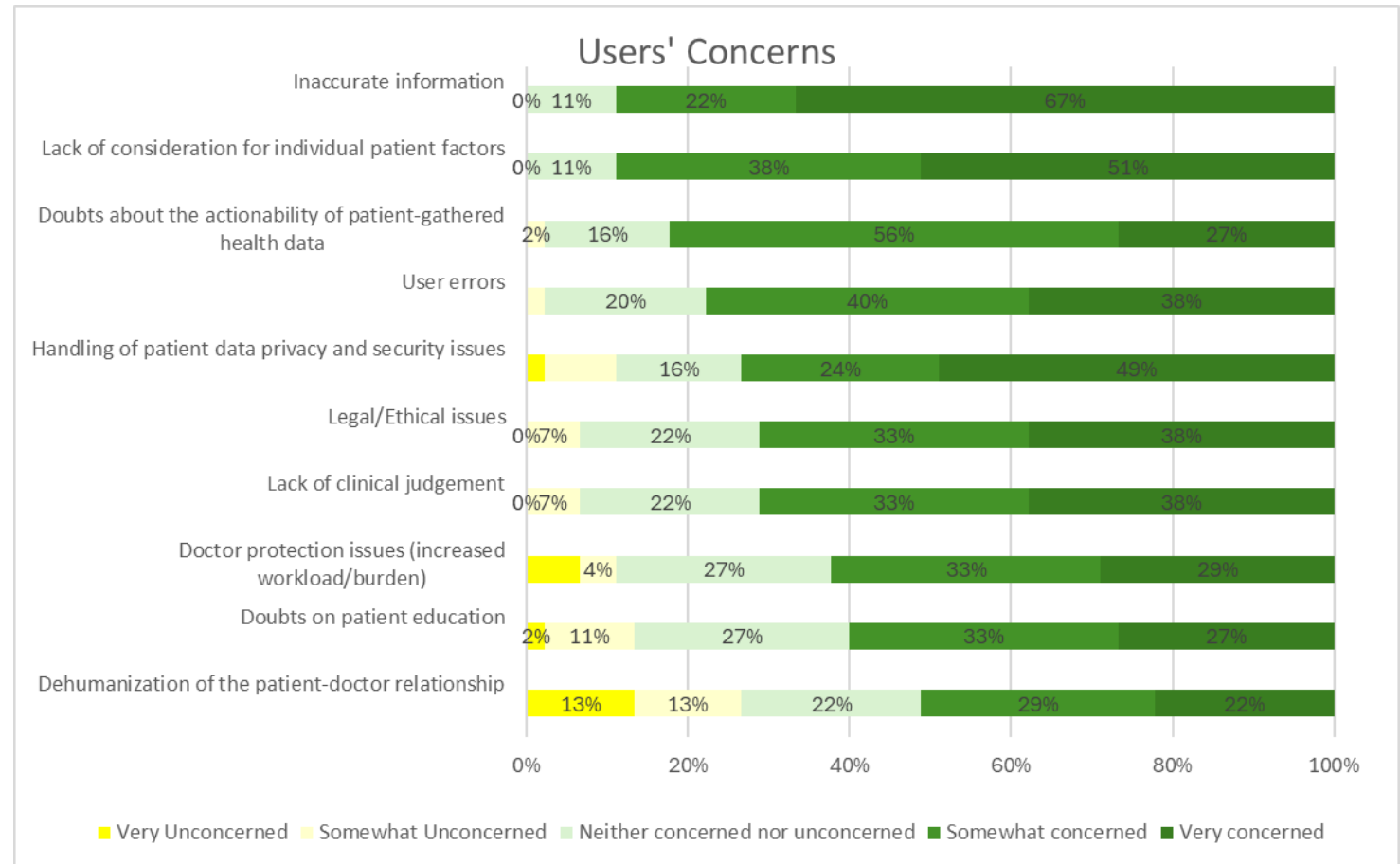
Most did not feel that it can reduce hospitalization and the risk of falls, or can improve cognition.



Results

The top functions that the participants wished to see in the application include evidence-based deprescribing guide, medication management, and communication tools.

The main concerns when using a deprescribing application include data privacy and security issues, inaccurate information, lack of consideration for individual patient factors, and lack of clinical judgement.



Mobile application to assist training and uptake of deprescribing practice:
A study exploring perceptions from the aged care workforce



Conclusion

In this study, pharmacists and other healthcare professionals highlighted the need for a deprescribing application, particularly in settings with limited deprescribing experience and educational resources. However, end-users' preferences and concerns should be prioritized when developing such applications.

By employing a user-centered design approach in application development, we can enhance the adoption of deprescribing practices among nursing home healthcare professionals. The application will ensure sustainable deprescribing practice within healthcare professionals' workflows, and provide a scalable model of care for older adults in nursing homes.

2024 Pharmacy Education Symposium

Virtual Advanced Pharmacy Practice
Experiences increase international
opportunities for more pharmacy students

Dr Melody Ryan

Virtual Advanced Pharmacy Practice Experiences

Increase International Opportunities for More Pharmacy Students

Melody Ryan, PharmD, MPH

In Person Experience



Shoulder to Shoulder Global Virtual APPE



- Transformed a previously existing international APPE into a virtual experience
- Circumvents the need to travel internationally to complete a global health clinical experience
- 5 student participants

Schedule

Week 1	8:00 - 10:00 AM	Orientation: Meet clinic staff, expectations, activities, protocols, discussion of potential projects. (Craig, Pablo, Melody).	8:00 - 9:30 AM	Virtual presence in Dr. Cristian consult	8:00 - 9:30 AM	Virtual presence in Dr. Cristian consult	8:00 - 9:30 AM	Virtual presence in Dr. Cristian consult	8:00 - 9:30 AM	Virtual presence in Dr. Cristian consult
	10:00 AM - 12:00 PM	Readings: CIA: Ecuador Country Profile, My Life Elsewhere; best practices for working with an interpreter Videos: STSG video; National Healthcare system of Ecuador video; working with an interpreter	9:30 AM - 11:30 AM	Follow-up research and/or review of patient cases	9:30 AM - 11:30 AM	Follow-up research and/or review of patient cases	9:30 AM - 11:30 AM	Follow-up research and/or review of patient cases Project work	9:30 - 11:00 AM	Follow-up research and/or review of patient cases Project work
			12:30-1:00 PM	Review of cases with Dr. Cristian	12:30-1:00 PM	Review of cases with Dr. Cristian	12:30-1:00 PM	Review of cases with Dr. Cristian	12:30-1:00 PM	Review of cases with Dr. Cristian
	1:00 - 3:30 PM	Reading: A primary care system to improve health care efficiency Videos: Virtual tour of the community; Political Climate of Ecuador	1:00 - 3:00 PM	Reading: https://www.migrationpolicy.org/article/welcome-wears-thin-for-colombians-ecuador Videos: STSG History	1:00 - 4:00 PM	Project work	1:00 - 3:00 PM	Project work	1:00 - 2:00 PM	Reflection: what are the shared challenges you find in Ecuador and the US regarding healthcare? (Melody)
	3:30 - 4:30 PM	Discussion: resources on primary health care in Ecuador and differences with the US. (Cristian)	3:00 - 4:00 PM	Discussion: The community and political atmosphere (Craig, Pablo, Mercedes)			3:00 - 4:00 PM	Discussion: immigration and COVID-19, recent impacts on healthcare (Mercedes, Carlos)	2:00 - 4:00 PM	Project work

- Daily clinic consultations
 - Interpreter provided as needed
- Topic discussions with staff or faculty
- Readings/viewings
- Presentations
- Longitudinal project
- Weekly reflections

Patient Consults

Participants (17)

Find a participant

- CB Craig Borie (Host, me)
- TR Tatiana Rojas (Co-host, guest)
- C CSHH (Guest)
- Pablo Boada (Interpreter)
- CT Cara Tresnowski (Guest)
- Carlos Quezada (Guest)
- CE Cristina Escobar (Guest)

yes no go slower go faster more clear all

Invite Mute All

Zoom Group Chat

A lil tet-man

From Emily Axtell to Everyone:
Not that this relates to this patient specifically, but I was just curious. Do you have CABG procedures in Ecuador?
coronary artery bypass graft^

From Tatiana Rojas to Everyone:
Yes, we have it in some hospitals (Not available in all hospitals around the country).

From Karen Barragán to Everyone:
Yes, we do

From Emily Axtell to Everyone:
I imagine that those procedures would be performed in the city only?

From Karen Barragán to Everyone:
Yes, at the main cities like quito and guayaquil

To: Everyone

Type message here...

9:15 AM
8/14/20

Discussions with Team



Discussions with Community



Student Presentations

The screenshot shows a Microsoft Word document titled "journal club-covid conspiracy" with a table containing presentation content. The table has two rows: "Objective" and "Trial design". The "Objective" row contains the text: "To determine if evidence exists to suggest that there is an increase in mental health disorders and a decrease in the well-being of health care workers based on a belief in conspiracy theories seen through various media platforms regarding COVID-19." The "Trial design" row contains a bulleted list of study details. To the right of the document is a vertical video call sidebar with six participants: Melody Ryan, Tate Drees, Hartley Feld, Craig Borie, cshh-areamedica.y, and Pablo Boada. The Word interface includes the ribbon (Home, Insert, Draw, Design, Layout, References, Mailings, Review, View, Zotero, Table Design, Layout, Tell me), the Quick Launch pane, the ribbon tabs, the ribbon itself, the Styles pane, the Dictate button, and the bottom status bar.

Objective	To determine if evidence exists to suggest that there is an increase in mental health disorders and a decrease in the well-being of health care workers based on a belief in conspiracy theories seen through various media platforms regarding COVID-19.
Trial design	<ul style="list-style-type: none">• Web-based cross-sectional study preformed via survey analysis that reviewed health care workers in both urban and rural areas.• 401 health care workers were approached in various health care settings• Population samples cover facilities in Carchi, Quito, and 11 other smaller provinces• Mental health- Conspiracy theory beliefs were measured by asking patients, "From what you've seen or heard, what do you think is most likely the origin of coronavirus?" There were 4 response options given<ul style="list-style-type: none">○ It came about naturally○ It was developed intentionally in a lab (conspiracy theory belief)○ It was most likely made accidentally in a lab○ I am not sure where the virus originated• Used the Generalized Anxiety Disorder-7 (GAD-7) to measure anxiety and the 6 item Kessler Psychological Distress Scale (K6) screening scale to measure psychological distress<ul style="list-style-type: none">○ Score of 10 or greater on GAD-7 and 13 on K6 represented generalized anxiety and psychological distress respectively• Well-being- measured with life satisfaction and job satisfaction

Page 1 of 3 1425 words English (United States) 205%



Additional Content

Welcome to the cultural buffet, where you can find additional activities and resources to explore Ecuadorian culture outside of scheduled brigade activities. Take a look and let us know what you find!

Language Skills

- Sign up for [Duolingo](#) to practice Spanish language skills
- If you would like some one-on-one instruction, Maria Ce Ruiz can provide those via a video link. She charges \$8/hour. As well as being a professional Spanish instructor, Maria Ce works with the Hombro a Hombro Foundation in Ecuador and often helps with the logistics of the brigade. Her email is

mariace997@gmail.com

Cooking Skills

- Check out Anthony Bourdain's *No Reservations* [episode in Ecuador](#)
- This [website](#) has several Ecuadorian recipes to try
- Here are some short cooking demonstration videos:
 - [Seco de Pollo Recipe \(Ecuadorian Chicken Stew\)](#)



Shoulder to Shoulder Global Virtual APPE

Student Activity	Total
Virtual consultations	60
Video assignments	20
Reading assignments	17
Topic discussions	15
Patient care progress notes	6
Reflective discussions	6
Disease state presentations	2
Journal clubs	2
Longitudinal project	1

“This experience provided large varieties of learning opportunities including not only insight into medicinal therapies in another country, but also how cultures outside of the United States have variables that go into medicine that differ from those seen to here. I learned a lot about the disparities in health in Ecuador with some of the biggest being cost and access to health care. Most parts of the rotation went well. I was assigned weekly presentations including journal club topics and disease state presentations which all went smoothly and the staff here in the United States and in Ecuador were able to ask questions and discuss the topics I presented on. Overall, I found that I was not having to spend too much time on screens which was something I was concerned about in the beginning. It is a virtual rotation, but there is down time that is there to give the eyes a break. The rotation is designed to help you learn about other cultures, and I made sure to take full advantage of that!”



What did I learn?

- So much!
- Home visits – what they are, who they're for, and how COVID has affected them
- One Health – the connection between the health of humans, animals, and the environment
- Tsáchila community – history, health disparities, and culture
- Global health ethics – First, do no harm.
- COVID and how it has specifically affected the children of Santo Domingo – education, socialization, violence, and food insecurity

Evaluations and Conclusions

- Students rated preceptor and experience highly
- Average ratings similar to in-person experience and overall APPE ratings
- A virtual international APPE can be a rich and rewarding experience

Why do virtual experiences?

- Travel restriction
- Access remote populations
- Support diversity, equity, and inclusion missions
- Financial limitations
- Place-bound students
- Environmental concerns



Beyond the Script

Virtual Advanced Pharmacy Practice Experiences

Increase International Opportunities for More Pharmacy Students

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2024 Pharmacy Education Symposium

Methodological review on digital health education and training development for healthcare professionals

Afina Nur Fauziyyah

Methodological review on digital health education and training development for healthcare professionals

Afina Nur Fauziyyah¹, Ian Bates¹

¹Department of Practice and Policy, School of Pharmacy, University College London

Supported by:



The 11th Monash University Pharmacy Education Symposium
Oral Paper Session 4: Role of digital health in pharmacy education and practice / Generative artificial intelligence in pharmacy education
Tuesday, 9th July 2024



Background and objective

Digital health and health workforce



WHO Global Strategy on Digital Health

Strengthen governance for digital health at global, regional and national levels:

Promote and facilitate digital health competencies in the education and training curricula of all health professionals and allied workers

Objective

This study aims to identify the methods used in developing digital health education and training competencies for health workforce.

Supported by:



lembaga pengelola dana pendidikan

Methods



Review protocol

- Joanna Briggs Institute (JBI) Evidence Synthesis
- Preferred Reporting Items for Systematic Reviews and Meta-Analyses for scoping review (PRISMA-Scr)



Inclusion criteria

- Participants/population: health workforce (healthcare professionals)
- Concept: education and training; competencies
- Context: digital health
- All studies published up till April 24, 2023



Exclusion criteria

- Abstracts (no full text), study protocol, opinion article.
- Article not in English



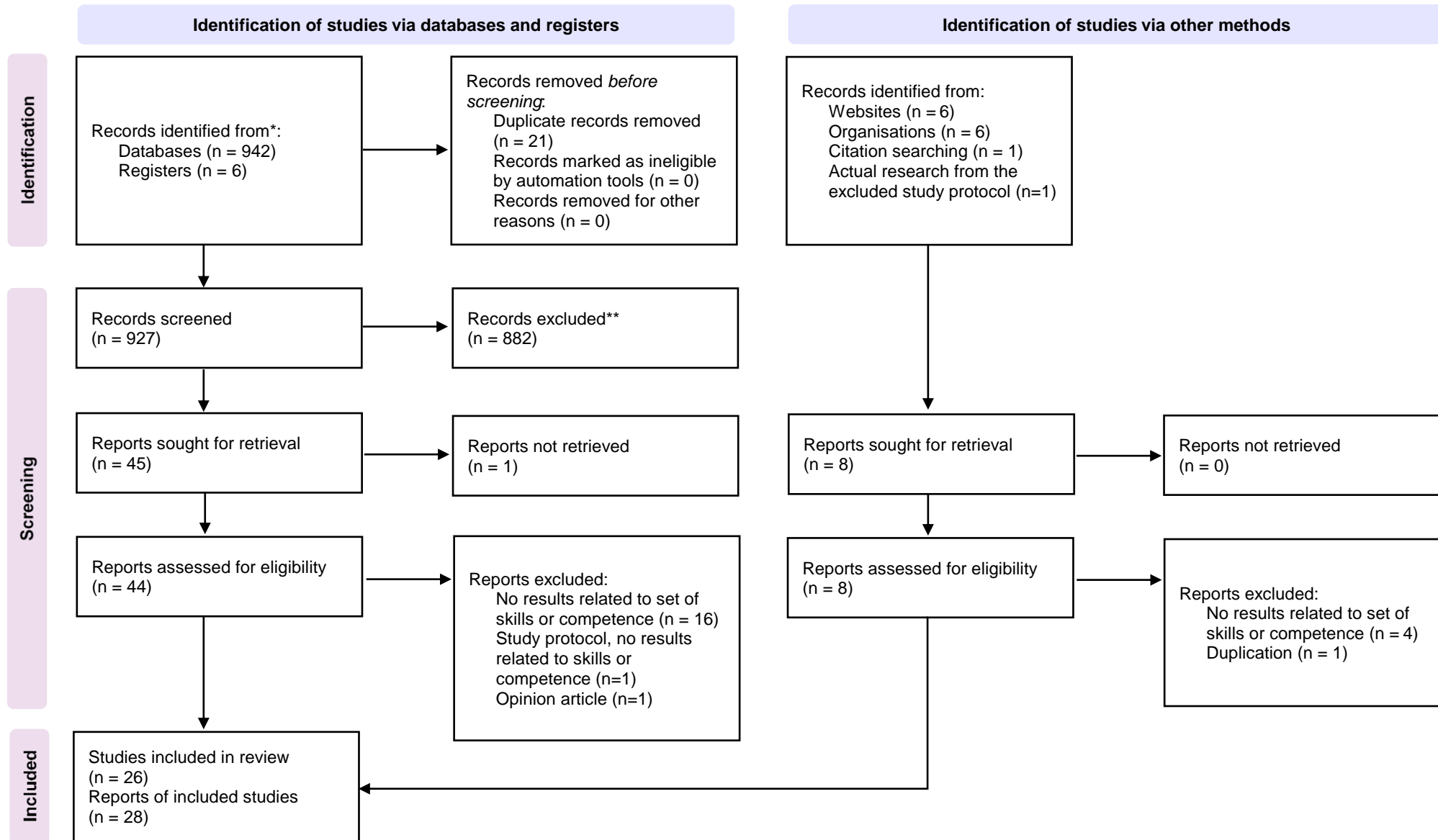
Search strategy

- Databases: MEDLINE, Pubmed, EMBASE, CINAHL Plus, Health Management Information Consortium, Social Policy and Practice, Educational Administration Abstracts (ERIC).
- Grey literature: Google, Google Scholar, Health organisations websites (WHO, FIP, AFPC, NHS, Health Education England), Prospero
- Search strategy was peer-reviewed by UCL School of Pharmacy librarian.



Screening & data extraction

- Preliminary title and abstract screening
- Full text review based on inclusion criteria
- Data extraction using piloted form

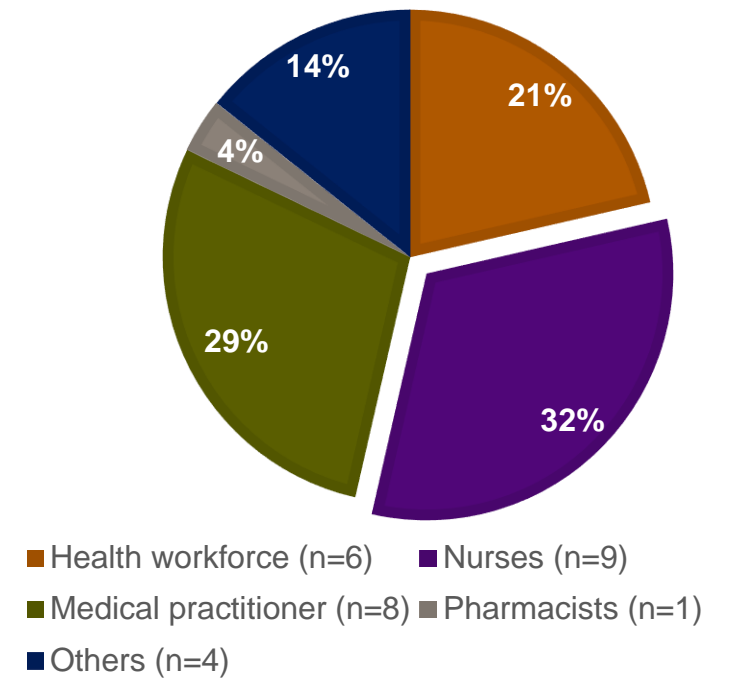
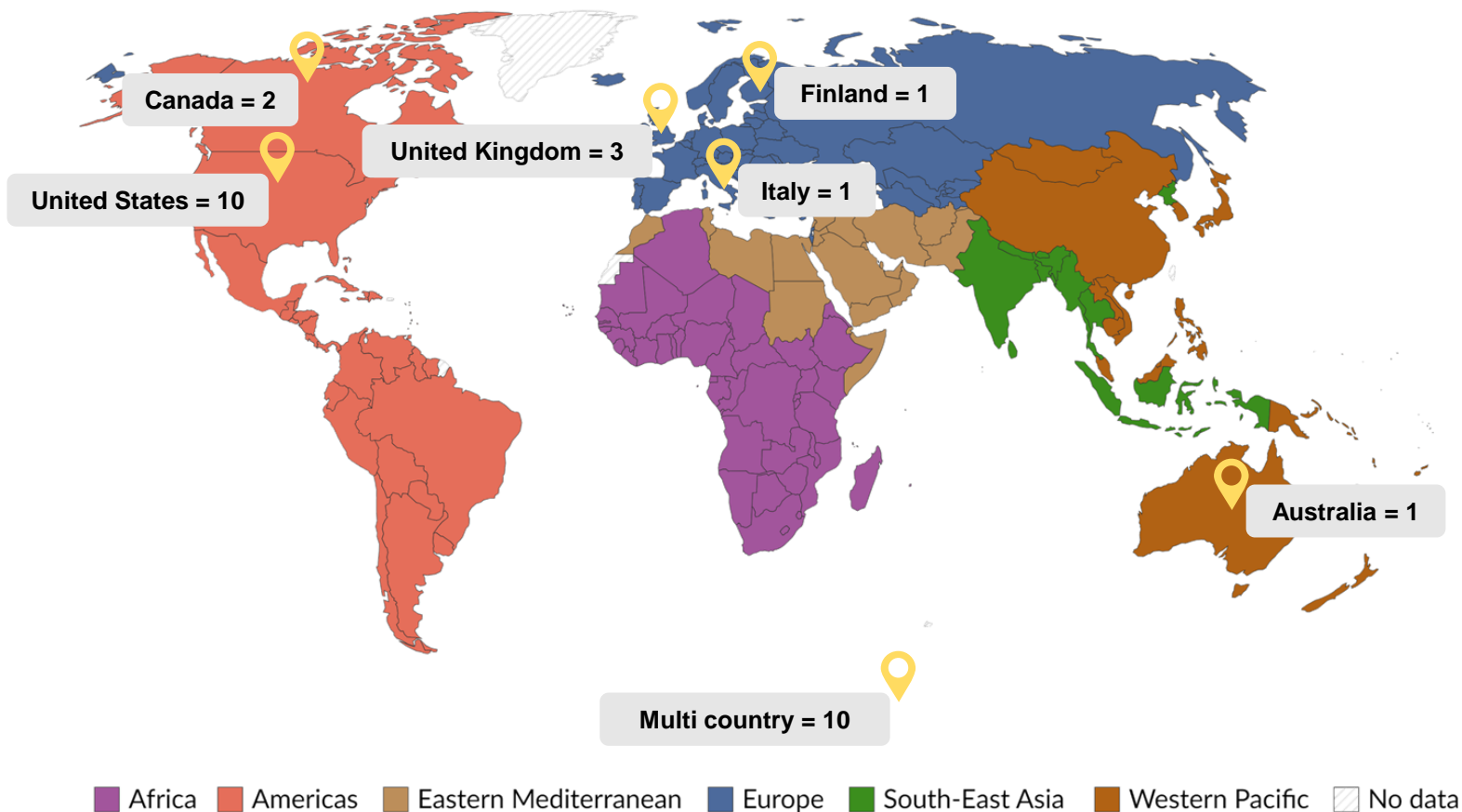


Results

- Total included studies: **28 studies**
- Total number of behaviors relevant to digital health competencies: **456 behaviors**

Details of included studies

Study population



Study methods

Literature review: 16

- Systematic review
- Scoping review

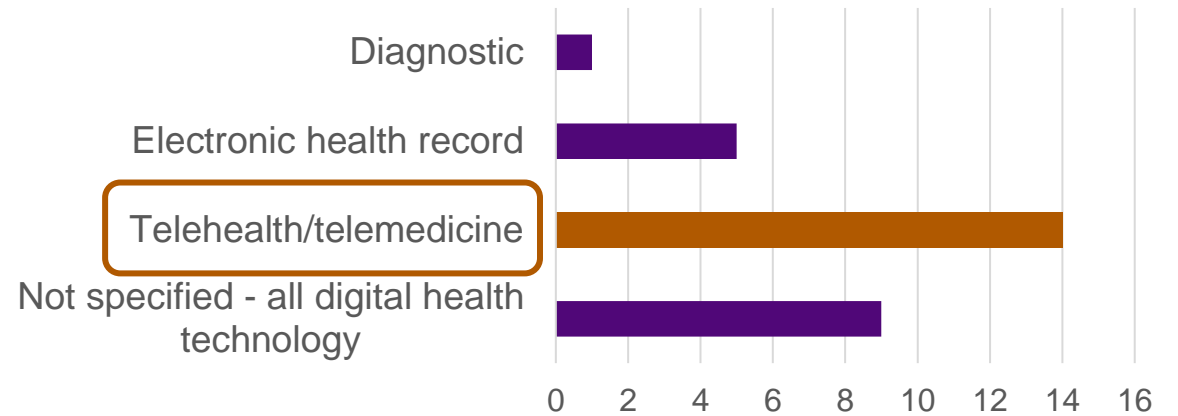
Qualitative method: 14

- Focus group discussions; expert discussion
- Text-based survey
- Interview
- Case study

Quantitative method: 5

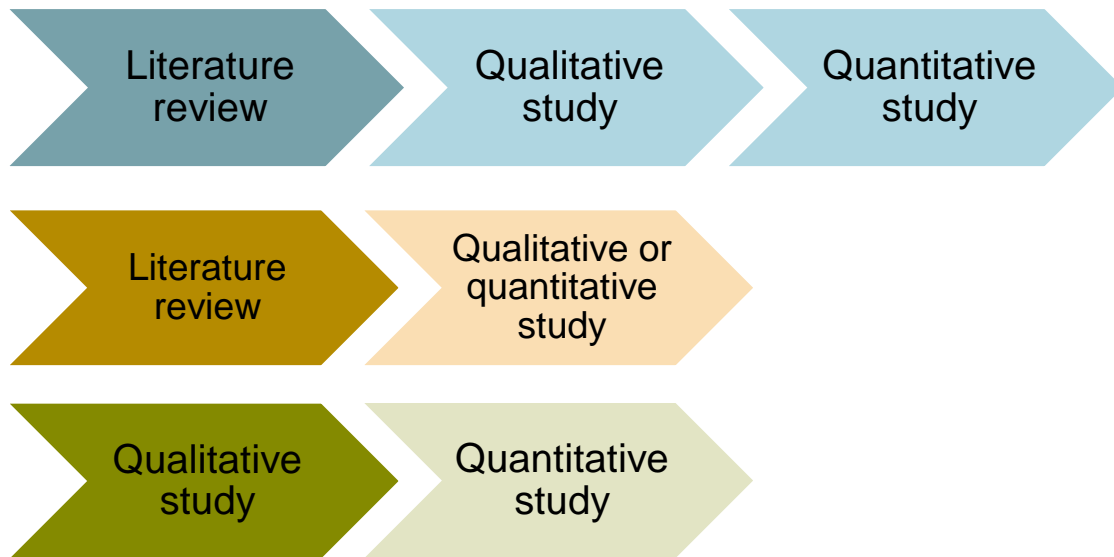
- Online survey; using Likert scale

Technology-related focus



Discussion and conclusion

Mixed-method approach

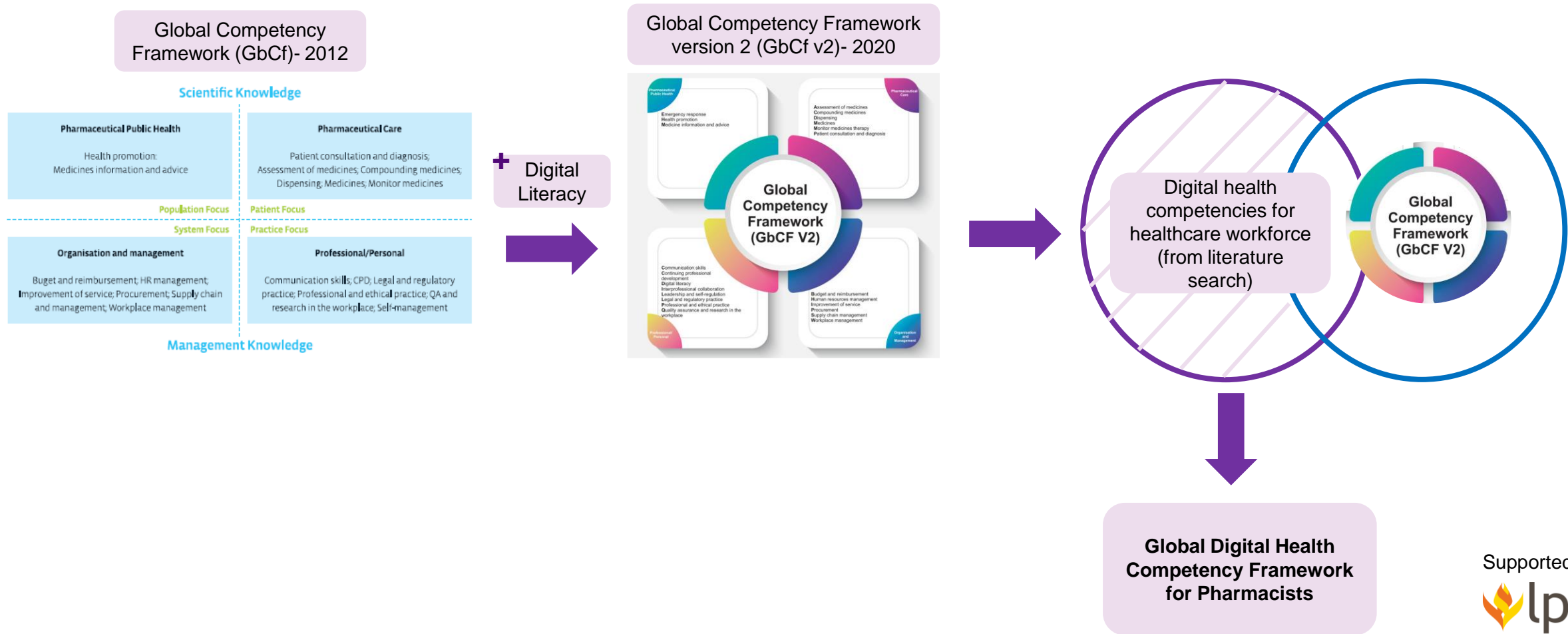


Conclusion and implication to pharmacy education

- This review identified several methods used in developing digital health education and training competencies for healthcare professionals.
- Future research is needed to adopt and adapt best practices for developing pharmacists' education and training strategies in digital health.

Future study

Development of Global Digital Health Competency Framework for Pharmacists



Thank you for your attention

Lets connect and collaborate:

 Afina Nur Fauziyyah

 afina.fauziyyah.21@ucl.ac.uk

Supported by:



lembaga pengelola dana pendidikan



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The background is a solid blue color with a pattern of fine, vertical, wavy lines. Overlaid on this is a dark blue silhouette of the map of Australia. A white location pin icon is placed on the map, specifically in the southern coastal region. The word 'LUNCH' is written in white, bold, uppercase letters across the center of the map.

LUNCH



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2024 Pharmacy Education Symposium

ORAL PAPER SESSION 5: General pharmacy
education

Chair: Natalie Protuder



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2024 Pharmacy Education Symposium

Improving the effectiveness of workplace-based assessment for Australian pharmacy interns: An evaluation study

Bronwyn Clark

Improving the effectiveness of workplace-based assessment for Australian pharmacy interns: An evaluation study

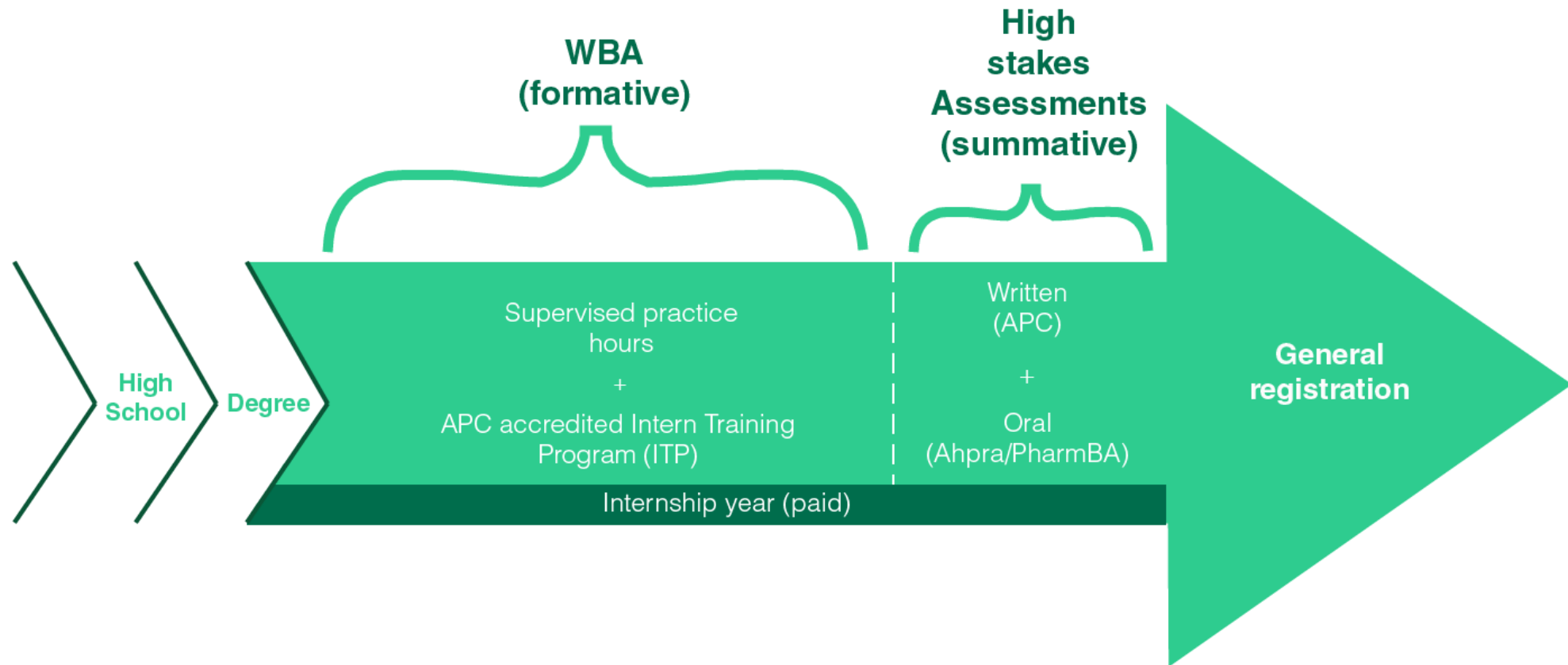
Authors: Hayley A Croft², Josephine Maundu¹, Kirstie Galbraith^{3*}, Kichu Nair², Glenys Wilkinson¹, Bronwyn Clark¹, Kate Spencer¹

¹Australian Pharmacy Council, Canberra, Australia Capital Territory, Australia.

²University of Newcastle, Callaghan, New South Wales Australia

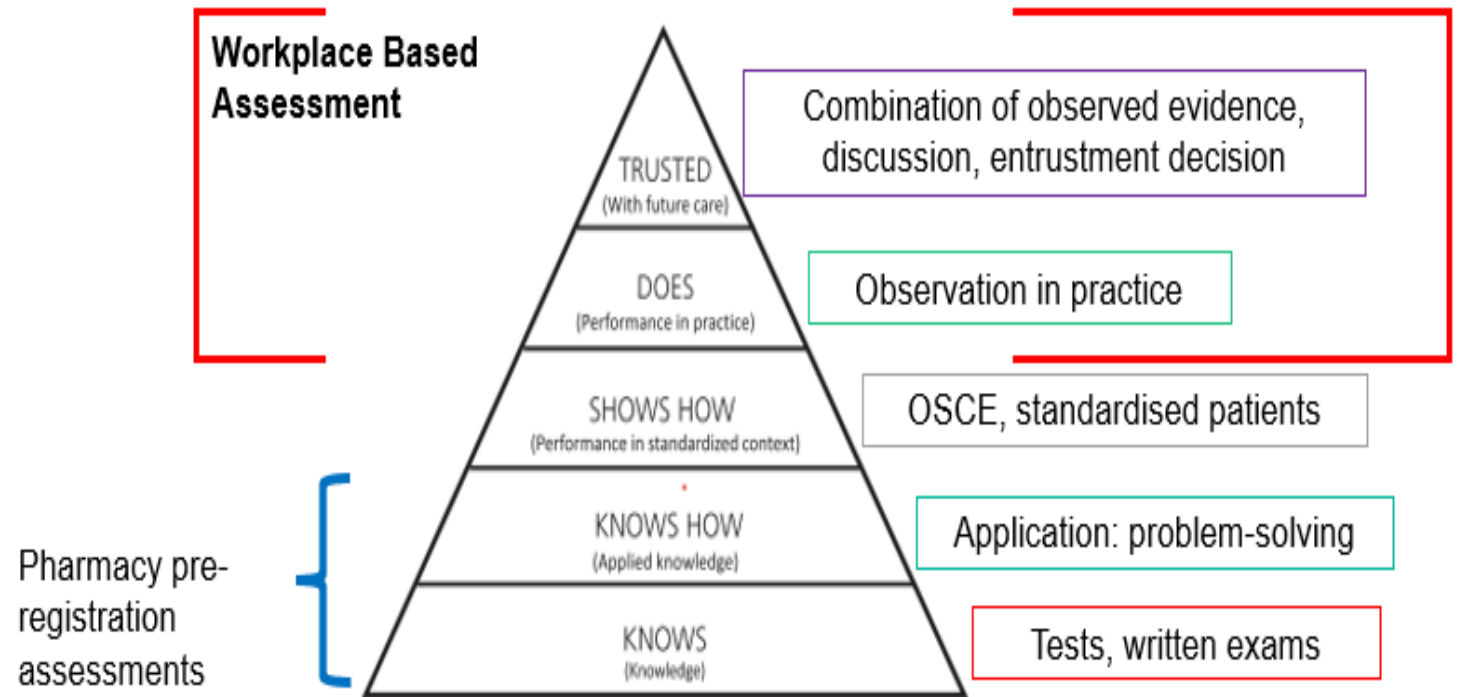
³Monash University, Melbourne, Victoria, Australia

Background: Australian Pharmacist Registration



What is Workplace-Based Assessment?

- Workplace-based assessment (WBA) tests performance of an individual in their real work environment.
- It measures what they do in real-life situations.
- Effective assessment of individuals in the workplace requires different strategies to observe performance.

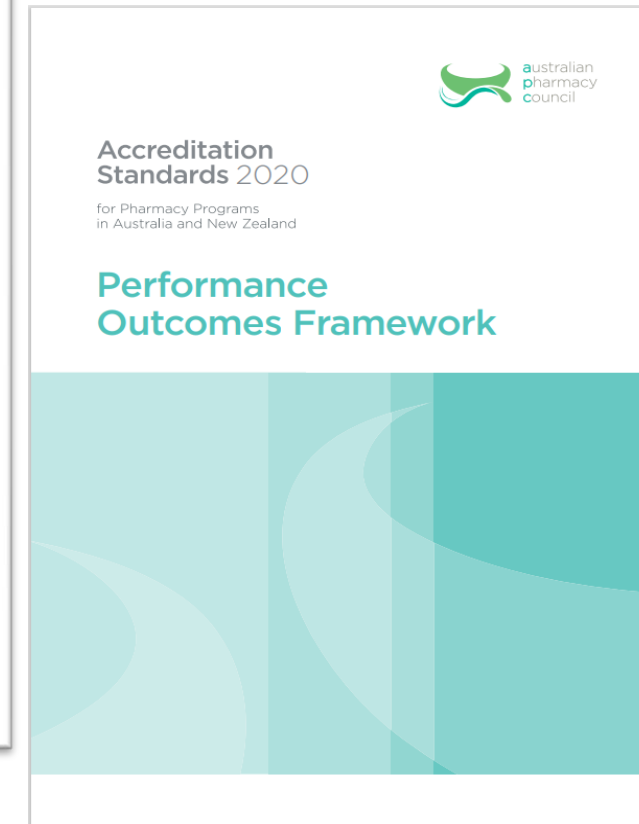
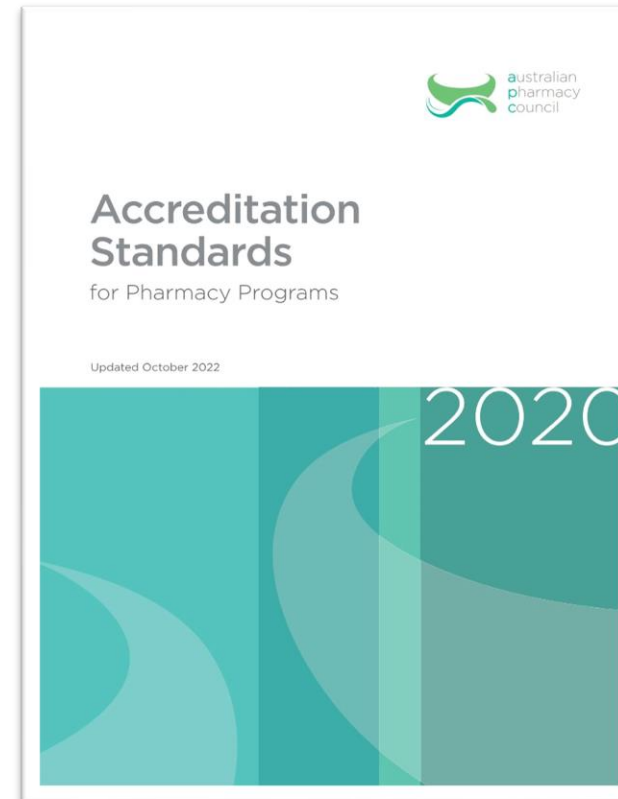


Miller G. 1990
ten Cate O. 2021

Workplace-based assessment

Why

- Outcomes focused Accreditation Standards
- Performance Outcomes Framework
- To achieve greater consistency in assessment of pharmacist interns
- To empower preceptors (pharmacists) to collect meaningful and valid evidence of intern performance in the workplace



Development & Implementation of WBA tools for pre-registration pharmacists (interns)



Workplace-based assessment (WBA) Tools and Support Materials



Case-based discussion

See your user guide, forms, videos and examples on CbD assessment



Health promotion

See your user guide, templates, and examples on health promotion



Dispensing EPA

See your user guide, forms, videos and examples on dispensing EPA assessments



Compounding EPA

See your user guide, templates, videos and examples on compounding EPAs



Reflective practice

See your user guide, templates, and examples on reflective practice



Counselling EPA

See your user guide, templates, videos and examples on counselling EPAs



<https://www.pharmacycouncil.org.au/workplace-based-assessment/ncil>

Health Promotion

19 February 2023

Planning template - Health promotion activity

Health Promotion

19 February 2023

Examples - Health promotion activity

Case - Based Discussion

15 February 2023

Preceptor and intern user guide - Case-based Discussion



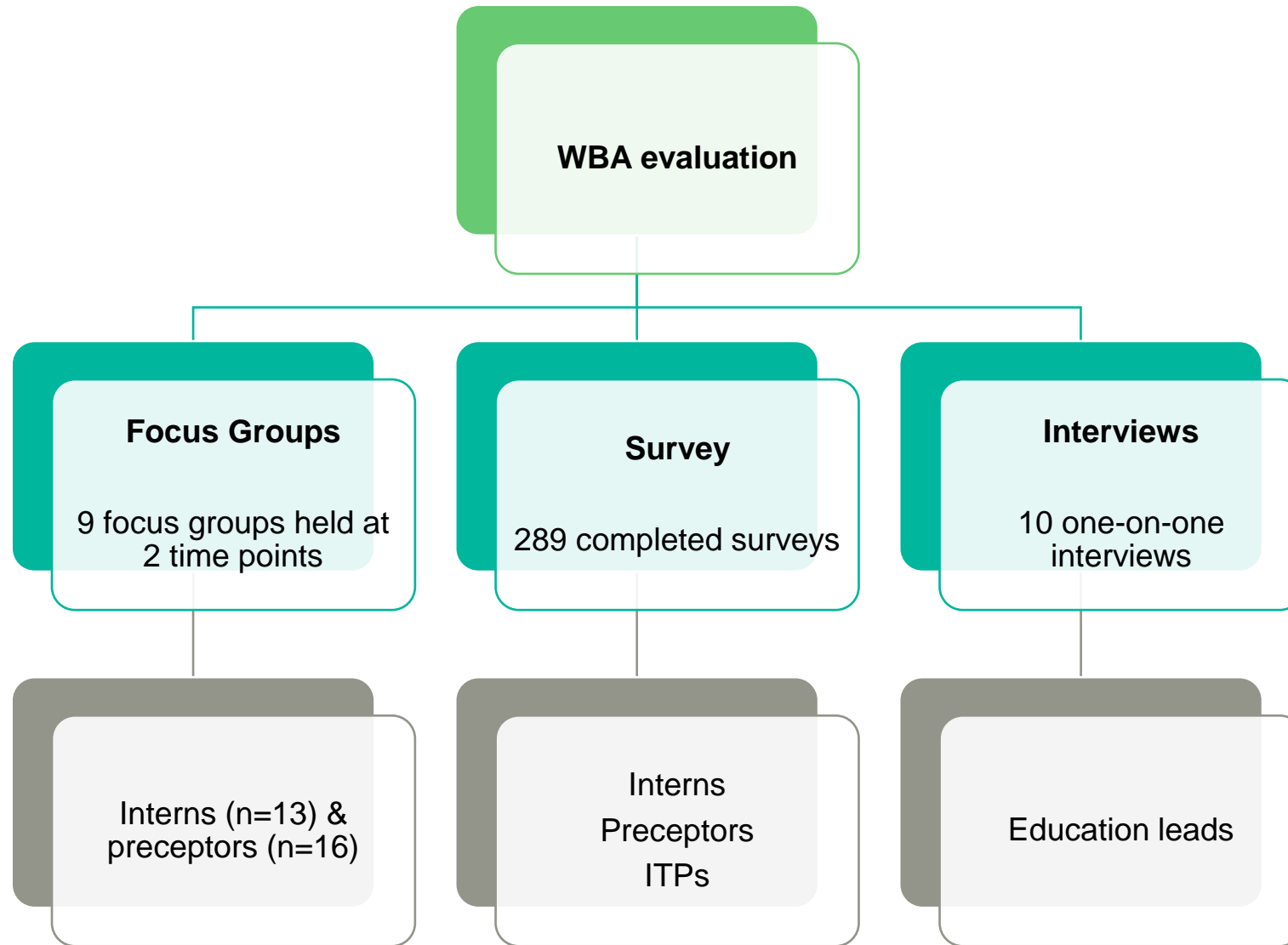
19 February 2023

Video: Introduction to Entrustable Professional Activities - EPAs

Study objectives

1. Seek feedback on the **content, structure, and format** of the tools and supporting materials
2. Seek feedback on the **understandability and usability** of the tools and supporting materials
3. *Seek perspectives on the **impact of the tools on intern learning, provision of feedback, intern/preceptor relationships and workload***

Overview of the evaluation



Key themes - *effective practices in WBA implementation*

Theme	Subtheme
1. WBA tools enabling structured workplace learning opportunities	1.1. Feedback
	1.2. Assessing performance
	1.3. Supporting workplace supervision
	1.4. Intern self-directed learning
	1.5. Consistent standards and practices
	1.6. Reflective Practice
	1.7. Tracking Intern Progress
2. WBA resources and support	2.1. Supplementary multimedia resources: instructional guides, exemplars and videos
3. Training and support for supervision	3.1. Increasing supervisor familiarity with WBA tools and processes
	3.2. Repeated use

Key themes – *challenges in WBA implementation*

Theme	Subtheme
1. Workload impact and resource constraints	1.1. Preceptor and intern workload
	1.2. Time to complete documentation
2. Establishing clear and consistent performance expectations	2.1. Entrustment decision making
3. Communication between stakeholder groups	3.1. ITP – intern communication
	3.2. Preceptor – intern communication
4. WBA literacy	4.1. Understanding terminology and concepts around WBA
5. Case selection	5.1. Standardising complexity of case
	5.2. Process of/ responsibility for case selection

Next steps – national perspective

✓ Continuous Quality Improvement

📖 WBA literacy

🏆 Champions

💡 Accreditation Standards – lever

🔌 Technology solutions



Acknowledgements

Research Team

Dr Hayley Croft, University of Newcastle (Chief Investigator)

Professor Kirstie Galbraith, Monash University

Professor Kichu Nair, University of Newcastle

Dr Josephine Maundu, APC

Ms Bronwyn Clark, APC

Ms Glenys Wilkinson, APC

Ms Tiara Miller, APC – project support

Organisations

Pharmacy Board of Australia

APC Board

Intern Training Programs coordinators & staff

Pharmaceutical Society of Australia

The Pharmacy Guild of Australia

Monash University

University of South Australia

The University of Sydney

The University of Queensland






2024 Pharmacy Education Symposium

Using objective structured clinical examination (OSCE) to assess complex thinking in a pharmacy program

Dr Roy Dobson

Pharmacy Education Symposium

A small decorative graphic consisting of four green squares arranged in a 2x2 grid, located to the left of the main title.

Using Objective Structured Clinical Examination (OSCE) to Assess Complex Thinking in a Pharmacy Program

Presenter: Roy Dobson, PhD

Prato, Italy

July 2024

Background

- **Complex thinking (CT):** an essential component of the clinical skills used to provide quality patient care.[1]
- While OSCEs might serve as an indicator of future success in clinical practice, [2], it is unclear whether OSCEs can be used to assess or promote CT.
 - Our previous research of CT and OSCEs showed only weak associations.[3]
- Though commonly functioning as a checklist,[4] and not intended to assess CT, we hypothesised individual questions within OSCEs might potentially capture CT.

Research Aims

- To identify questions within existing OSCEs capable of capturing CT, and to develop a tool for measuring different levels of CT.

Methods

- **Third year OSCE scenarios** were reviewed to identify those containing at least one standardized patient question with the potential to assess CT.
- For the selected question, six **video recordings** of student responses were reviewed by the authors to determine its **potential for measuring different levels of CT, and to create a scoring rubric.**
- Two of the authors (Cassidy and Krol) met with two **experienced OSCE assessors** to introduce the rubric and **standardize scoring** using the same 6 videos.

Methods

- Using the rubric, the assessors reviewed the remaining **80 student videos** to confirm the suitability of the selected question for assessing CT and, if necessary, suggest changes to the rubric.
- The responses of **sixty students were reviewed by a single assessor** (30 by EK and 30 by TN), while the final **twenty videos were scored by both assessors**.
- Analysis of the twenty paired scores was carried out using **Cohen's kappa to determine inter-rater agreement**.

Results - The Scenario

- The selected OSCE contained the following scenario and scripted response of the standardized patient (SP):
 - If asked, “What did the doctor tell you to expect with this medication?”, you respond, “Nothing, but I’ve heard antidepressants can be addicting. Is that true?”
 - If the student asks any question to find out what you know about the medication, or what your preconceptions are, answer as above.
 - If not discussed during the counseling session, you MUST ask: “Is this medication addicting?”
- Regardless of the trigger, the SP asks if the drug is addicting, to which the student is expected to respond.

Results - Initial Scoring Rubric

Initial rubric developed to assess complex thinking: Year 3 Fluoxetine OSCE

Criteria	Inadequate (0)	Growing (1)	Proficient (2)	Excelling (3)
Defines addiction and/or withdrawal	Does not define either	Defines withdrawal or addiction	Defines both withdrawal and addiction	Defines both withdrawal and addiction and provides examples for at least one.
Distinguishes between addiction and withdrawal	Uses the concepts interchangeably or indicates that withdrawal may occur without additional explanation	Explains that withdrawal may occur; describes symptoms of withdrawal	Explains that withdrawal may occur; describes symptoms of withdrawal; explains how this differs from addiction.	Explains that withdrawal may occur; describes symptoms of withdrawal; explains how this differs from addiction; confirms patient understanding.

Results - Final Scoring Rubric

Rubric used to assess OSCE complex thinking: Year 3 Fluoxetine OSCE 2023

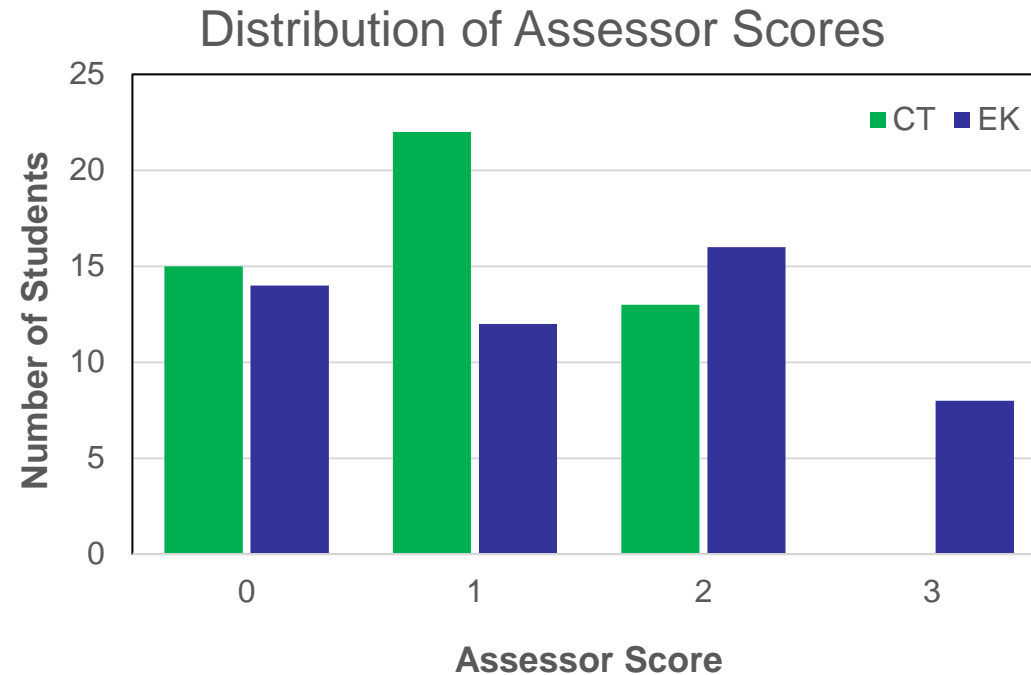
Criteria	CT not evident (0)	CT possible (1)	CT apparent (2)	CT confirmed (3)
Distinguishes between addiction and physical dependence	Does not define either addiction or physical dependence or incorrectly uses the terms or says fluoxetine <u>is</u> addicting	Defines and/ or uses the term(s) correctly for physical dependence and/ or addiction but no additional information provided to the patient	Defines <u>and</u> uses the term(s) correctly and explains in terms of physical dependence or addiction	Defines <u>and</u> uses the term(s) correctly and differentiates between physical dependence and addiction

Addiction: a neuropsychological disorder characterized by a persistent and intense urge to use a drug or engage in a behaviour that produces natural reward, despite substantial harm and other negative consequences.

Addiction: a chronic, relapsing disorder characterized by compulsive drug seeking and use despite adverse consequences.

Physical dependence: a physiological adaptation that occurs when medications acting on the central nervous system are ingested with rebound when the medication is abruptly discontinued. [5]

Results– Scoring by Assessors



- Overall, there was **good distribution of scores**, suggesting the rubric supported the assessors in **differentiating between levels** of student performance.

Results – Inter-rater Agreement

- Analysis produced a **kappa score of 0.58**, suggesting moderate agreement between the assessors.[6]

Inter-rater Analysis Using Crosstabs

		Assessor2				Total
		0	1	2	3	
Assessor1	0	7	0	1	1	9
	1	1	4	0	0	5
	2	0	0	3	3	6
Total		8	4	4	4	20

Symmetric Measures					
		Value	Asymptotic Standard Error ^a	Approximate T ^b	Approximate Significance
Measure of Agreement	Kappa	.577	.131	4.465	<.001
N of Valid Cases		20			

a. Not assuming the null hypothesis.
b. Using the asymptotic standard error assuming the null hypothesis.

Results – Assessor Debriefing

- During post-assessment debriefing, the assessors expressed **general satisfaction with the rubric.**
- In reflecting on the kappa score for the twenty videos reviewed by both assessors, **specific scoring issues were identified.**
- Issues included:
 - interpreting vague answers; and
 - assessing answers that “flip-flop” between correct and incorrect responses to the SP’s question.

Results - Debriefing

- It was also suggested that SPs be trained on the timing of the question regarding addiction.
 - If not initiated by a question from the student by the time of the warning buzzer (indicating the OSCE will end in two minutes), the SP should initiate the conversation to ensure sufficient time for a thoughtful student response.

Conclusions

- Our first attempt to develop a **scoring rubric** appeared to capture a range of student responses and was seen as **assessor-friendly** with **moderate inter-rater agreement** between experienced assessors.
- By identifying questions within existing OSCE scenarios, as well as capturing student responses that suggest a level of CT, the **potential for OSCEs to assess more complex, or higher-level thinking**, was demonstrated.

Next Steps

- Continue to **refine the rubric.**
- **Identify questions in other OSCEs** in our program with the potential to demonstrate complex thinking.
- **Compare OSCE CT scores to courses within the pharmacy program** and among pre-requisites seen to rely on complex thinking skills [7] to confirm the validity of the scoring rubric.

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- 1. Newsom et al. (2022) Enhancing the “What” and “Why” of the Pharmacists’ Patient Care Process With the “How” of Clinical Reasoning. *AJPE*, 86(4), Article 8697.
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The Team

- Ed Krol, Professor, College of Pharmacy and Nutrition, University of Saskatchewan.
- Jane Cassidy, Pharmacy Skills Coordinator, College of Pharmacy and Nutrition, University of Saskatchewan.
- Roy Dobson, Professor, College of Pharmacy and Nutrition, University of Saskatchewan.

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PHARMACEUTICAL
SCIENCES

2024 Pharmacy Education Symposium

Experiential Learning as a pathway to
success for student pharmacists in Northern
Ireland

Bronoagh White and Helen Hirst



EXPERIENTIAL LEARNING (EL) IN PRIMARY CARE (NI) 23-24

Northern Ireland

Bronagh White
Senior Lead for EL in General Practice

Helen Hirst
Senior Lead for EL Community Pharmacy



*Experiential Learning
Launch Event*

7 weeks EL within MPharm for 23/24

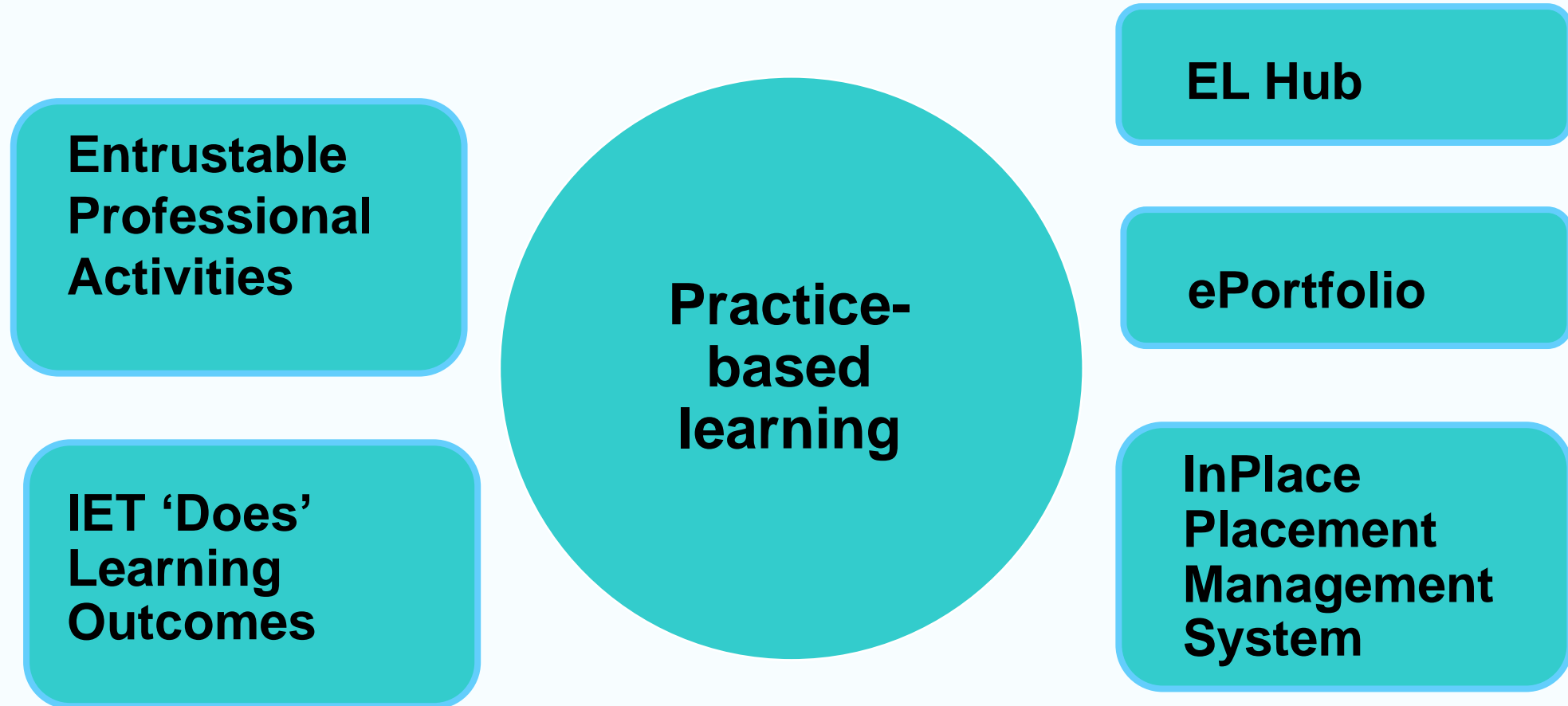
- **5 weeks Year 3**
- **2 weeks Year 2**

EL Programme for both NI Universities delivering structured placements – EPAs with direct Practice Supervisor supervision

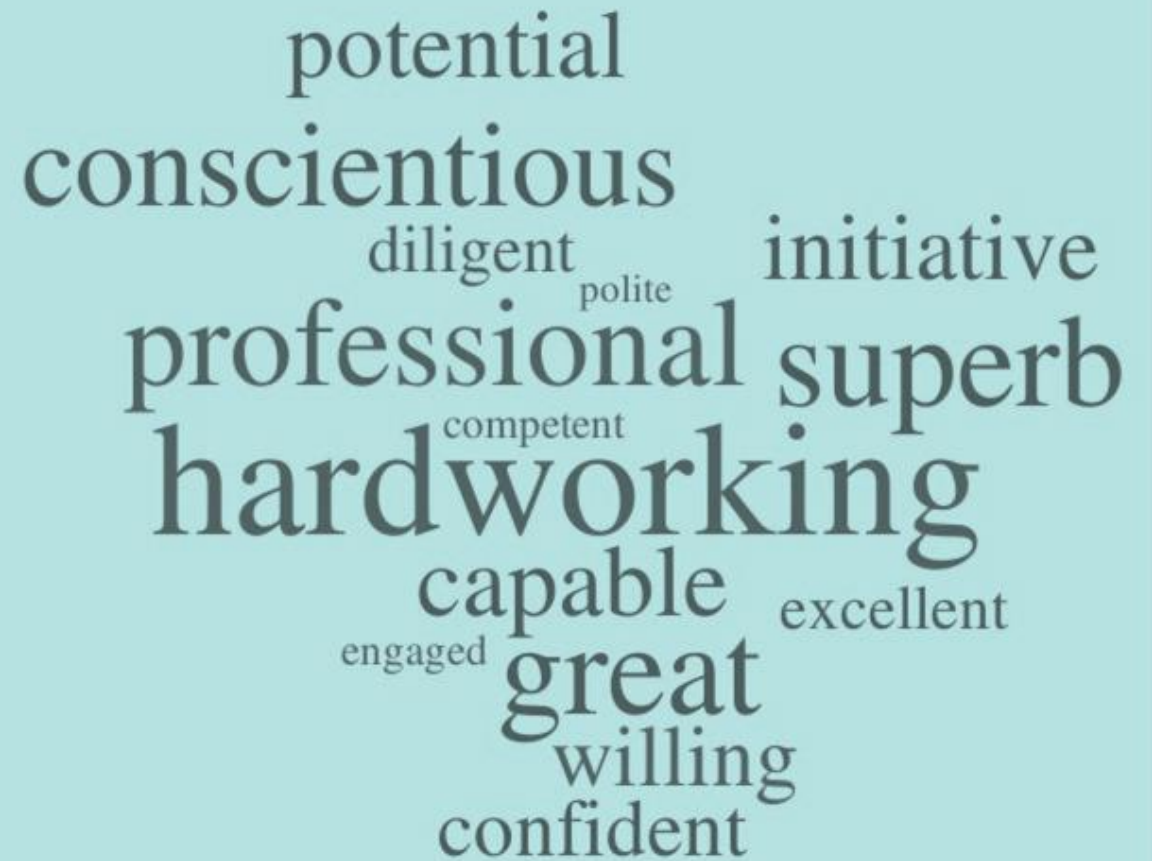
NICPLD manage student to practice allocation (Community Pharmacy; General Practice and Hospital Trusts)

Travel Subsidy for all NI Student Pharmacists

EL 2023/2024: Core elements



***Practice Supervisors
feel student
pharmacists were***



A word cloud on a light teal background featuring various positive adjectives. The words are arranged in a roughly circular pattern, with 'hardworking' being the largest and most central. Other prominent words include 'conscientious', 'professional', 'superb', and 'great'. Smaller words include 'potential', 'diligent', 'polite', 'initiative', 'capable', 'excellent', 'engaged', 'willing', and 'confident'.

potential
conscientious
diligent
polite
initiative
professional
superb
competent
hardworking
capable
excellent
engaged
great
willing
confident

Practice Supervisor Feedback Primary Care

NO. SURVEY RESPONSES	368 CP		11 GENERAL PRACTICE PHARMACIST		
Practice Supervisor	Individual PS	PS Shared responsibility	Individual PS		PS Shared responsibility
	83%	17%	45%		55%
Training (fully prepared for PS role)	Strongly agree/agree – 96%		Strongly agree/agree – 64%		
Right level of support from NICPLD	Strongly agree/agree – 95%		Strongly agree/agree – 72%		
Sufficient communication pre-placement	Strongly agree/agree – 96%		Strongly agree/agree – 100%		
EPA completion achievable in one week	Strongly agree/agree – 93%		Strongly agree/agree – 100%		
Understood goals of EPAs	Strongly agree/agree – 91%		Strongly agree/agree – 82%		
PS found observing EPAs	Straightforward 78%	Challenging 22%	Straightforward 36%	Challenging 36%	Very Simple 28%
PS had opportunity for feedback conversations	Strongly agree/agree – 99%		Strongly agree/agree – 100%		
Student pharmacist made contribution to pharmacy team	Strongly agree/agree – 96%		Strongly agree/agree – 91%		

Student Feedback Primary Care Placement



Experiential Learning



***Student Pharmacists
feel Practice
Supervisors were***



A word cloud on a teal background featuring the following adjectives: inclusive, welcoming, professional, superb, empathetic, amazing, rolemodel, enthusiastic, engaged, motivational, brilliant communicator, and approachable. The words are arranged in a vertical, slightly overlapping manner, with 'enthusiastic' and 'motivational' being the largest.

inclusive
welcoming professional
superb empathetic
amazing
rolemodel
enthusiastic
engaged
motivational
brilliant communicator
approachable

STUDENT FEEDBACK

No. survey responses	431	
University attended	QUB	UU
	289	142
EPA completion achievable in one week	Strongly agree/agree – 92%	
PS had a feedback conversation after EPAs	Strongly agree/agree – 93%	
PS reviewed key learning points and helped student action plan	Strongly agree/agree – 92%	
Student had opportunity to interact with broad range of patients	Strongly agree/agree – 77%	
Opportunity to communicate with patients for person-centred care	Strongly agree/agree – 89%	
Opportunity to communicate with other HCPs	Strongly agree/agree – 86%	
After this CP placement I feel more confident and competent in my professional skills	Strongly agree/agree – 91%	

Student Feedback Summary

Student suggestions to improve placement

More specific EPAs tailored to community pharmacy/GP Practice

Improvements could be made by learning more about general practice in university lectures before going to placement.

Let student work on EPAs they find more challenging/ broaden the range of EPAs

GP Practice

It would have been nice if there was a computer set up for the students to have their own access to the GP software i.e. Vision etc.

More scope for carrying out independent tasks

Community Pharmacy

More patient interaction and counselling opportunities

Placement location – less travel time

EPA development suggestions for GP and CP

Shorter distances to travel if available for the student

More patient consultation

What went well during placement?

Gaining understanding of responsibilities of a GP pharmacist

PS did everything they could to allow for a wonderful placement experience

Got valuable experience with 'real-life' patients and got to improve my skills and confidence.

I was able to communicate with a vast range of patients and felt that I had learnt a lot by the end of the week

Great opportunity to be a part of the GP team for a week and see the work they do

Welcome and support from the pharmacy/practice team and Practice Supervisor – valued team working and how the PS supported the student's learning

Gaining confidence communicating with and counselling a wide range of patients

Exposure to new pharmacy services , different pharmacy environments including GP Practice, putting clinical knowledge into practice through EPAs

Opportunity to communicate with other Healthcare Professionals

All staff were very friendly and helpful, and I gained great insight into many different aspects of community pharmacy. It was a great place to learn.

I learnt so much in terms of communicating effectively with patients

PS very helpful, informative and provided multiple scenarios to progress my development and complete EPAs

Summary of developments for 24/25:

- **FEL supports students and practices which consequently means greater capacity for GPP and practice team to continue normal workload on the 3 days student is in practice**
- **Payment arrangements have been amended to ensure that the GPP is recognized for the role that they will undertake as practice supervisor**
- **Placements in general practice have been extended to Year 4 students in addition to Year 3 students**
- **The period October to March brings many additional pressures for general practice so the placement weeks have been reorganised as far as possible to account for times when staff will be on leave or increased demand on HCPs time.**



2024 Pharmacy Education Symposium

When is entrustment achieved in a pre-registrant pharmacist training program?

Natalie Protuder

When is entrustment achieved in a pre-registrant pharmacist training program?



natalie.protuder@monash.edu

When is entrustment achieved in a pre-registrant pharmacist training program?

Natalie Protuder, BPharm, BSc, FANZCAP (CommPharm.), Monash University

Steven Walker, BPharm(Hons), MClinPharm, FANZCAP (Edu.), Monash University

Simmie Chung, BPharm, University of Sydney

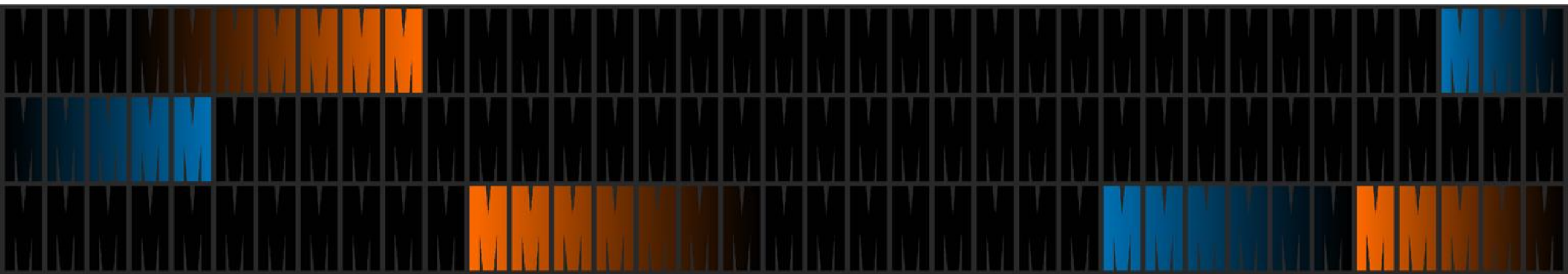
Ben Emery, BPharm, MPharmPrac, Monash University

Josephine Crockett, BPharm, University of South Australia

Nanette Cawcutt, BPharm, Grad Dip ClinPharm, University of Queensland

Date: 9/07/2024 |

Presenter: Natalie Protuder





MONASH UNIVERSITY recognises that its Australian campuses are located on the unceded lands of the people of the Kulin nations, and pays its respects to their Elders, past and present.



Background- Pre-registrant pharmacists in Australia



Background- Implementation of Workplace-based Assessments in ITP

- “...**tasks** or responsibilities to be **entrusted** to...a trainee once he or she **has attained sufficient specific competence**”¹

Counselling	Dispensing	Compounding
--------------------	-------------------	--------------------

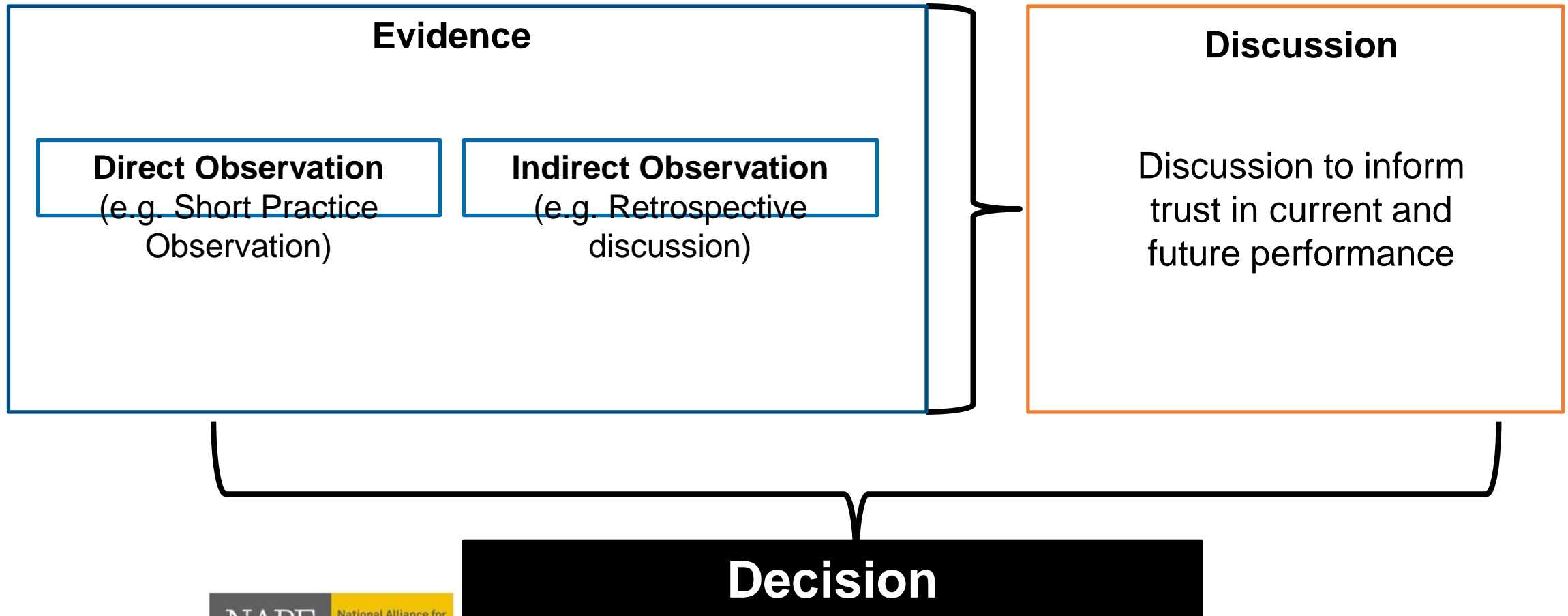


<https://www.pharmacycouncil.org.au/workplace-based-assessment/>

Background- Expectations of pre-registrant pharmacist

Level ²	Description	Example
Level 1	Observe only, even with direct supervision	Watch me dispense this medication
Level 2	Perform with direct, proactive supervision and intervention	Dispense this medication whilst I watch you complete the process
Level 3	Perform with indirect proximal (nearby) supervision, on request and quickly available	Dispense this medication yourself but ask me if you get stuck and I will double check the final item
Level 4	Perform with minimal supervision, available if needed, essentially independent performance	Dispense this medication yourself as if “you are the pharmacist”

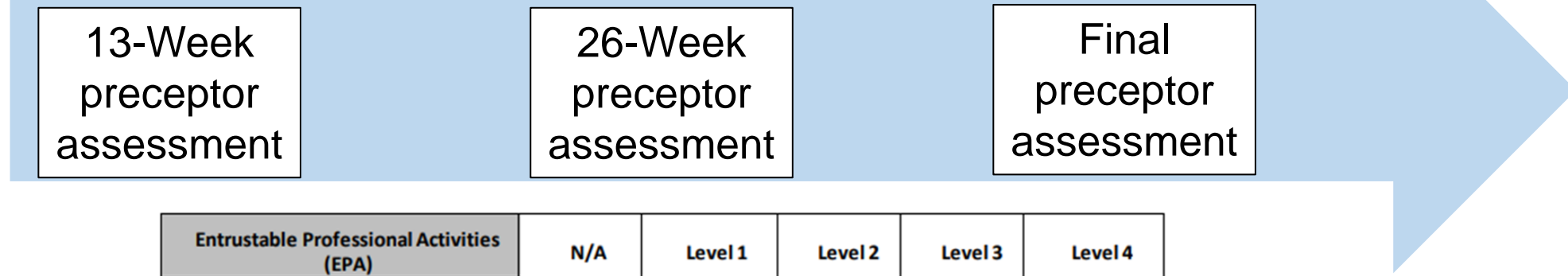
Background- How to make an Entrustment Decision?



Background- Short Practice Observations (SPOs)



Background- Periodic assessment of EPAs



Entrustable Professional Activities (EPA)	N/A	Level 1	Level 2	Level 3	Level 4
EPA 1- Dispensing products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Circle the number of Dispensing SPOs performed by this point in time (accumulative)	0 1 2 3 4 5 6				
EPA 2- Compounding products	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Circle the number of Compounding Products prepared by this point in time (accumulative)	0 1 2 3 4 5 6				
EPA 3- Providing Counselling	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Circle the number of Counselling SPOs performed by this point in time (accumulative)	0 1 2 3 4 5 6				

Aim

To compare the proportion of community and hospital interns entrusted to perform each EPA independently (Level 4) at 13-weeks, 26-weeks and conclusion of the program.

Level ²	Description	Example
Level 1	Observe only, even with direct supervision	Watch me dispense this medication
Level 2	Perform with direct, proactive supervision and intervention	Dispense this medication whilst I watch you complete the process
Level 3	Perform with indirect proximal (nearby) supervision, on request and quickly available	Dispense this medication yourself but ask me if you get stuck and I will double check the final item
Level 4	Perform with minimal supervision, available if needed, essentially independent performance	Dispense this medication yourself as if “you are the pharmacist”

Methods

Enrolled

Pharmacy Interns (n=251)

Excluded (n=2):

- Completed internship Semester 1 (n=1)
- Withdrew from unit (n=1)

Analysed

Pharmacy Interns
(n=249)

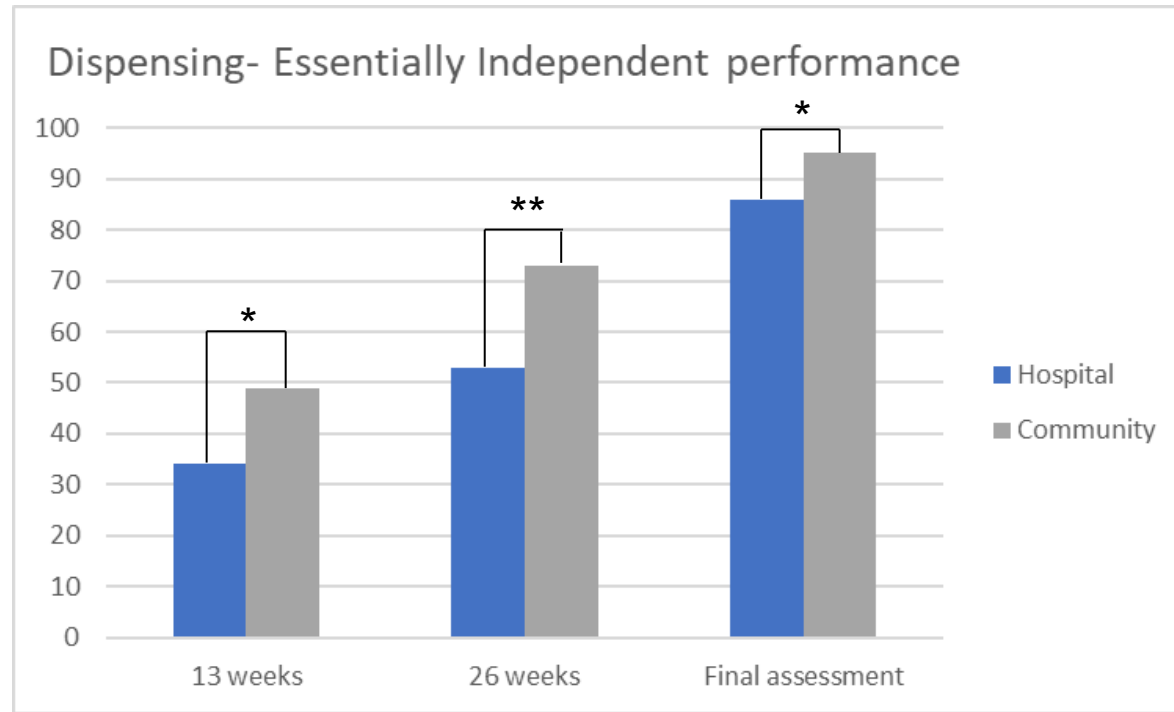
Methods

- Periodic assessments were submitted by interns at 13, 26 weeks and the final assessment
- De-identified data was extracted from the learning management system
- Data was analysed for descriptive statistics
- Proportions for interns between community and hospital were compared using Chi squared statistical test
- MUHERC 40360

Results

Entrustable Professional Activity (EPA)	13-weeks		26-weeks		Final assessment	
	Level 4 entrustment	Mean SPO (SD)	Level 4 entrustment	Mean SPO (SD)	Level 4 entrustment	Mean SPO (SD)
Dispensing	42%	3 (2.1)	64%	4 (2.1)	91%	6 (0.9)
Compounding	28%	3 (1.9)	49%	5 (1.6)	87%	6 (0.5)
Counselling	36%	3 (1.8)	59%	4 (1.8)	92%	6 (0.7)

Results- EPA-Dispensing



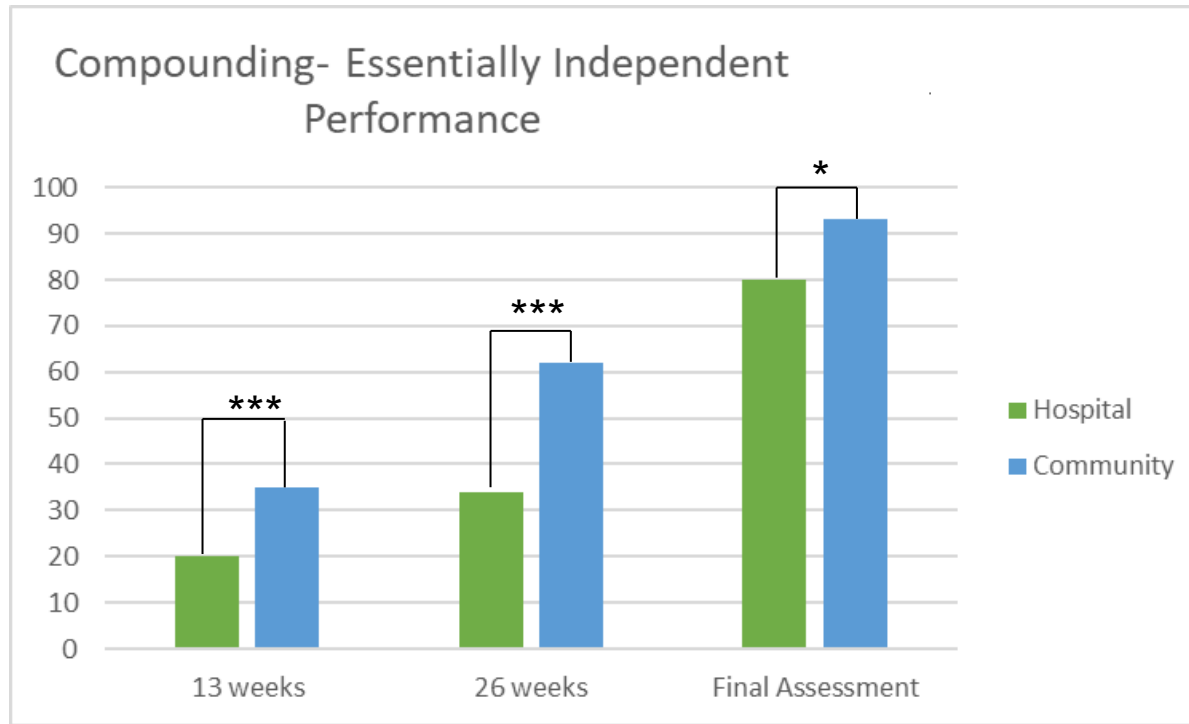
p<0.05= *
 p<0.01= **
 p<0.001= ***

Time	Community		Hospital		P-value
	Level 4 entrustment	Mean SPO (SD)	Level 4 entrustment	Mean SPO (SD)	
13 Weeks	49%	4 (2.3)	34%	3(1.9)	0.029
26 Weeks	73%	5 (1.6)	53%	4 (2.0)	0.002
Final	95%	6 (0.5)	86%	6 (1.1)	0.046

Key Points- EPA Dispensing

- Dispensing is a traditional pharmacist role³
- Exposure to dispensing varies between community and hospital pharmacies⁴

Results- EPA-Compounding



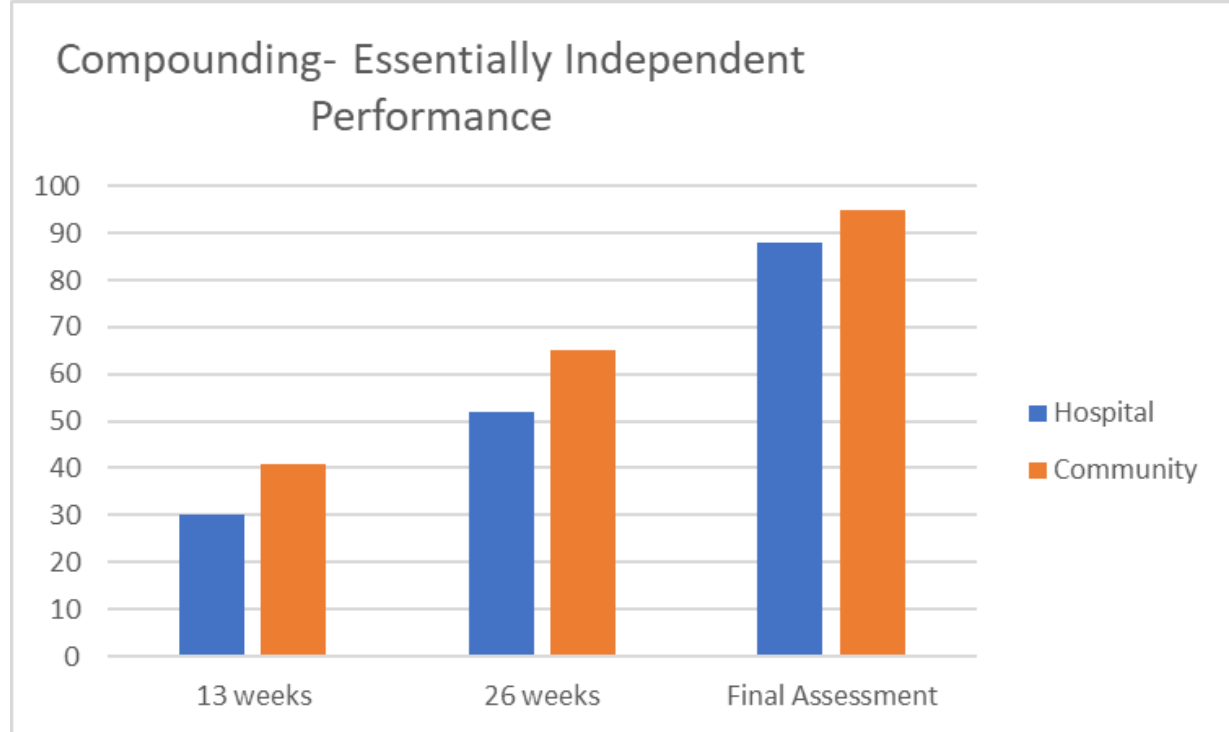
p<0.05= *
 p<0.01= **
 p<0.001= ***

Time	Community		Hospital		P-value
	Level 4 entrustment	Mean SPO (SD)	Level 4 entrustment	Mean SPO (SD)	
13 Weeks	35%	3(2.0)	20%	4(1.7)	<0.001
26 Weeks	62%	5(1.5)	34%	5(0.9)	<0.001
Final	93%	6(0.3)	80%	6(0.4)	0.011

Key Points- EPA Compounding

- Compounding can be defined as ‘simple or complex’⁵
- There are differences in the type of compounded products manufactured from the hospital and community
- *“Pharmacists are required to demonstrate competency in simple compounding at the time of entry to the profession.”⁵*

Results- Counselling



Time	Community		Hospital		P-value
	Level 4 entrustment	Mean SPO (SD)	Level 4 entrustment	Mean SPO (SD)	
13 Weeks	41%	4(2.1)	30%	3(1.6)	0.306
26 Weeks	65%	5(1.6)	52%	4(1.4)	0.098
Final	95%	6 (0.5)	88%	6 (0.7)	0.141

Key Points- EPA Counselling

- Providing counselling is integral for safe and effective medication management⁶⁻⁷
- Patient counselling is an expected pharmacist role, regardless of workplace^{3,8}

Discussion

- Interns were entrusted to perform dispensing, compounding and counselling at different times
- Trust develops over a period of time with deliberate practice⁹⁻¹⁰
- There were differences between attaining an entrustment level 4 between workplaces
- Pharmacist roles in hospital and community practice differ^{3,8,11}

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Limitations

- Data collected from Monash University interns
- EPA tools are not validated
- Influence of prior pharmacy experience
- Characteristics of the workplace

Future studies

- Potential changes to supervision models based on entrustment
- Investigating validity and impact on patient outcomes

Conclusion

A significantly higher proportion of community interns were entrusted to dispense and compound independently earlier than hospital interns, but no such difference was observed for counselling.

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When is entrustment achieved in a pre-registrant pharmacist training program?



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2024 Pharmacy Education Symposium

Skills and attributes of research supervisors:
learner and supervisor perspectives

Louise Lord

Skills and attributes of research supervisors in clinical practice: student and supervisor priorities

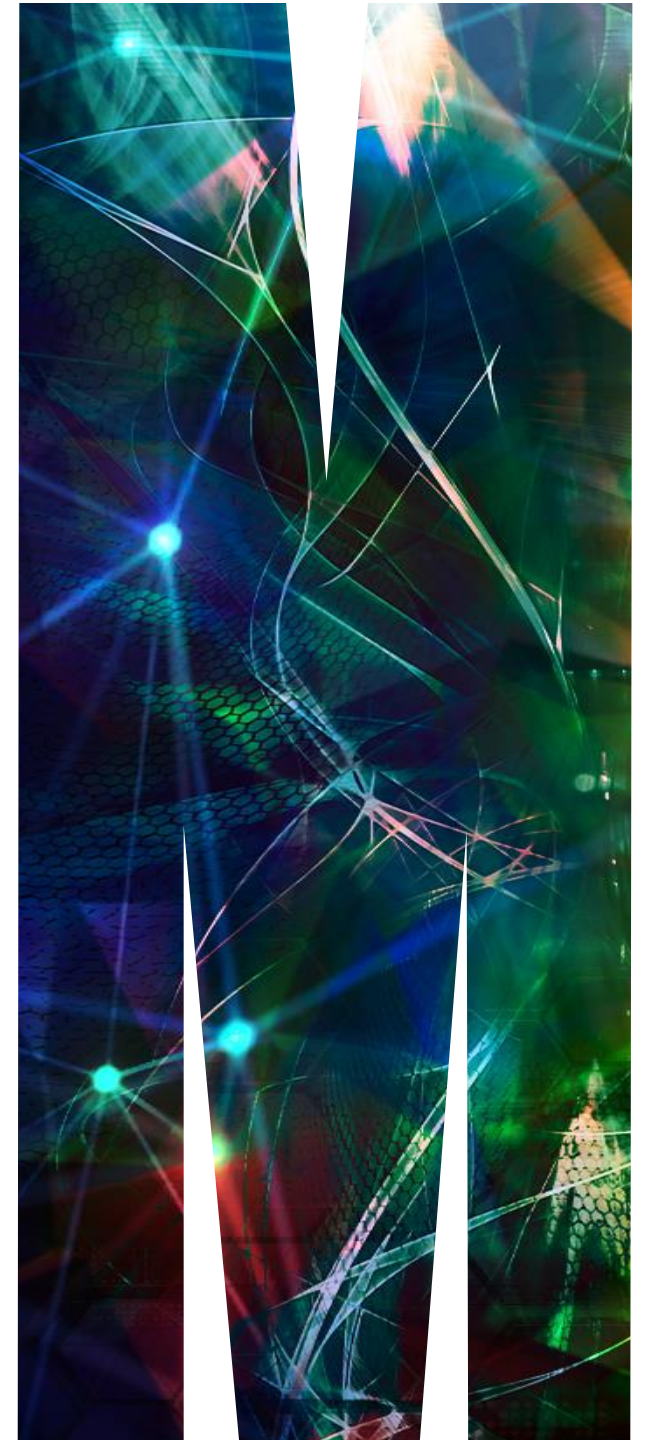
Louise Lord Senior Lecturer, PhD Candidate

Dr John Coutsouvelis Senior Lecturer

Prof. Kirstie Galbraith Professor of Pharmacy Practice and Education

Experiential Development and Graduate Education (EDGE)
Faculty of Pharmacy and Pharmaceutical Sciences, Monash University
Melbourne, Australia

Acknowledgements: Jesslyn Ha and Marianne Jovanovic, Monash Health (Delphi Study)
Student inquiry groups



Research in clinical practice

- Research skill development within the context of clinical practice has become an integral component of healthcare professional education and practice^{1,2}
- Development of research skills should ideally be scaffolded throughout under and postgraduate education²
- Effective supervision clearly identified as a key factor to research success in structured, higher degree (HDR) research programs^{1,2,3}
 - Paucity of evidence in non HDR programs

Research in clinical practice – Supervision challenges

- Large number of student placements
- Competing workload
- Other workforce training
- Supervisors may be ‘allocated’ and not personally invested in the research area
- Variable research experience of practitioner-supervisors
 - As a researcher themselves
 - As a supervisor

Practice-based research learning opportunities at Monash University (and beyond)

Undergraduate

- Evidence-based practice throughout degree
- 8 week research placement (1st semester, 4th year)
- Report, poster and oral presentation

Study allocated

Pre-Registration (Interns)

- Longitudinal research project over year
- At their intern site
- Study proposal, data collection, poster and oral presentation

Student-determined study (assisted)

Master of Clinical Pharmacy

- Research stream: 3 semesters
- 1.5 years to develop, undertake and report their research
- Practice or university-based

Student-driven study

Residency Programs

- Not a part of Monash University
- Undertaken at worksite
- Predominantly hospital-based

Site-specific research requirements

Objectives:

- 1) Identify the important **skills** and **attributes** required for pharmacy research supervision in clinical practice, from both supervisor and student perspectives
- 2) Describe areas for supervisor support and development

Methods

Survey

- Undergraduate student project
- Open invite to all undergraduates, interns and their supervisors

Modified Delphi

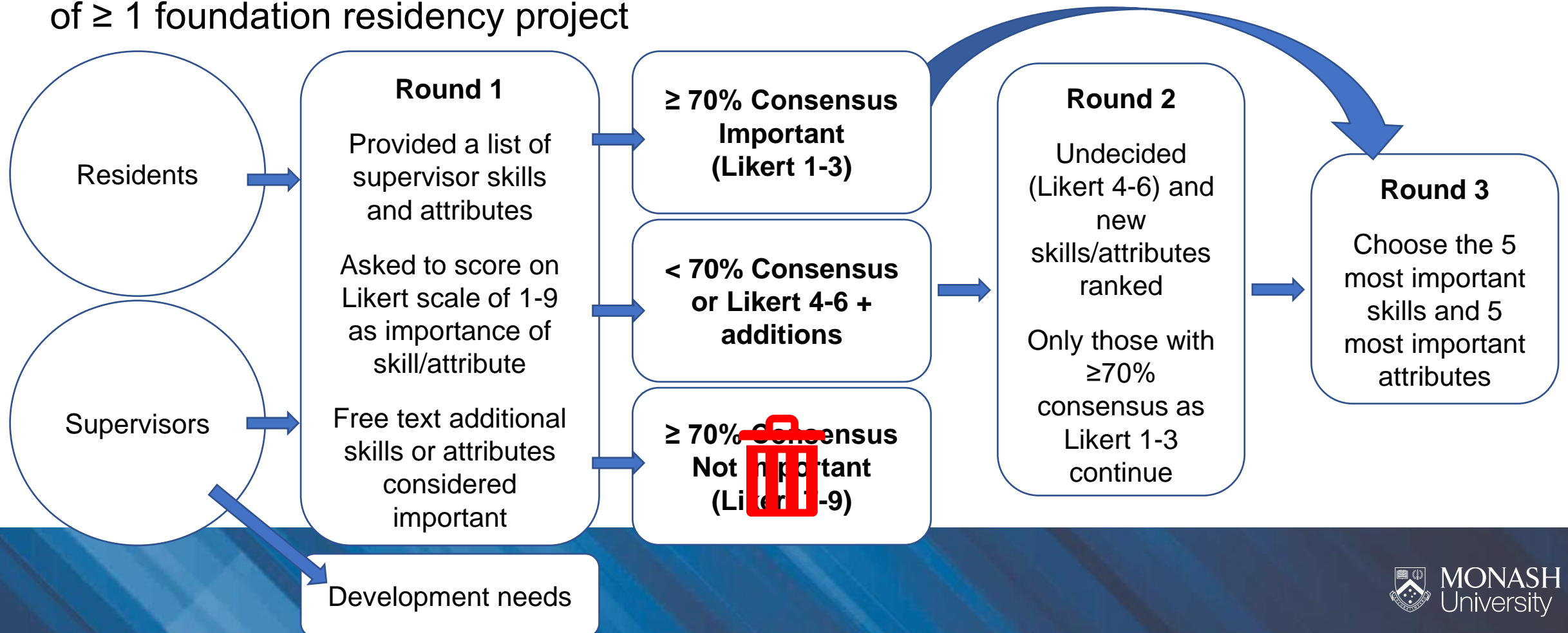
- Foundation residency project
- Large tertiary health service
- Targeted email recruitment

Existing
literature
informed
lists

Delphi – 70%
consensus
required

Methods – Delphi

- Modified Delphi
- Foundation pharmacy residents successfully completed the program and supervisors of ≥ 1 foundation residency project



Results

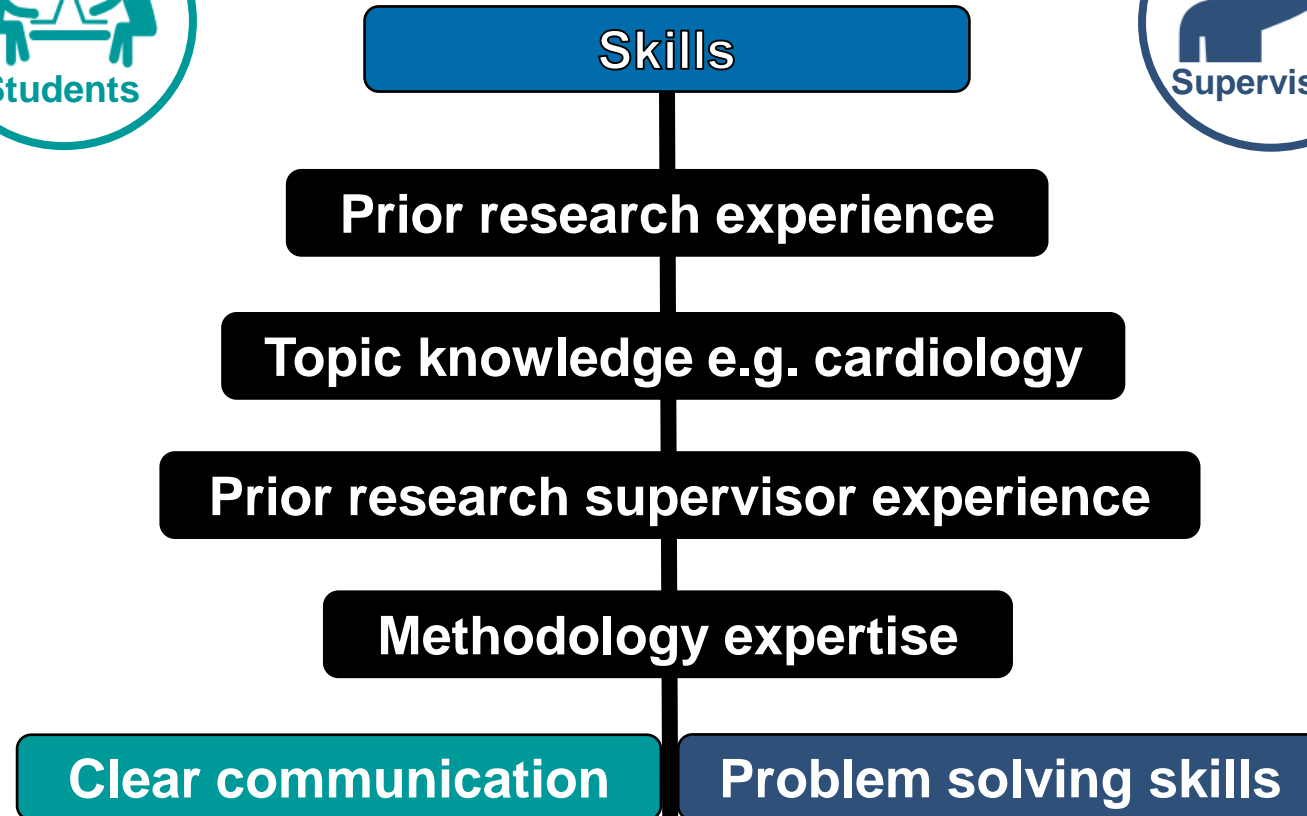
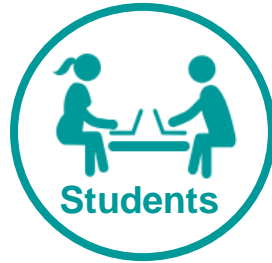
Survey

- Students n=27
 - 19/103 undergraduate, 4/237 interns, 4/13 postgraduate)
- Supervisors n=20
 - 20/175 supervisors

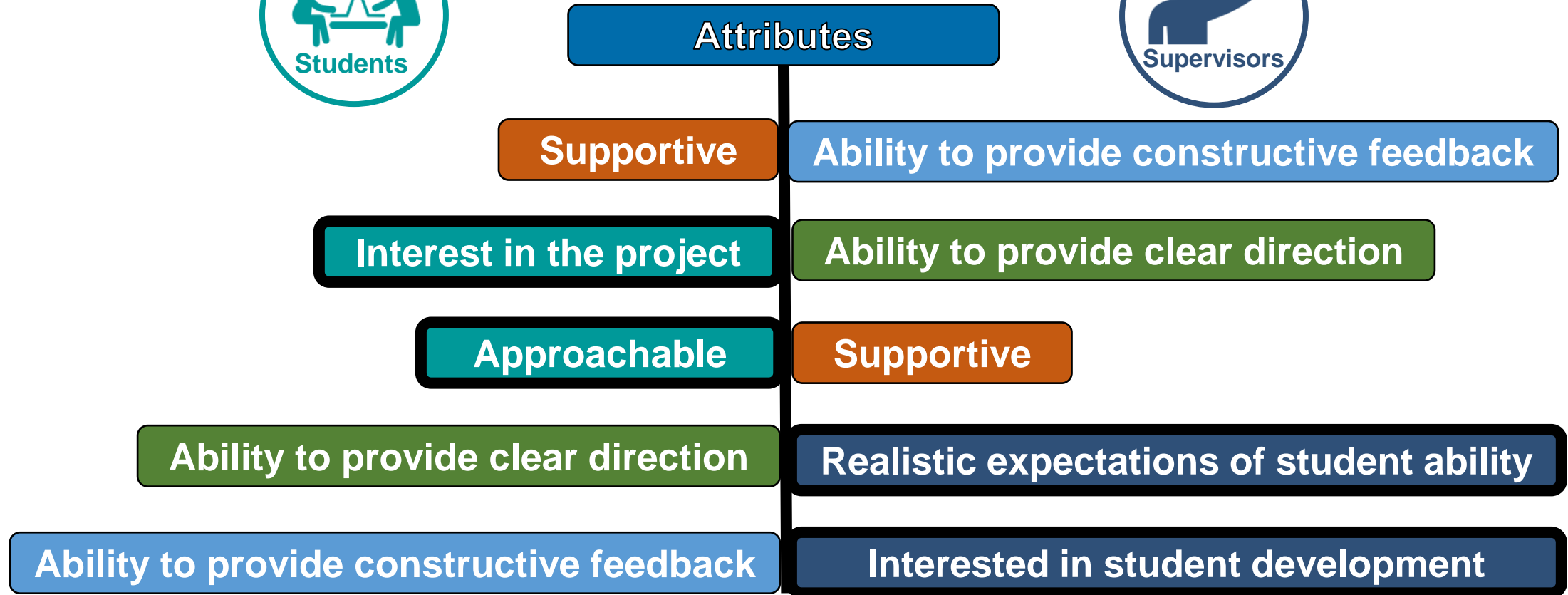
Delphi (Pharmacy residents)

- 14 past residents and 19 past supervisors eligible
 - 12 residents started → 12 finished
 - 13 supervisors started → 10 finished

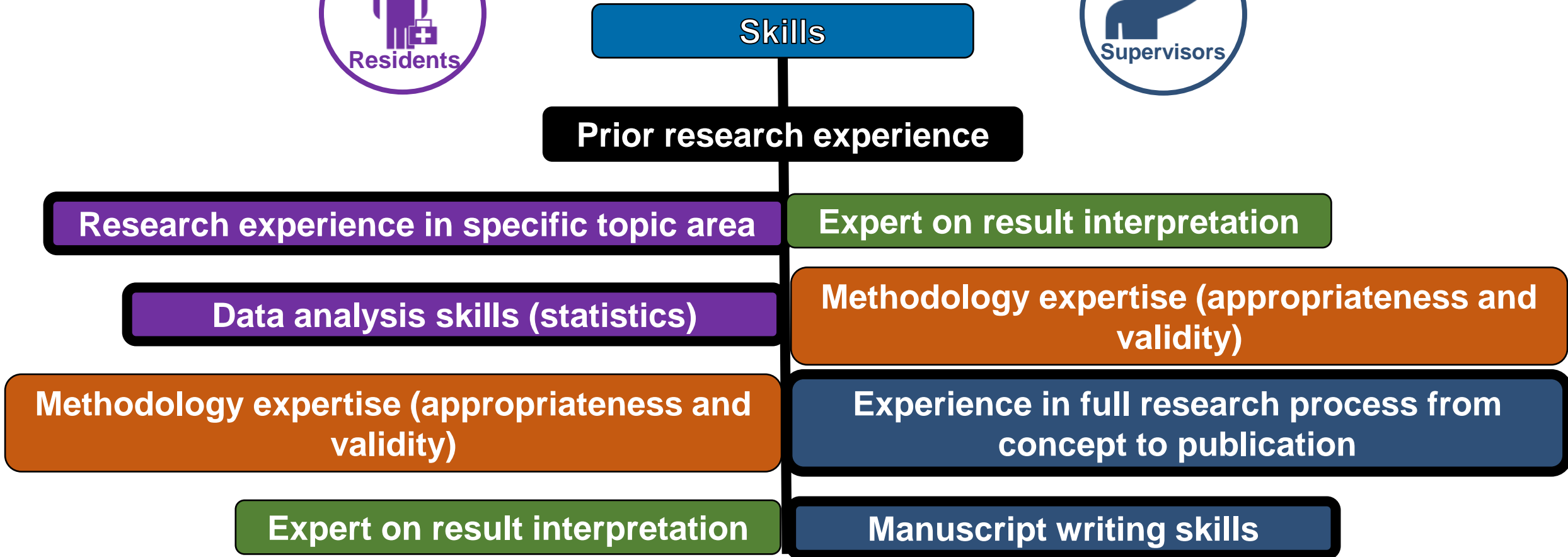
Results - Survey



Results - Survey



Results – Delphi



Results – Delphi



Attributes

Ability to provide constructive feedback

Approachable and supportive

Ability to provide clear direction

Readily available for advice and guidance

Attention to detail

Unbiased and honest feedback/communication

Critical thinker

Results – Both survey and Delphi

Supervisor self-identified areas for development

Research design & feasibility

Statistical analysis

Qualitative analysis

Manuscript writing

Survey and analysis software

Skills to work with reluctant learners

Expectations of learner capability

Conclusion and what next?

- Skill and attribute expectations of practice-based supervisors were similar across both students and supervisors
- Prior research experience identified across all groups as the highest priority skill for effective research supervision
- Supervisors identified a need to upskill in study design and analysis
- **Next steps?**
 - Development of supervisor training and support resources, workshops
 - Opportunities to collaborate across sites, share expertise
 - Invite potential supervisors to be involved with research outside of the supervisor experience to develop new skills and confidence

Thank you



2024 Pharmacy Education Symposium

Undergraduate clinical pharmacy placements:
the Wales experience of the development and
delivery of Entrustable Professional Activities

Dr Robert James

Undergraduate clinical pharmacy placements: the Wales experience of the development and delivery of Entrustable Professional Activities

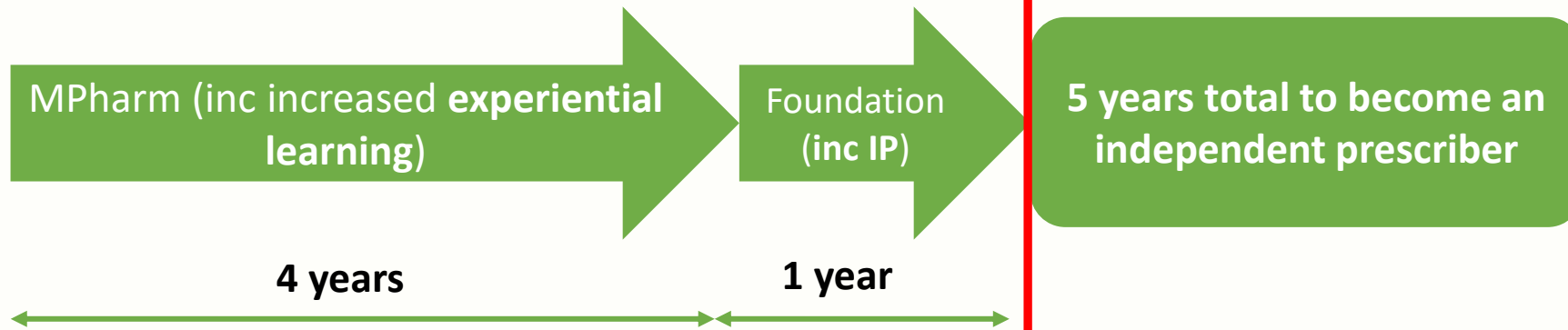
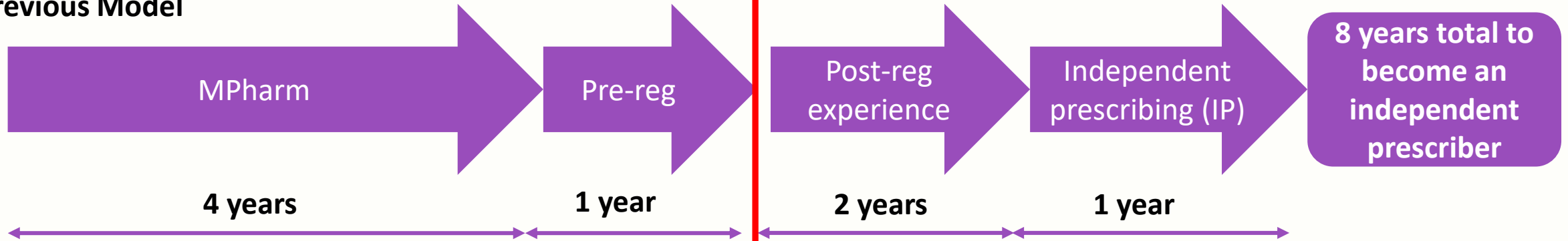
Dr Robert James
JamesR40@cardiff.ac.uk



**Cardiff School of Pharmacy and
Pharmaceutical Sciences**
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Fferyllol Caerdydd

Key Changes to UK Pharmacist Education and Training

Previous Model



Revised Model - Pharmacists will **no longer** require 2 years of experience prior to IP training

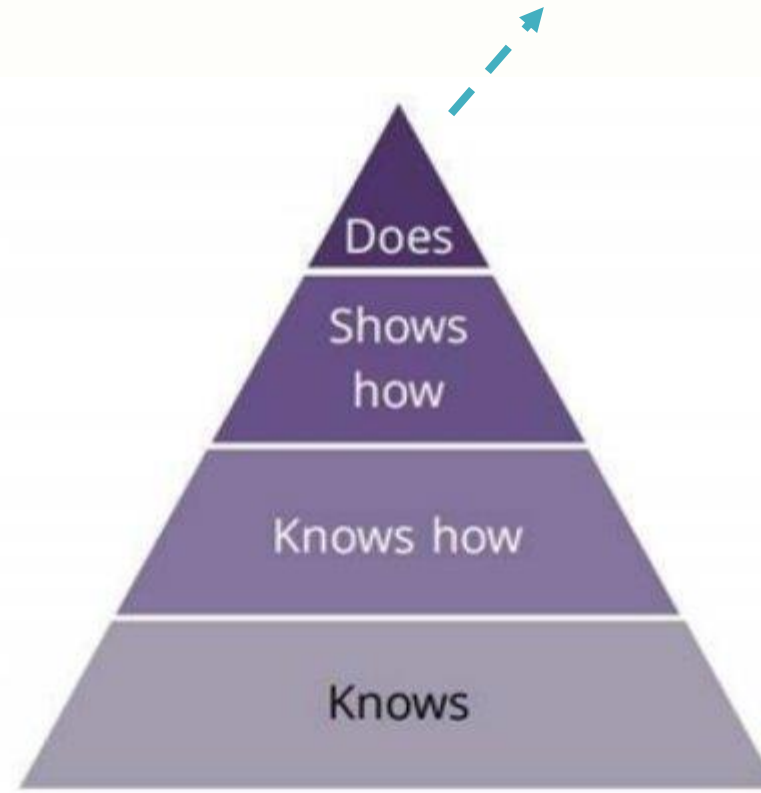
Registration assessment

Key Changes to Initial Education and Training Standards

- 55 learning outcomes must be achieved by the end of a trainee's **foundation training**.
- 16 of the 55 learning outcomes must be demonstrated at the 'does' level of Miller's pyramid at the end of the **MPharm**.
- Experiential learning facilitates increased clinical experiences for student pharmacists.

Source: <https://www.pharmacyregulation.org/initial-training>

“When a student pharmacist demonstrates the learning outcomes in a complex, familiar or everyday situation repeatedly and reliably”



Miller's pyramid

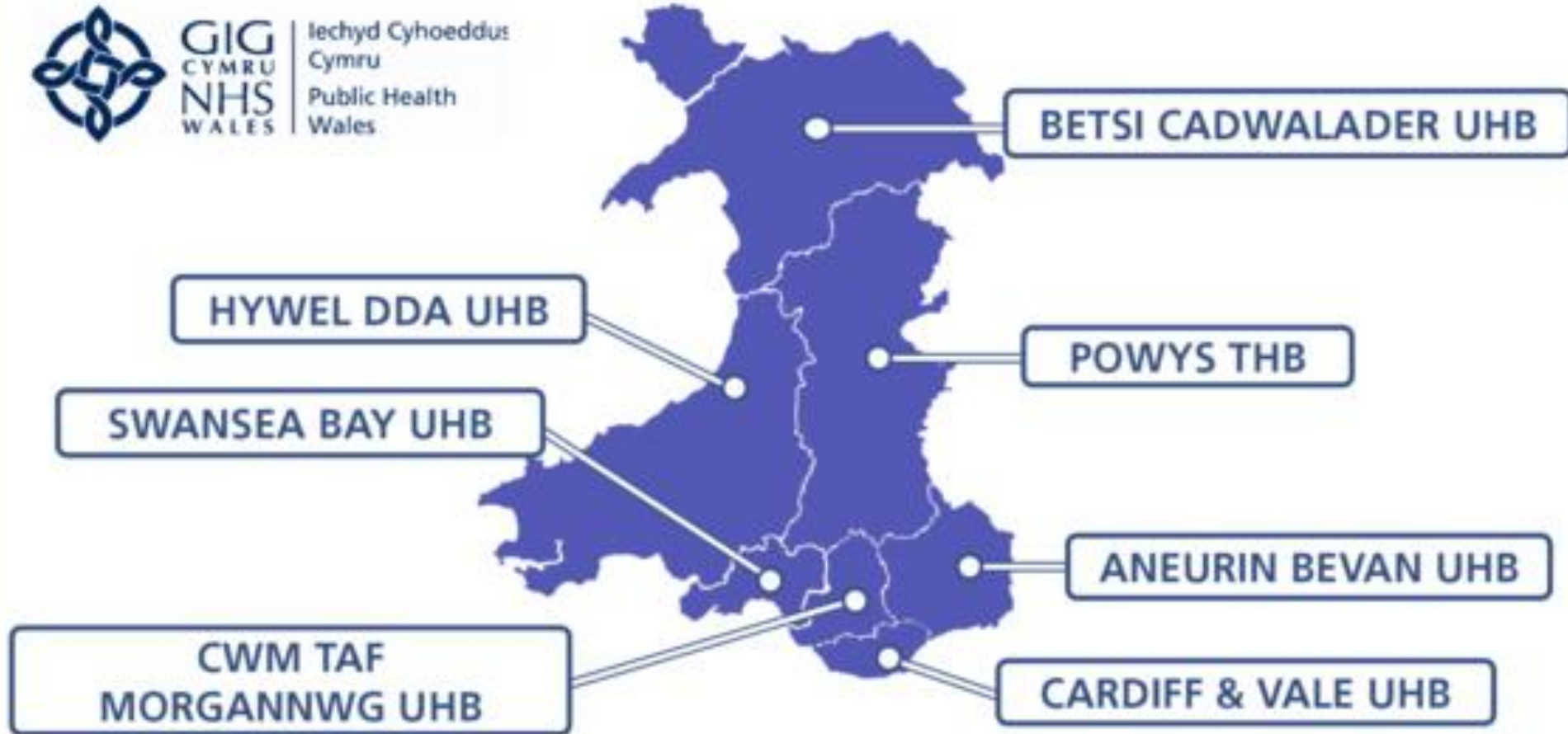
Clinical Placements

Aim: Develop and practice clinical skills across various healthcare settings

Year	Clinical Placement Days*	
	22/23	25/26
Y1	0	5
Y2	0	10
Y3	10	15
Y4	15	25
Total	25	55

*Placement days currently in 5-day blocks in either community pharmacy, hospital pharmacy or GP practice pharmacy

A National Unified Approach in Wales

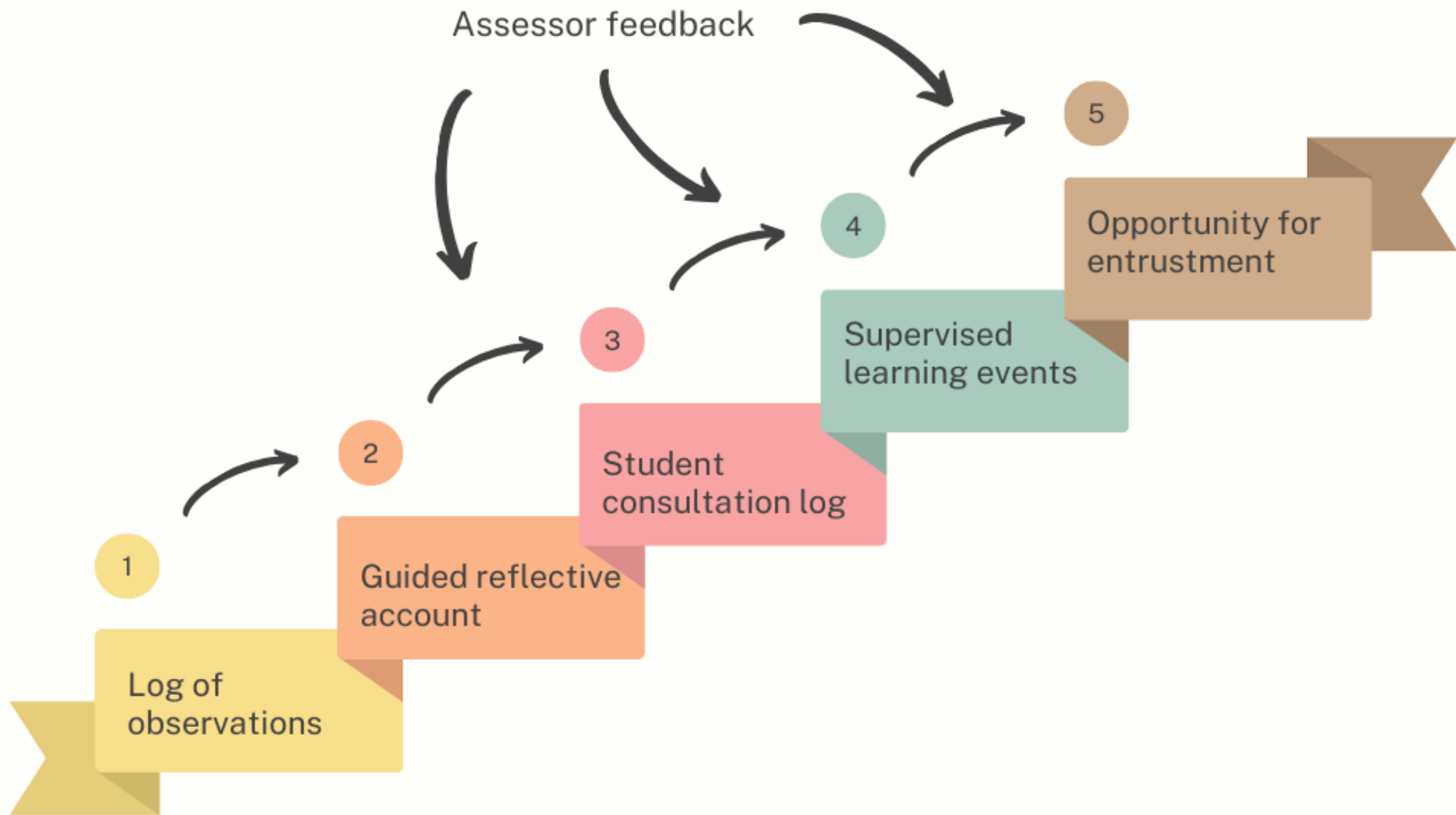


- Co-developed with Healthcare Education and Improvement Wales (HEIW), the national body for healthcare education.
- Placement scheme funded by the Welsh Government.

Entrustable Professional Activity (EPA) Framework

- EPAs are professional tasks which can be entrusted to learners once they have attained sufficient competence.
- Working group constructed to iteratively develop the suite of EPAs, each mapped to the 'does' level learning outcomes.
- Initial suite of 5 EPAs, with the addition of one more for this academic year
 1. Patient history taking
 2. Responding to patient queries/signs/symptoms
 3. Medicines review
 4. Clinical checking/prescription assessment
 5. Patient counselling
 6. *Lifestyle optimisation*

Road to Entrustment



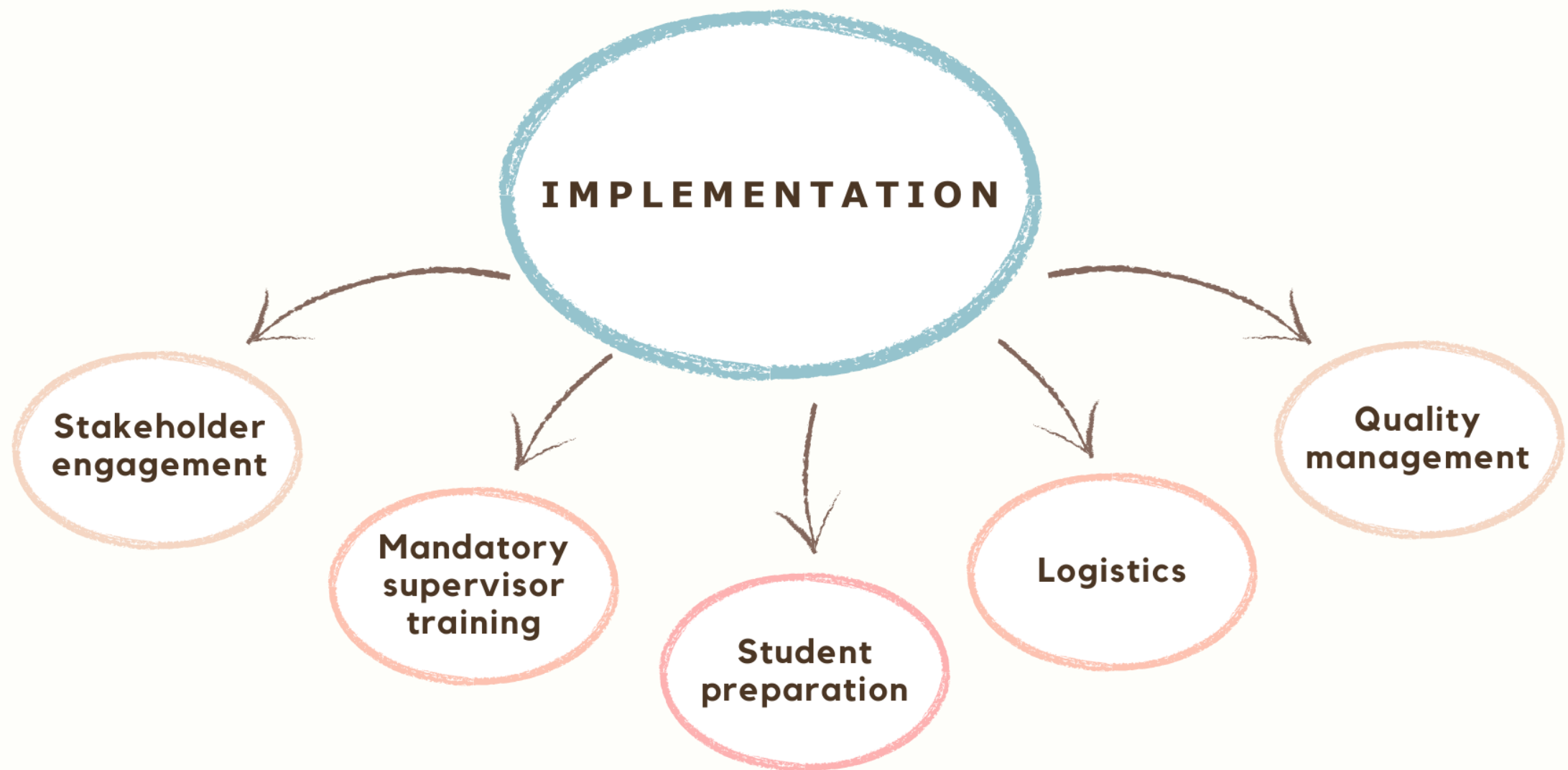
Supervised Learning Events (SLEs)

- Work-based assessment of student competence, integrated into each EPA.
- Either case-based discussions or consultation skills assessments (or both).

CONSULTATION BEHAVIOURS

Did the student fully demonstrate the following consultation behaviours?

Listen actively & allow the patient to complete statements	Y/N	N/a
Use open & closed questions appropriately	Y/N	N/a
Demonstrate empathy & support the patient	Y/N	N/a
Avoid or explain jargon	Y/N	N/a
Accept the patient (i.e. show respect, not judgemental or patronising)	Y/N	N/a
Adopt a structured & logical approach to the consultation	Y/N	N/a
Summarise information at appropriate time points	Y/N	N/a
Manage time effectively (work well within the timeframe)	Y/N	N/a
Keep the interview 'on track' or regain 'control' when necessary	Y/N	N/a



22/23 – 527 placement weeks delivered:
Two weeks for MPharm 3 (n=103)
Three weeks for MPharm 4 (n=107)

23/24 - 879 placement weeks delivered
One week for MPharm 2 (n=141)
Three weeks for MPharm 3 (n=110)
Four weeks for MPharm 4 (n=102)

Evaluation and Feedback

- Independent evaluation of the first two years clinical placement scheme, including the implementation of EPAs undertaken by CuReMED (ongoing).
- Internal student feedback for the EPAs:
 - Appreciated the structure to support their experiential learning.
 - Some felt high levels of stress and pressure with entrustment as the driver of summative assessment, especially where there was any inconsistency in placement quality.
 - Demotivation where many consultations were required to achieve entrustment.

Key Learning

**Cross-sector
buy-in**

**Positioning of
EPAs within
summative
assessment**

**Student and
provider
preparation**

**National
collaboration**



Developments and Next Steps

- Await formal evaluation report to implement student/placement supervisor feedback and recommendations.
- Improvements made for academic year 23/24
 - EPAs split into 4 successive levels with increasing task and patient complexity.
 - EPAs nested into a wider portfolio of evidence for overall summative assessment.
 - Increased placement capacity across sectors.
 - Involvement of Swansea School of Pharmacy.
- Aiming to trial longer placement blocks in 24/25.

Acknowledgements



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Fferyllol Caerdydd**



GIG
CYMRU
NHS
WALES

Addysg a Gwella Iechyd
Cymru (AaGIC)
Health Education and
Improvement Wales (HEIW)

**Thank you for
listening.
Any questions?**



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2024 Pharmacy Education Symposium

Developing collaborative practitioners –
perspectives from Australian pharmacy
profession academics

Bronwyn Clark



HEALTH
PROFESSIONS
ACCREDITATION
COLLABORATIVE
FORUM

Australia's accreditation authorities
for regulated health professions

Developing collaborative practitioners as Agents of Change

Perspectives from Australian pharmacy profession academics

Bronwyn Clark¹, Sarah Meiklejohn², Lynda Cardiff¹, Julie Gustavs³, Josephine Maundu¹, Glenys Wilkinson¹, Sue Kirsa^{1,2}, Theanne Walters AM³, Fiona Kent².

¹ Australian Pharmacy Council, ² Monash University, ³ Australian Medical Council

Definition of Interprofessional Education (IPE)

‘Interprofessional Education occurs when students from two or more professions learn **about, from and with** each other to enable effective collaboration and improve health outcomes.’

WHO Framework for Action on Interprofessional Education & Collaborative Practice (2010)



Collaborative practice in health-care occurs when multiple **health workers from different professional backgrounds provide comprehensive services by working with patients, their families, carers and communities** to deliver the highest quality of care across settings.

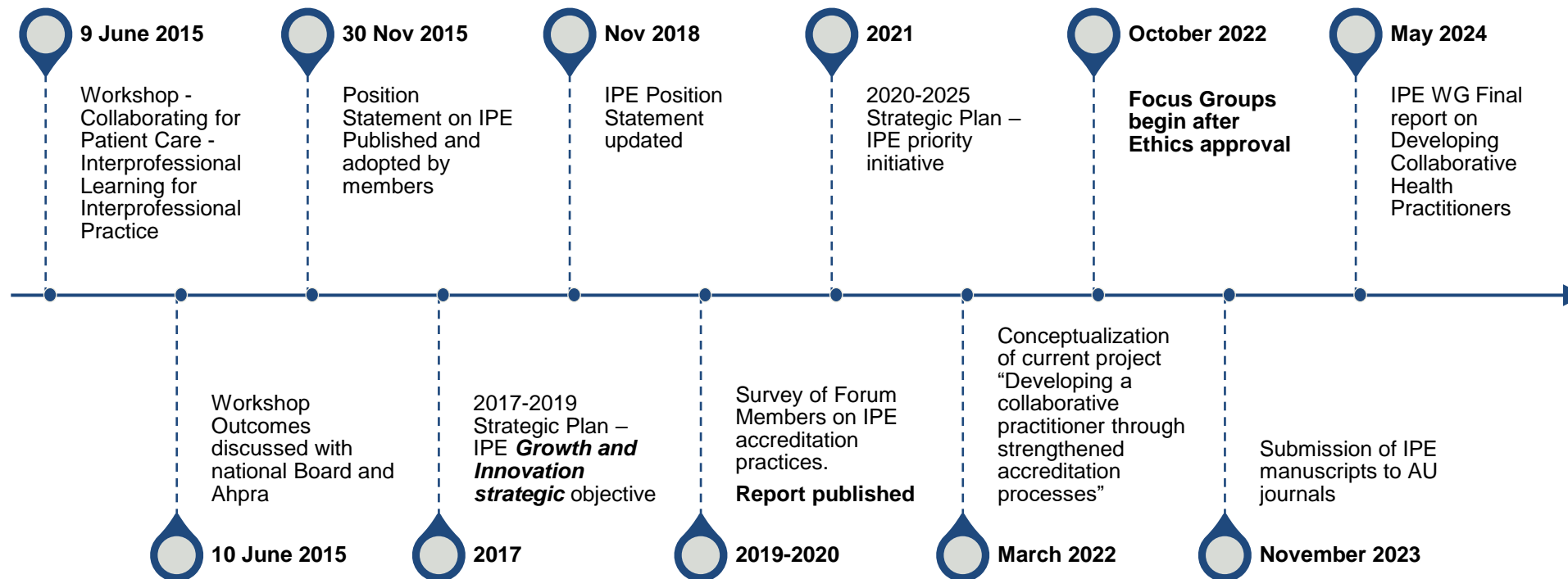
HPAC Forum Statement (2018)



Optometry Council of Australia and New Zealand



Health Professions Accreditation Council (HPAC) Forum IPE Timeline



Moving the dial to improve IPE and IPCP

Project Aims

Contribute to an enhanced collaboration between accreditation authorities and education providers in the delivery of IPE and the development of collaborative practitioners by:

- Objective 1: Research - exploring the vision of a Collaborative Practitioner from the perspective of consumers, education providers and health services
- Objective 2: Exemplars and Guidance - developing specific and practical guidance to support education providers and accreditation authorities achieve the goal of developing graduates who are equipped to practise collaboratively.

Research methods

Focus groups

Health education providers
(professions represented
with the Forum)

Health service providers

Consumers

Potential participants invited to submit an Expression of Interest (EOI)

Criteria for inclusion was
provided in the EOI

Focus group exploration

What is the vision of a
collaborative
practitioner? How are
we developing
collaborative
practitioners?

What is working well?
What is not working
well?

What does the future
look like?

How can accreditation
contribute?

Focus groups & participants

Participant type	# of focus groups held	# Attending
Educators	14	62
Health service providers	2	4
Consumers	2	10
HPESG	1	8
Total	19	84

Education programs represented	# of participants
Aboriginal and Torres Strait Islander	1
Chiropractic	1
Dental	4
Medical	5
Medical Radiation Practice	6
Nursing/Midwifery	2
Occupational Therapy	3
Optometry	1
Osteopathy	2
Paramedicine	2
Pharmacy	11
Physiotherapy	4
Podiatry	1
Psychology	5
Other	14

Thematic analysis findings

Patients want care that is:

Patient Centred

- Acknowledging of patients' knowledge and agency
- Acknowledges lived experience of patient in their health journey

Inclusive of family and friends

- As being of equal importance to a person's care as health professionals
- Acceptance of valuable knowledge of family and friends of patient

Seeing aspects of care as 'complementary' rather than 'hierarchical'

- to increase patient safety
- i.e. One is not more important than another.



Thematic Analysis - pharmacists

- Instinctively pharmacists work in a collaborative multidisciplinary way
 - They are naturally complementary in the health team.
 - Pharmacists work collaboratively compared to other health professions that generally can work more autonomously i.e. health teams in hospital settings.
- They have a “case manager’ approach.

Pharmacists can be agents of change by celebrating our traits/roles as interprofessional collaborators and advocate for implementation of activities that improve collaborative practice

Pharmacists - quotes

Community pharmacists act as a coordinator for patients

“you become this sort of port of call for the community... The pharmacy is a fixed location where their clients can actually come to and you can, you're almost doing sort of like a mini triage...”(Pharmacy educator participant 19)

“I think pharmacists have the unique position of being the hub of collaboration. I think of all the health professions, we're probably seeing people more frequently and they're quite open with their communication to us”(Pharmacy educator participant 26)

Pharmacists - quotes

A hub for collaboration across professions

“I reckon like 80 to 90% of our work is collaborative. Well, it can be seen as within a collaborative framework...dispensing a prescription is[...]active collaborative practice. Whereas sometimes some of the health professionals, I imagine there's a fair bit of dental work that 90% of that can be focused on that dental work [...]without necessarily bringing in other health professionals.”(Pharmacy educator participant 18)

“I think there are avenues where being a collaborative practitioner is becoming much easier for pharmacists. So, in the hospital system, I see that as quite a, a not very difficult thing to achieve for pharmacists who'll be working in [...]age care facilities or general practice settings, that the collaboration will just be an inherent part of their job.”(Pharmacy educator participant 26)

Overcoming the barriers to collaborative practice

MEAGEN M. ROSENTHAL, MA, PHD
ZUBIN AUSTIN, BSCPHM, MBA, MISC, PHD
ROSS T. TSUYUKI, BSC(PHARM), PHARM.D, MSC, FCSHP, FACC

EDITORIAL

Barriers to pharmacy practice change: Is it our nature or nurture?

THE PRACTICE OF PHARMACY HAS SEEN MAJOR CHANGES IN the past decade. Today, pharmacists from coast to coast can extend prescriptions and make therapeutic substitutions.¹ Many pharmacists can also provide influenza vaccinations and in some cases initiate drug therapies (i.e., prescribe). However, it has also been well established that the integration of many of these services by pharmacists into practice has been slow and incomplete.² As pharmacy regulatory and advocacy groups continue to push for pharmacists' larger role within the health care system, these efforts are hampered by the lack of widespread adoption and integration of these services within practice. Therefore, we need to more carefully consider why

To answer this question, we must start with pharmacists currently in practice. We have examined pharmacists' personality traits and the connection between these traits and behaviours in pharmacy practice and found that most respondents identified with the traits of agreeableness, conscientiousness and openness.⁵ Interestingly, positive relationships between traits and behaviours were noted between respondents who identified with the trait of extroversion and the number of immunizations provided and the traits of agreeableness and openness and the number of medication reviews completed.⁵ While the relationship between extroversion and immunizations was slightly stronger, the overlap with agreeableness and

What does this mean for educators?



What does this mean for accreditors like APC?

University level	<ul style="list-style-type: none">• Standing health consumer advisory group to guide IPE• Facilitating radical curriculum change (not overnight)• Provision of funding and support for health professions programs
Faculty level	<ul style="list-style-type: none">• Embedding IPE as a core unit/directive• Sharing of resources across health professions programs
Program and staff level	<ul style="list-style-type: none">• Curriculum content covering patient centred care – free from egos and hierarchies/power differentials of health professionals• Curriculum co-design with all stakeholders including consumers
Student level	<ul style="list-style-type: none">• Evidence of assessment and mapping of IPE
Health services	<ul style="list-style-type: none">• Curriculum and placement co-design
Resources	<ul style="list-style-type: none">• Funding for content e.g. simulations, workshops• Funded IPE roles e.g. Director of IPE/Collaborative Practice

Acknowledgements



IPE Working Group

- Ms Bronwyn Clark (Lead), Australian Pharmacy Council (APC)
- A/Prof Fiona Kent (Invited), Monash University, AIPPEN, **Chief Investigator – research arm**
- Ms Theanne Walters AM, Australian Medical Council (AMC)
- A/Prof Sue Kirsa, APC
- Prof Brian Jolly, Chinese Medicine Accreditation Committee
- David Copley, Kurna / Peramangk Elder
- Ms Glenys Wilkinson, APC

Project Team

- Dr Josephine Maundu, APC (Project Manager) , Dr Lynda Cardiff (APC Consultant)
- Dr Sarah Meiklejohn, Monash University , Dr Julie Gustavs, AMC





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2024 Pharmacy Education Symposium

Visualizing Health: A Pioneering Approach to
Diabetes Awareness through Infographic
Design

Shazwani Shaharuddin

VISUALIZING HEALTH: A Pioneering Approach to Diabetes Awareness through Infographic Design

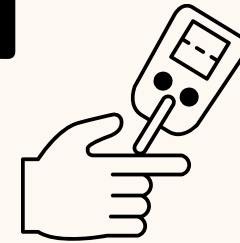
Presentation by **Shazwani Shaharuddin**

Tan Hui Yen, Brigitte Yew Xinyi, Tan Tai Hoong, Tan Bee Yee,
Jamuna Appalasamy, Choon Ming, Shazwani Shaharuddin



INTRODUCTION

- Diabetes Mellitus (DM) is a global health issue with a steadily rising prevalence, even in younger age groups.



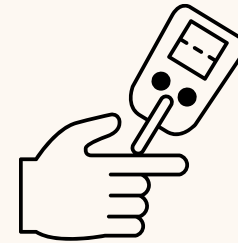
General characteristics of participants (N = 4982).

Characteristics	Total	Frequency (%)		
		Non-DM	Pre-DM	DM
N (%)	4982	3854 (77.4)	537 (10.8)	591 (11.9)
Age				
>50	2943 (59.1)	2144 (72.9)	380 (12.9)	419 (14.2)
<50	2039 (40.9)	1710 (83.9)	157 (7.7)	172 (8.4)

Ismail R et al, 2023

AIM

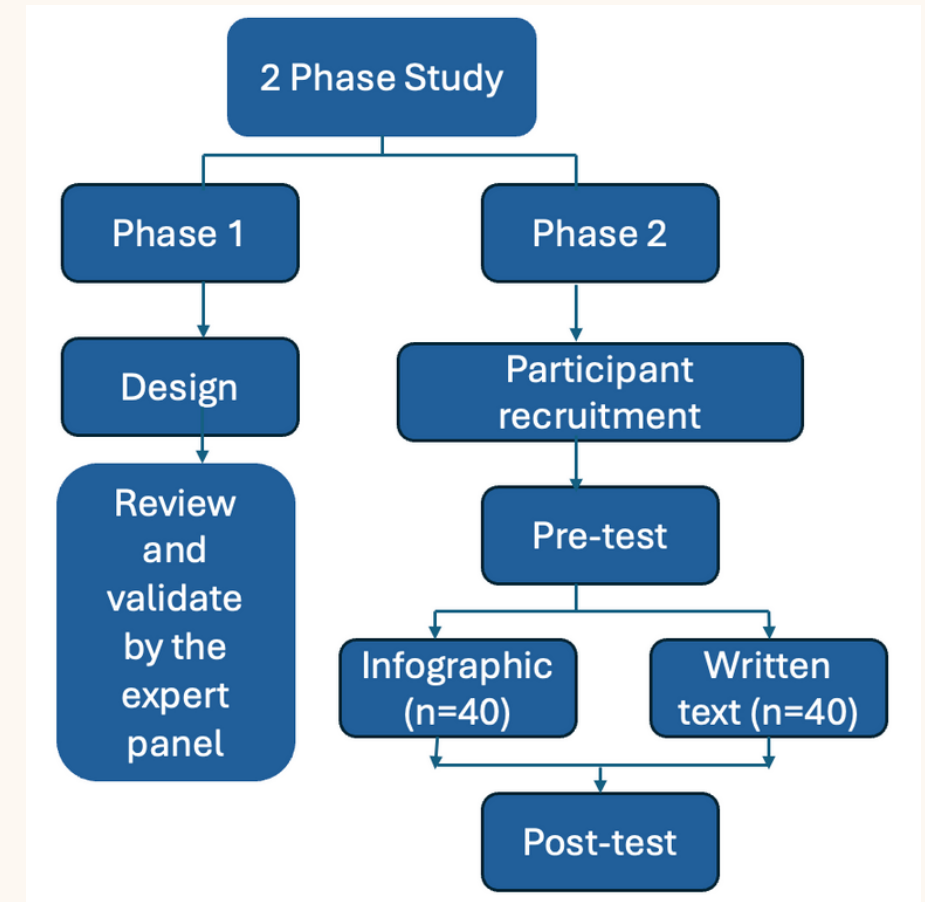
- To determine the efficacy of infographics and written texts in improving knowledge on diabetes among young adults in Malaysia



METHODOLOGY

Participant recruitment

- A quasi-experimental pilot study was conducted in educating young adults about diabetes.
- Inclusion criteria:
 - Age 18-35
 - English literacy
 - No educational or occupational background in the healthcare field.
- Exclusion criteria:
 - Has a medical history of type-1, type-2 or gestational diabetes



RESULT

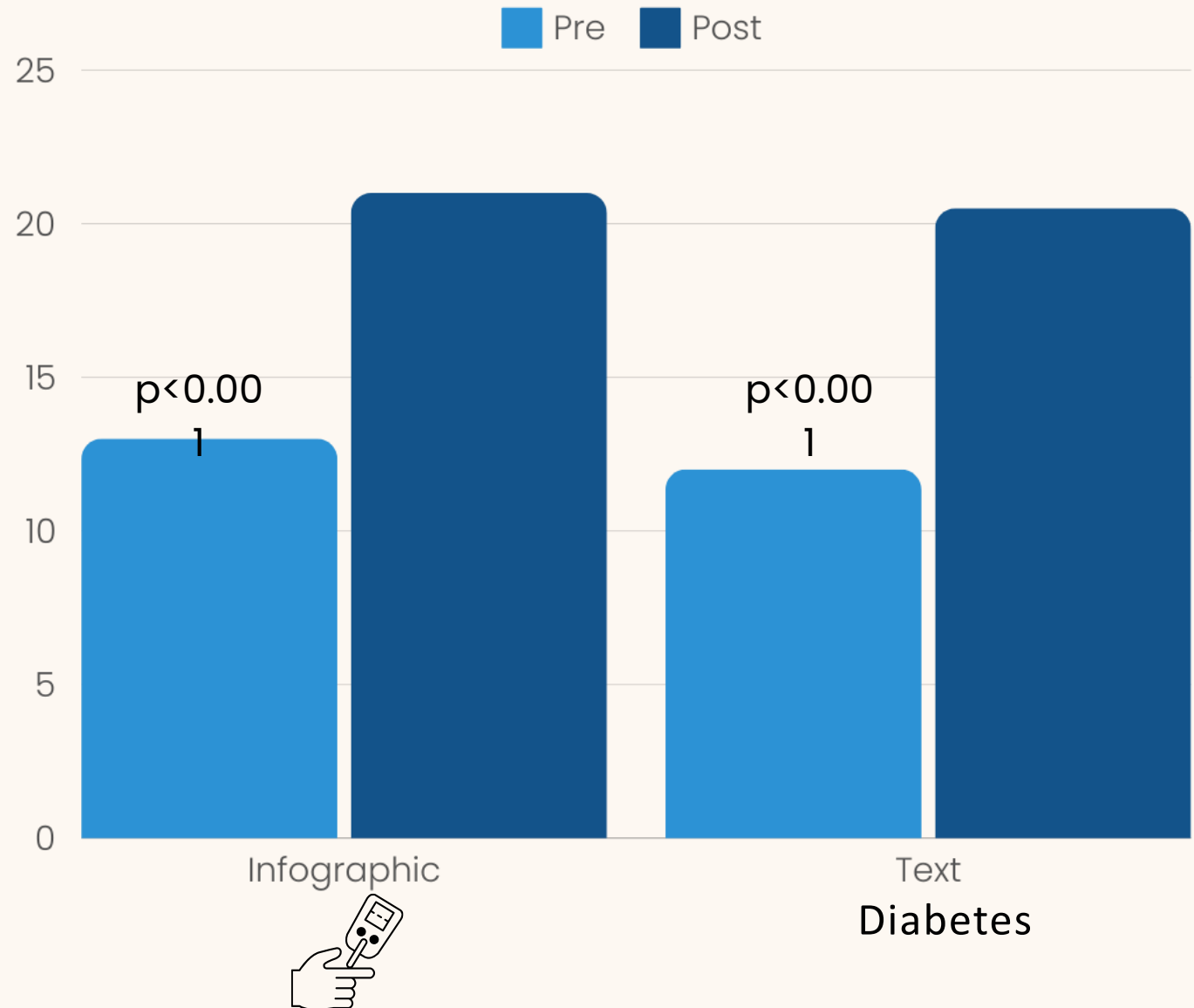
Demographic

Characteristics	Number of participants, n (%)		
	Infographic (n = 40)	Written Text (n = 40)	Total (n = 80)
Age			
18–20	3 (7.5)	4 (10.0)	7 (8.8)
21–25	30 (75.0)	31 (77.5)	61 (76.3)
26–30	4 (10.0)	4 (10.0)	8 (10.0)
31–35	3 (7.5)	1 (2.5)	4 (5.0)
Mean Age	23.98	23.08	23.53
Gender			
Male	24 (60.0)	19 (47.5)	43 (53.8)
Female	16 (40.0)	21 (52.5)	37 (46.3)
Ethnicity			
Chinese	32 (80.0)	27 (67.5)	59 (73.8)
Malay	4 (10.0)	7 (17.5)	11 (13.8)
Indian	4 (10.0)	3 (7.5)	7 (8.8)
Prefer not to say	-	1 (2.5)	1 (1.2)
Others	-	2 (5.0)	2 (2.5)
Highest Education Level			
SPM	2 (5.0)	-	2 (2.5)
STPM / Pre-U	2 (5.0)	5 (12.5)	7 (8.8)
Diploma / Cert	3 (7.5)	4 (10.0)	7 (8.8)
Bachelor's degree	31 (77.5)	27 (67.5)	58 (72.5)
Master's degree	1 (2.5)	2 (5.0)	3 (3.8)
Doctorate / PhD	-	-	-
Prefer not to say	1 (2.5)	1 (2.5)	2 (2.5)
Others (IGCSE)	-	1 (2.5)	1 (1.2)
Occupational status			
Student			
Employed	21 (52.5)	28 (70.0)	49 (61.3)
Unemployed	16 (40.0)	10 (25.0)	26 (32.5)
Freelance	1 (2.5)	1 (2.5)	2 (2.5)
Prefer not to say	1 (2.5)	-	1 (1.3)
	1 (2.5)	1 (2.5)	2 (2.5)

RESULT

Comparison between
pre and post

- There is a sig difference between pre and post ($p < 0.001$)
 - infographic
 - pre-test median 13 → post-test median 21
 - written text groups
 - pre-test median 12 → post-test median 20.5
- However, there was no significant difference between the post-test scores of the infographic and the written text groups ($p = 0.708$)
 - infographic group median 21 vs written text group median 20.5



PARTICIPANTS' PREFERENCE OF LEARNING MEDIUM

Participants from the infographic and text groups were strongly inclined towards learning through infographics



9 OUT OF 10



Infographic Group
Prefers Infographic



7 OUT OF 10

Diabetes Text Group
Prefers Infographic

DISCUSSION

- A recent study by Lee et al. (2022) demonstrating the public's preference for infographics over written text further supports the theory.
 - About 73% of the participants were between the age of 18-24 years old
 - 86% felt it was easier to learn about COVID19 topics through infographics than written articles
- Images are processed and encoded into the memory rapidly (Delorme A et al, 2018)
- Houts et al. (2006) proved that graphics are more effective in:
 - improving knowledge and understanding on health information, esp among lower health literacy population
- Such results were in line with the latest systematic review done by Schubbe et al, 2020

Table 2. Participants Correctly Understanding Instructions on the Nystatin Suspension Label

Question	Participants, n (%)		p Value
	Text Only (n = 30)	Text + Pictogram (n = 30)	
1. How much medicine do you need to take?	29 (96.7)	30 (100.0)	0.313
2. How must you take this medicine?	14 (46.7)	28 (93.3)	0.000
3. How many times a day must you take this medicine?	30 (100.0)	30 (100.0)	
4. What are the actual times?	1 (3.3)	22 (73.3)	0.000
5. Do you have to finish all the medicine?	27 (90.0)	30 (100.0)	0.076
6. Should you stop taking this medicine as soon as you feel better?	27 (90.0)	30 (100.0)	0.076

- “How must you take this medicine”
 - 47% correct for text only versus 93% correct for text with pictures
- “What are the actual times”
 - 3% correct for text only versus 73% correct for text plus pictures
- In addition, there was a clear preference for the illustrated materials.

COMPARISON



◆◆ headache,
◆◆ dizziness



◆◆ increased
◆◆ hunger



◆◆ blurry
◆◆ vision



◆◆ excessive
◆◆ thirst



◆◆ fatigue



◆◆ frequent
◆◆ urination



SYMPTOMS OF HIGH BLOOD SUGAR LEVELS

COMPARISON

Symptoms of Diabetes

Generally, symptoms of diabetes or high blood sugar may include

- headache
 - dizziness
 - increased hunger
 - blurry vision
 - excessive thirst
 - fatigue
 - frequent urination.
-

CONCLUSION



Eventhough our study showed there's no difference between infographic and text, other studies have shown there's an increase in knowledge and understanding of health information

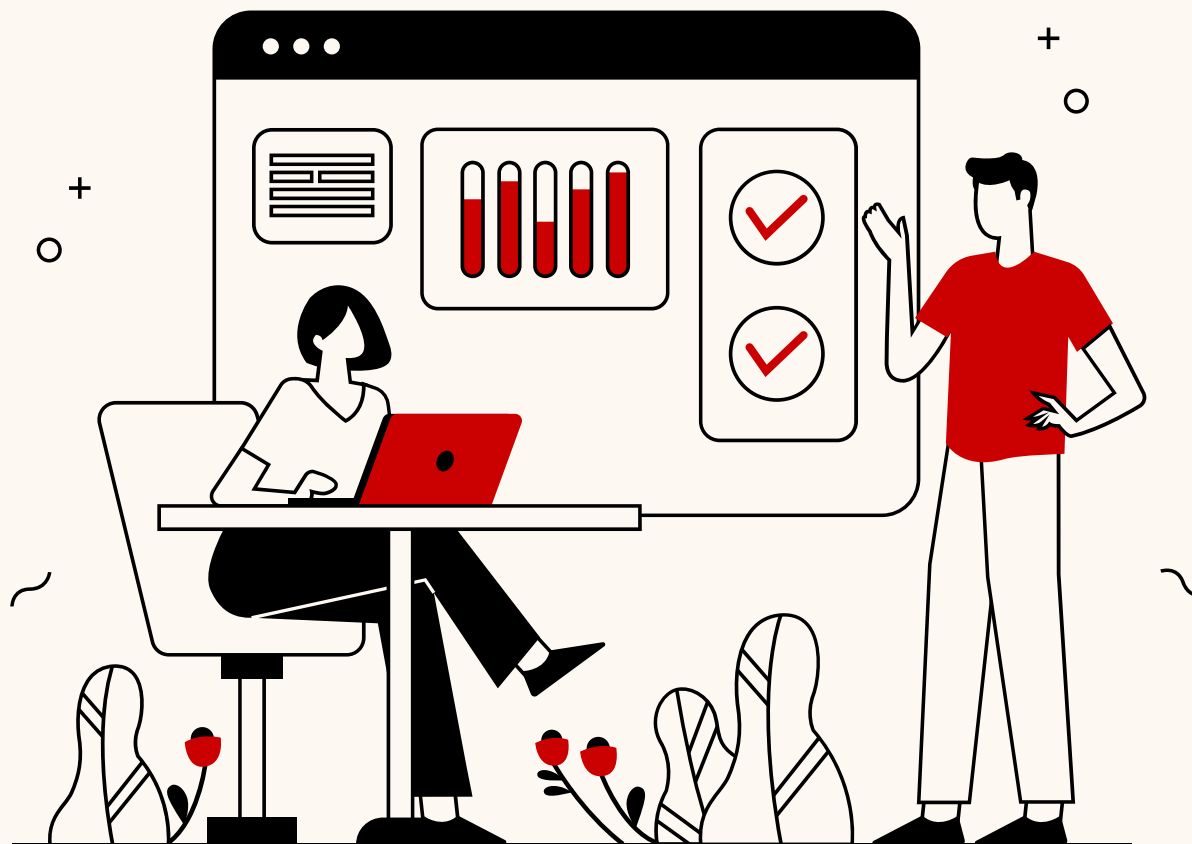
Future studies:

- work with graphic designer to ensure clarity, simplicity of the information and visual appeal for the target audience.
 - to test on a bigger sample size
 - different socio-demographic profiles
-

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THANK YOU





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The background is a solid blue color with a pattern of fine, white, wavy vertical lines. Overlaid on this is a dark blue silhouette of the map of Australia. A white location pin icon is placed on the map, specifically over the southern coast of Australia. The word 'LUNCH' is written in large, white, sans-serif capital letters across the center of the map.

LUNCH



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2024 Pharmacy Education Symposium

ORAL PAPER SESSION 6: Equity, diversity
and inclusion in pharmacy education and
practice

Chair: Dr Betty Exintaris

2024 Pharmacy Education Symposium

Evaluation of a Community Pharmacy-based
Seasonal Influenza Vaccination Placement for
Third-year Pharmacy Undergraduates

Dr Jeremy Sokhi

ADMINISTRATION OF SEASONAL INFLUENZA VACCINATIONS BY PHARMACY UNDERGRADUATES: EVALUATION OF CLINICAL PLACEMENT

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OVERVIEW

Background

Seasonal influenza vaccinations in community pharmacy

Method

Design and delivery of the clinical placement

Evaluation

Student and practice educators

Questions

& answers



SEASONAL INFLUENZA VACCINATIONS

- Community pharmacies can administer as an 'advanced service'
- Commissioned by NHS England¹
- Aimed at improving healthcare access amongst at-risk individuals

“Vaccinations should be administered under the supervision of a pharmacist trained in vaccination.”



UEA Pharmacy Experiential Learning – Current Programme

Year 1

Over-the-Counter (OTC)
focused Placement (5 days)

Hospital Pharmacy
Orientation (0.5 days)

5.5 days

Year 2

Hypertension Case-
finding Placement
(5 days)

Medicines Supply-
focused Placement
(10 days)

IPL
Placement
(0.5 days)

15.5 days

Year 3

Services Delivery
(Vaccination)
Placement
(5 days)

Patient-focused
Clinical Placement
(6 days)

IPL
Placement
(0.5 days)

11.5 days

Year 4

Multisector Quality Improvement Placement
(16 days)

16 days

48.5 days

DESIGN AND DELIVERY

Placement set-up

- One community pharmacy chain in England
- 5 consecutive days in November 2023
- Placement developed via engagement from MPharm Placement Providers Advisory Group (MPPAG)
- Practice educators certified to deliver seasonal influenza vaccinations and familiar with UEA programme
- Academic support network at UEA

Student preparation

- Mandatory training through E-learning for Health
- Practical training to deliver seasonal influenza vaccines to national standard
- Smart Card and IT access



70 pharmacies



81 students

EVALUATION

Placement evaluation questionnaires

- Mixed 5-point Likert scale and open-ended questions
- Placement organisation, preparedness, vaccination experience, level of support, learning and assessment of skills (before/after), student's integration within the team
- Completed by students and practice educators one week after the placement

79 (98%) students and 50 (71%) practice educators responded

524 vaccinations (379 directly supervised) were administered by 71/81 students (88%)

Services Delivery (Vaccination) Placement (Year 3) – Mutual Benefits for Students and Healthcare Teams



- ↑ **Confidence in administering vaccinations** (44 (56%) and 64 (81%) agreed/strongly agreed pre- and post-placement, respectively)
- ↑ **Understanding of pharmacists' role** (65 (82%) agreement)
- ↑ **Perceived skills**, especially consultation skills and teamworking (70 (89%) and 67 (85%) agreement, respectively)
- **Smooth integration within the team** and administered vaccinations safely and effectively (45 (90%) agreement each).



- **Scheduling placements earlier** in the year
- **Need to involve students in other services**
- **Financial sustainability** for travel expenses/accommodation.

KEY MESSAGES

Demonstrates that pharmacy undergraduates can deliver influenza vaccinations

Improves access to patients

Reduces pharmacy staff workload

Financial barriers need addressing before roll-out of similar placements



ACKNOWLEDGEMENTS:

**DR CAROLINE PARKHURST, TEACHER
PRACTITIONER, DAY LEWIS**

**DR TIM RENDELL, HEAD OF PHARMACY,
DAY LEWIS**

THANK YOU!

ANY QUESTIONS?

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2024 Pharmacy Education Symposium

How to Boost Achievement of All Students
Without Lowering Quality Standards:
Reorganizing the Learning Process in
Pharmacy Education

Dr Eszter Csikos

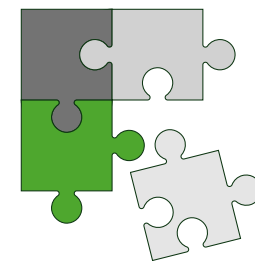
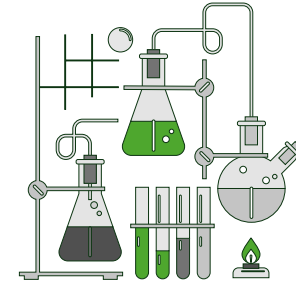
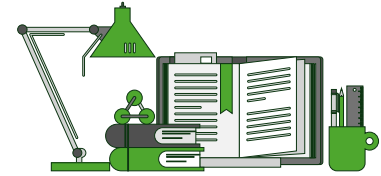
Eszter Csikós, Viktória Lilla
Balázs, Ferenc Arató

How to Boost Achievement
of All Students Without
Lowering Quality Standards:
Reorganizing the Learning
Process in Pharmacy
Education



The need of pharmacy education reforms

- constantly changing and market-driven healthcare environment → flexible response from higher education institutions
- develop problem-solving skills and integrate practice-oriented pedagogical strategies → new evidence-based learning and teaching practices
- aim: updated, competency-based and needs-based pharmacy education in collaborative environment
- student academic performance ↔ **teacher skills**



Faculty of Pharmacy, University of Pécs

1. A change in faculty behavior focusing on peer support and interpersonal cooperation is required for curricular transformation
2. Competency focus is a key element of curricular reform
3. Educational expert cooperation can ensure relevant pedagogy and reliable implementation outcomes
4. The flow of information between stakeholders can ensure curricular effectiveness and optimize student benefits
5. Faculty engagement factors impact program efficacy and curricular development
6. Apply relevant evidence-based data on adult teaching pedagogy and adapt to individualized educational settings
7. Recognize and develop the informal (hidden) curriculum
8. Reflection on learned or experienced pedagogical knowledge is a key element when implementing theory into practice
9. Adoption of the educator role of a facilitator, motivator and formative assessor encourages student progress

Nagy G et al. A Scoping Review of Educator Proficiency Interventions in Pharmacy Education Illustrated by an Interdisciplinary Model Integrating Pedagogical Theories into Practice. *Pharmacy*. 2023; 11(6):172. <https://doi.org/10.3390/pharmacy11060172>

Professional Pedagogical Knowledge Development Program

- education expert faculty support service
- voluntary micro-groups / institute
- digital tools: personalized mapping, self-regulative learning process
- **cooperative learning structures**
- educational mentors





Pharmacognosy

Lectures

- Theory of plant sourced drugs based on active compound groups

Practices

- Seminar about active components and effects
- Organoleptic and microscopic examination
- Phytochemical examination
 - phytochemical tests
 - laboratory methods
 - pharmacopoeial protocols

Development needs

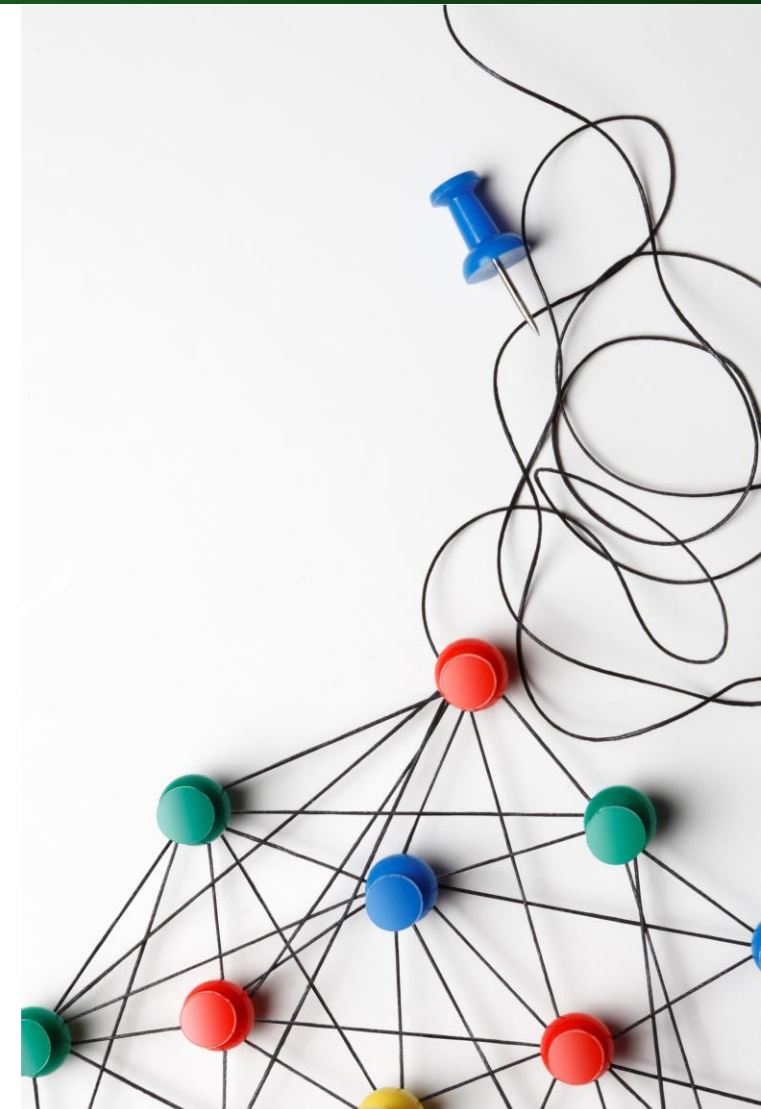
- unmotivated students
- lack of attention
- inability to work together
- inability to finish the practice in time
- many repeated tests

Aims

- highlighting the importance of medicinal plants used in the medical practice
- useful, practical questions for pharmacy students
- encouraging students to continuously study and practice
- encouraging teamwork
- **structural cooperative learning** and varied task types

Methods

- Team work during microscopic-macroscopic evaluation
- Revision of task types and test questions
- Tasks for own processing and better integration of knowledge
- **Cooperative learning on phytochemical practice**
 - Small groups of 3-4 students
 - Distribution of responsibilities
 - Tasks based on each other's results
 - Tasks based on the other small groups' results
 - (Tasks based on the other groups' results)



Measuring tools

Requirements / semester

- Drug identification tests
 - Recognize the drugs, name, source plant, active compounds, effects
- **Phytochemical short tests**
 - Main compounds, effects, side effects, chemical properties, detection, quality measurements
 - All levels of Bloom taxonomy
 - Question types: matching, short answer, long answer, diagram analysis etc.
- Varied interactive task e.g. short lecture, situation
- Notebook + work on practice

Course objective and role in the curriculum

Students should become familiar / be able to:

- with plant materials and drugs
- the main groups, active ingredients, and medicinal use of official drugs (Ph.Eur., Ph.Hg.)
- the role of medicinal herbs and their active ingredients in the pharmaceutical industry
- the grouping of the active ingredients of medicinal herbs
- the most important knowledge about plant raw materials (e.g. wild medicinal plants, medicinal plant cultivation, biotechnology)
- the basics of phytotherapy (strength, interaction, side effects)
- the most common medicinal forms that can be prepared from herbal drugs (e.g. tincture, infusion, decoction, etc.)
- the microscopic, macroscopic, and purity testing methods used in the classification of herbal drugs
- compose a plant-based preparation and check its quality
- recommend a plant-based preparation to the patient
- work in workplaces where medicinal plants play a role (authority, public traffic, industry)
- participate in successful drug therapy and filter out side-effects and interactions related to herbal products
- participate in individualized drug therapy
- value the information about medicinal plants
- work on herbal medicine certification based on regulations

Results – test avarege

	Number of Subjects	Mean	Standard Deviation	
Group 1:	13	77,29	8,4504	} Controll groups
Group 2:	13	78,46	10,2924	
Group 3:	12	73,64	10,4763	
Group 4:	12	93,61	7,3016	} Experimental groups
Group 5:	13	92,28	9,0837	
Group 6:	12	91,8	9,1082	

Group selection:

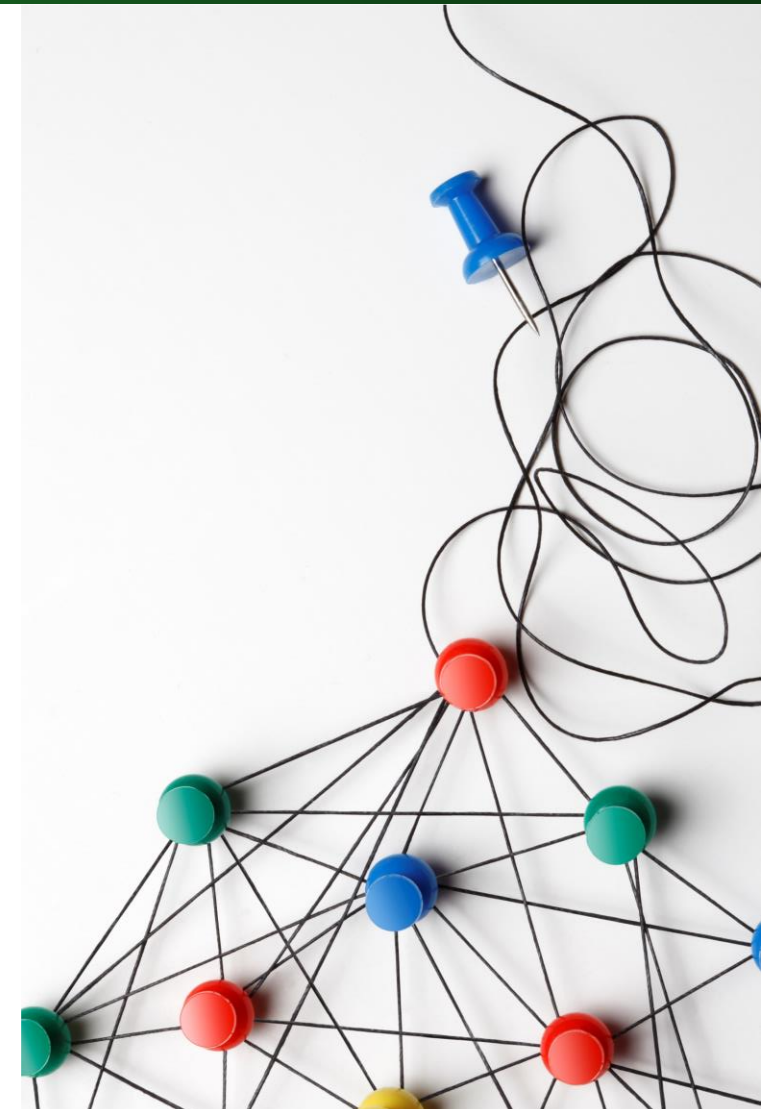
- 10-13 students
- no pandemic online groups
- same teacher
- same language

ANOVA
critical F-value 2.34754989
P-value: 0,00000003

	SS	df	MS	F	p
Between:	4,987.312	5	997.462	11.816	0.000
Within:	5,824.557	69	84.414		
Total:	10,811.870	74			

Summary

- In the native language groups – significant differences all 3 repeated experimental semesters
- In English-language groups – significant improvement but higher standard deviation
- The tests were good measurement tools
- High variance is not characteristic of successfully adapted cooperative processes
- The direction is good but we still need to improve





Thank you!



2024 Pharmacy Education Symposium

A qualitative investigation of Black and Asian
Minority Ethnic (BAME) MPharm students'
opinions of the MPharm programme

Simon Archer



UNIVERSITY OF
PORTSMOUTH

A qualitative investigation of Black and Asian Minority Ethnic MPharm students' opinions of the diversity and inclusivity of the MPharm course

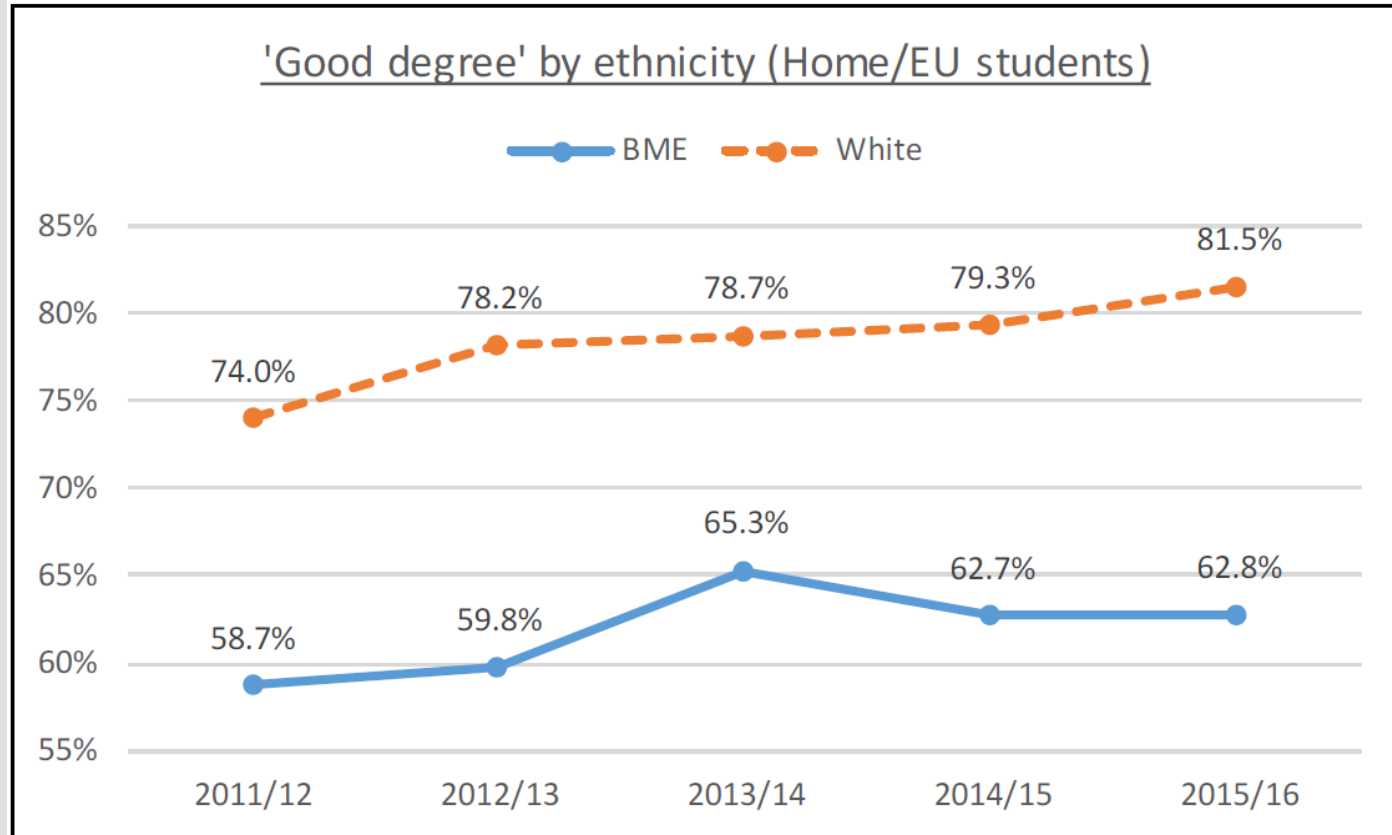
Your subtitle goes here

Mr. Simon Archer

**YOUR TIME.
YOUR PLACE.**



Award gap



2015-16, 73% (n=4759) of students at the University of Portsmouth (UOP) were awarded a good degree,

81.5% (n=2914) of white students and 62.8% (n=1365) of BAME students.

Furthermore the Science Faculty at UOP awarded 73% (194) of BAME students a good degree compared to 84% of white students.(Ross, 2017)

MPharm at UoP

	2016-17		2017-18		2018-19	
	Number	%	Number	%	Number	%
BAME	303	65.9	316	68.8	293	67.8
White	120	26.1	100	21.8	90	20.8
Unknown	37	8	43	9.4	49	11.3
Total	460	-	459	-	432	-

2019's registration assessment

The pass rate for white British students was 91% and for Black African students it was 61%, a gap of 30%, and this gap had widened by 4% from the previous year (92% compared to 66%).

Method

Semi structured qualitative approach: focus groups

Ran in December 2019

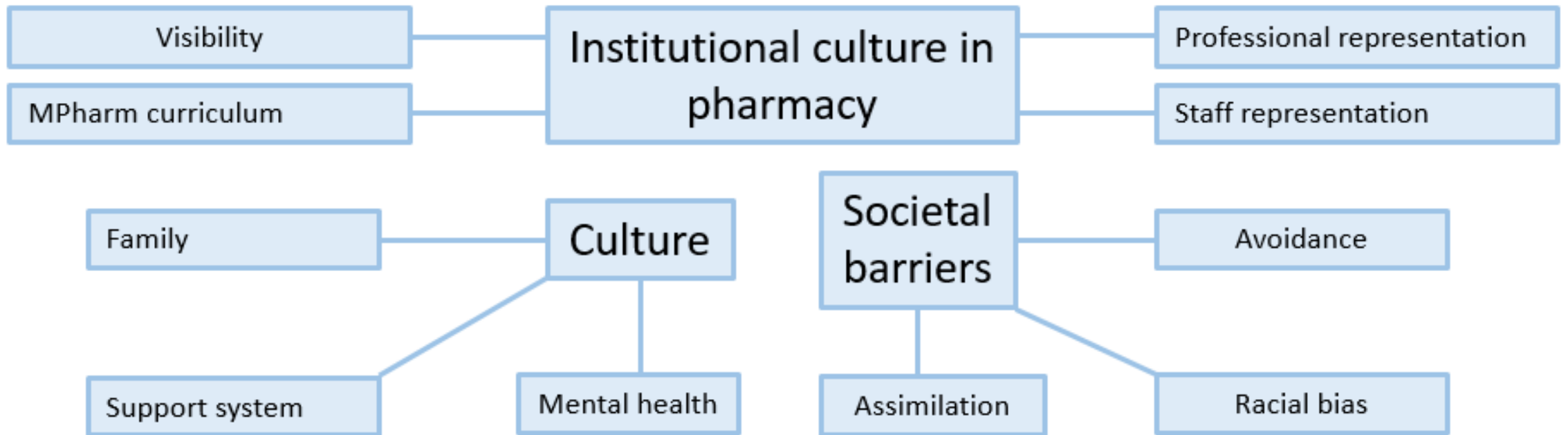
Level 6 & 7 students

8 groups with between 3-7 participants

Ethnically homogeneous (Greenwood *et al*, 2014)



Established Themes



Institutional culture in pharmacy

““It’s more whitewashed in university, I think.”

– Participant 14A7.



Culture

“Oh, yes. Even if I try to go to my family, they’re like, you can’t complain. You need to be strong”

– Participant 31A6.



Societal barriers

“You’re not meant to be here. You’re different. And it’s just that constant... It’s constantly quite discouraging to live in this place.”

– Participant 6B7.



Recommendations

1. **Representation in academic staff**
2. **BAME patient representation**
3. **Academic support**



Dissemination & importance

- Teaching and learning conference at UoP – Sharing best practice**
- Athena Swan bronze award**
- The Race Equality Charter**
- Increased sense of belonging**
- Repeating the research to review impact of changes**

Thanks to

**Kristine Invierno
Chioma Udeh**

References

Greenwood, N., Ellmers, T., & Holley, J. (2014). The influence of ethnic group composition on focus group discussions. *BMC Medical Research Methodology*, 4, 107.

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<https://doi.org/10.1177/107780040200800103>

THANK YOU

for

listening.



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YOUR PLACE.



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2024 Pharmacy Education Symposium

Exploring the views of school of pharmacy students on an Equality, Diversity, and Inclusion (EDI) teaching package

Gautam Paul



University of
Nottingham
UK | CHINA | MALAYSIA

Exploring the views of school of pharmacy students on an Equality, Diversity, and Inclusion (EDI) teaching package

Gautam Paul

MPharm Course Director





Background

- Providing training and understanding of equality, diversity and inclusion (EDI) is a requirement for the UK pharmacy curriculum (GPhC, 2021).
- Planned throughout the course in the classroom and workplace

Disability: Year 1 Semester 1

Age and Sex: Year 2 Semester 1

Race and Religion: Year 2 Semester 2

Sexual orientation, gender reassignment, maternity, marriage and civil partnership: Year 3, Semester 1

Revisit all protected characteristics: Year 3, Semester 2

Intersectionality –Year 4 Semester 1 and 2



Work to date

- Disability: Year 1 Semester 1 – teaching package (student co-created) and workshop
- Race and Religion: Year 2 Semester 1 – teaching package (student co-created) and workshop
- Age and Sex: Year 2 Semester 2 – group tutorial

Aim: Evaluate the use of the disability teaching package and workshop



The teaching package and workshop

- Moodle
 - Disability awareness
 - Supporting myself
 - Implementing inclusivity
 - Disability support at UoN

Implementing Inclusivity
What not to say

Some things are not appropriate to say to other people who are living with a disability. Click on each phrase to see why.

A guide on what NOT to say to people living with disabilities

It is important not to undermine people's disabilities or the adjustments they receive as a result of them.

« 8 / 14 »

- Dyslexia
- Reasonable adjustments
- Case Study (Anne)
 - Disability
 - Mental health
 - Race/ethnicity

what to do?
She can try to do anything but keep it to herself. She can reach out to anybody, like the GP, or her personal tutor, even her friends and family. Or she can try to do some things like reading, watching movies, eating nice food, anything that makes her feel better.

talk to my friends and family
talk to the close people around you

seeking professional help
It might take some time but meeting her tutor or contacting her GP is more helpful, but it's on her decision if she wants to or not talk with whoever she wants. Feelings are valid and so do her willingness.

She should talk to trustworthy people, it can be her friend or family members
talk to someone I trust

There is other ways to access mental health support
Phone the GP back up or 111 and ask for local mental health support services to help support her

Do things you enjoy and spending time with loved ones, and talking to them about how you are feeling.
Talk to someone she trusts and feels comfortable sharing her feelings with. This could be anyone from a family member, friend, teacher etc.

talk to someone she trusts
Talk to someone she feels comfortable with and could help her

Anne's options ...
This is a safe space for you to note down any suggestions that Anne could use. Have fun!

SPEAK OUT! <3
so many more people than we realise suffer with/ive with mental health conditions so reaching out and talking to someone you trust about how you are feeling can help

options :)
talk to someone that she trust and share her thoughts. communicating is a great way in expressing one's feelings

Find a hobby and do other activities that can take your mind away from everything and create a safety plan if the same thing happens again. Music can also help.

Look back at the EDI course to find out the support available to her

call
talk to someone on mental health helpline if she's uncomfortable talking about her problems her friends/family



Method

Completion of questionnaire at end of workshop

- Views on teaching package
- Views on workshop

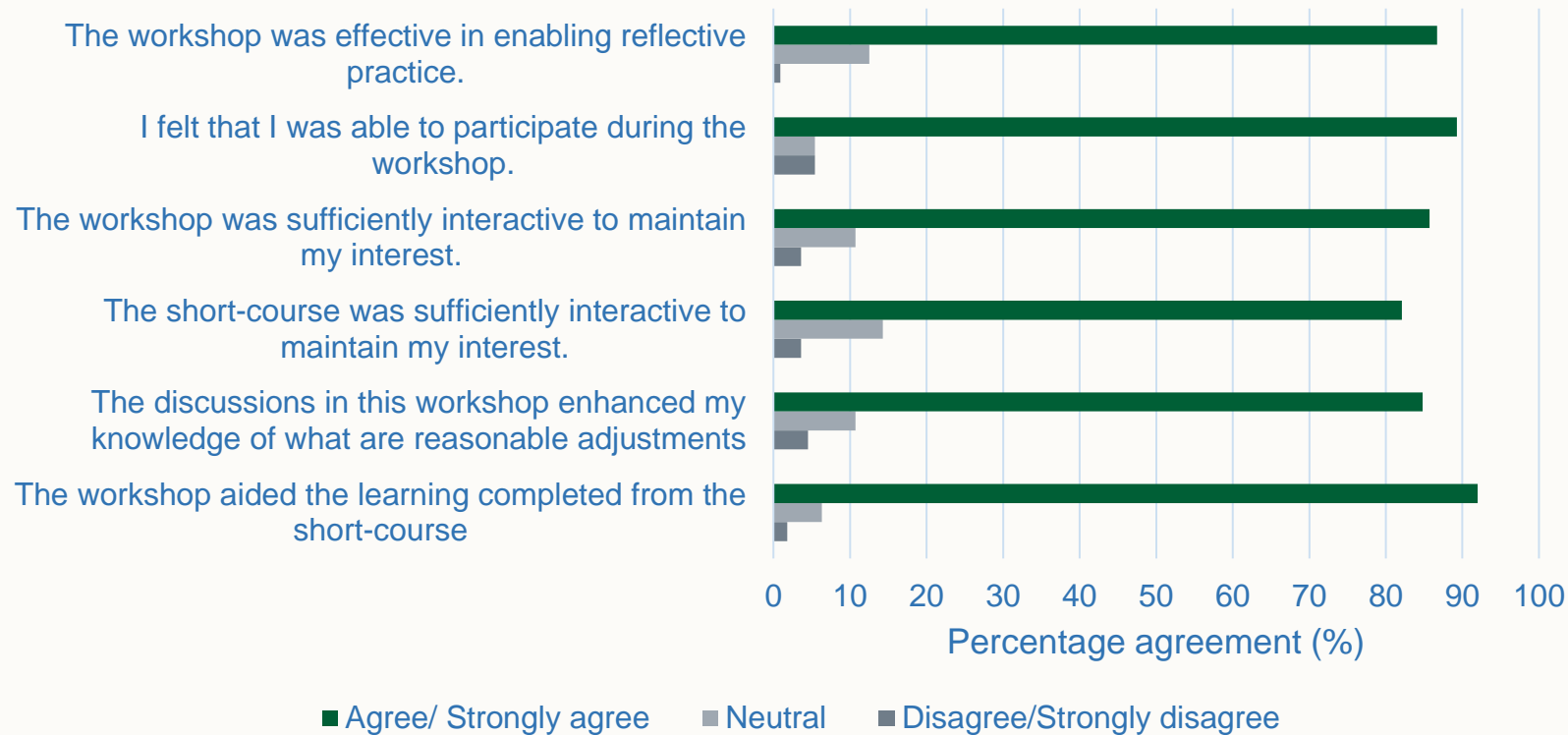
Analysis – frequency counts with percentages, and thematic analysis of open questions

MPharm Year 1 students undertook teaching package and participated in workshop





Results



- 111 students responded (54%)
- Majority of responses were from female students (78%)
- Majority of students were home/EU students (75%)



Results

Enabling participation

“An open environment to talk about difficult topics in an open discussion” (s44)

Learning about EDI

“Made me realise there’s more issues than I was aware of” (s86)

Delivery of teaching package

“Hard to find all the information” (s66)

Engagement

“Get more people involved and engaged” (s83)



Conclusions

- Overall positive views about the teaching package and workshop
 - Enabled students to participate and engage
 - Built awareness of disability and what it means for them and others
- Improvements need for future years
 - Delivery of teaching package with respect to duration and navigation
 - Facilitation of workshop to be reviewed to enable greater participation



Next plans

- Sexual orientation, gender reassignment, maternity, marriage and civil partnership: Year 3, Semester 1 - simulation
- Revisit all protected characteristics: Year 3, Semester 2 - PCAP
- Intersectionality –Year 4 Semester 1 and 2 – case studies, simulation



Acknowledgements:

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All the students who participated in interviews (design of teaching package) and surveys



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Thank you

2024 Pharmacy Education Symposium

An evaluation of a Multi-Sector MPharm pilot placement across a large rural geographical footprint

Dr Helen Paine

The Times and Sunday Times University of the year 2023



UNIVERSITY OF
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THE  TIMES
THE SUNDAY TIMES

**GOOD
UNIVERSITY
GUIDE
2023**

**UNIVERSITY
OF THE
YEAR**

An evaluation of a Multi-Sector Pilot Placement across a large rural geographical footprint

Dr Helen Paine
MPharm, PhD, PGCE, FHEA, PGCert, IP
Lecturer & Senior GP Practice Pharmacist

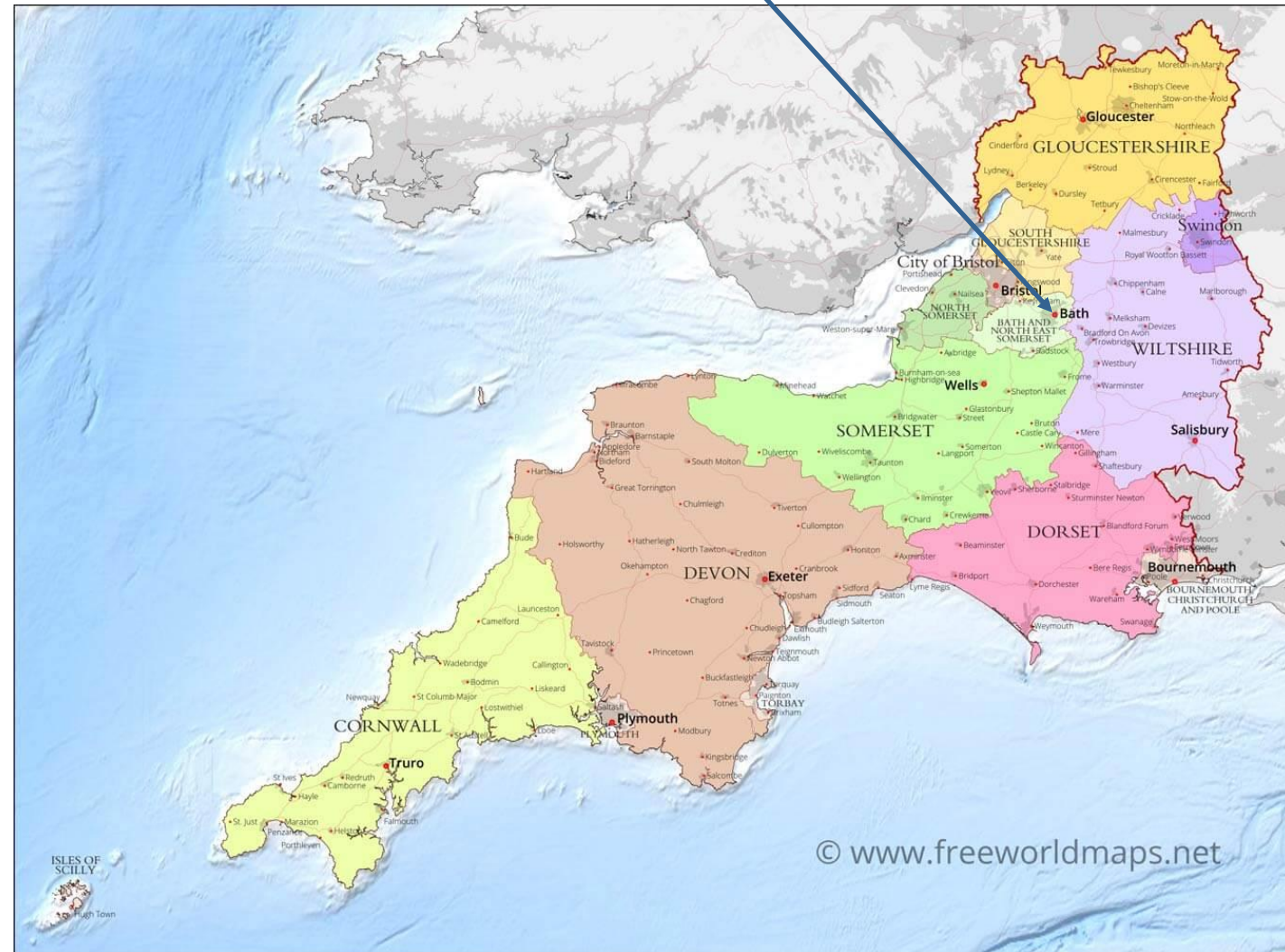


Placements in the Bath MPharm programme



Where are we?

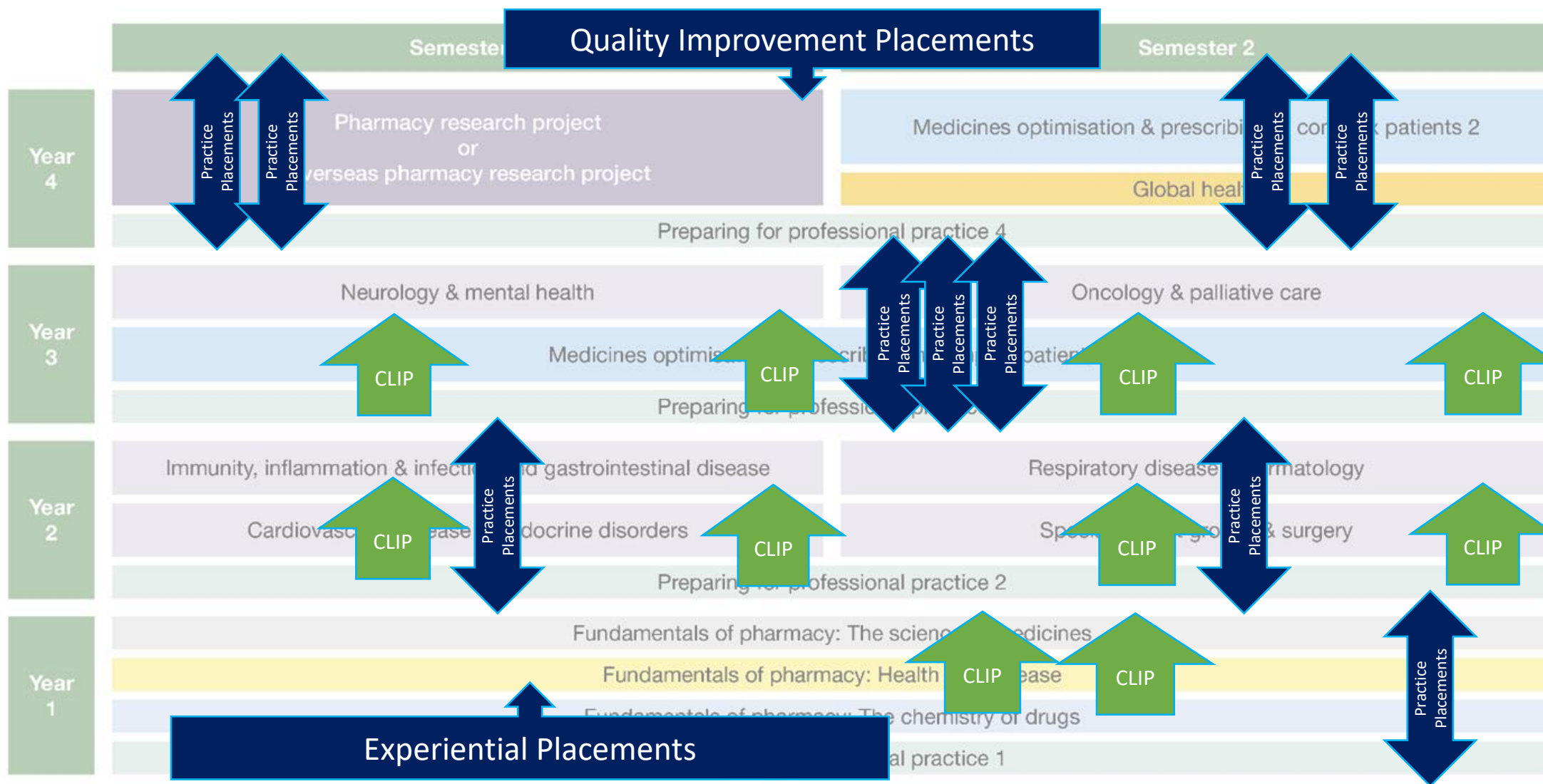
- South-West of England
- Large rural geography (23,800 Km²)
- Largest region in England
- Population 5.7 million people
- 23% population over 60 (female) and over 65 (male)
- Large Social and Educational divide compared with rest of England
- Difficult to recruit and retain HCPs



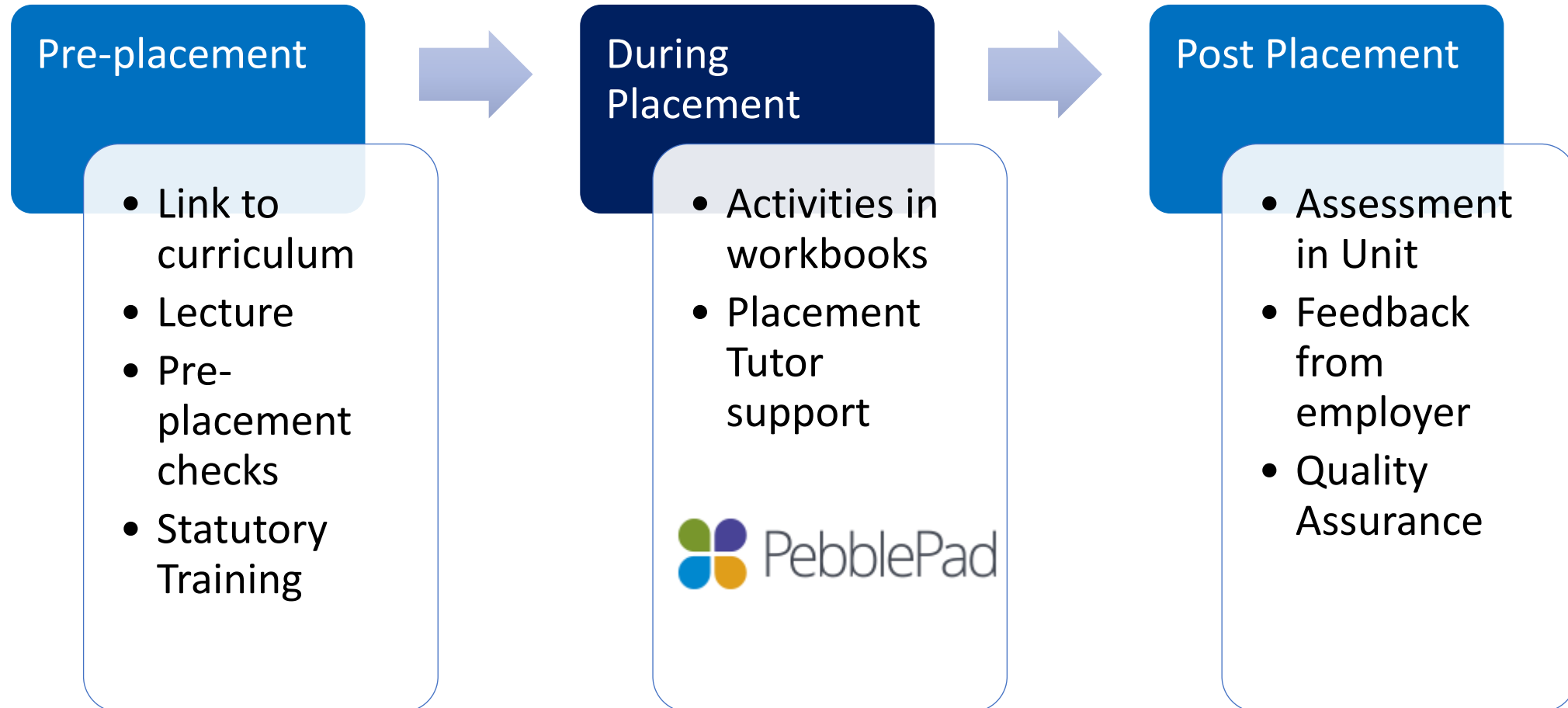
The Bath MPharm Programme (4 year)

	Semester 1	Semester 2
Year 4	Pharmacy research project or Overseas pharmacy research project	Medicines optimisation & prescribing in complex patients 2
	Global health	
	Preparing for professional practice 4	
Year 3	Neurology & mental health	Oncology & palliative care
	Medicines optimisation & prescribing in complex patients 1	
	Preparing for professional practice 3	
Year 2	Immunity, inflammation & infection and gastrointestinal disease	Respiratory disease & dermatology
	Cardiovascular disease & endocrine disorders	Special patient groups & surgery
	Preparing for professional practice 2	
Year 1	Fundamentals of pharmacy: The science of medicines	
	Fundamentals of pharmacy: Health and disease	
	Fundamentals of pharmacy: The chemistry of drugs	
	Preparing for professional practice 1	

The Bath MPharm Programme (4 year)



Placement Structures



Pilot Placement Development and Timeline

October 2021: Awarded funding by NHS England for Additional Placement Capacity in MPharm

January 2022: Expressions of Interest sent to Training Hub Leads, Direct contact made with GP Practices, Preferencing data captured from Students, Development of e-workbook for Tutors and Students

February / March 2022: Virtual Tutor training delivered, Placement matching process, Accommodation and travel organised, Statutory Training completed by Students, Pre-Placement lecture delivered to Students

April 2022: First Multi-Sector Placement (3 days in GP Practice and 2 days CP) delivered

Pilot Placement Aims

- Test increased placement capacity in the MPharm
- Increase students' understanding of General Practice (GP) Pharmacist roles and consolidate and increase existing learning in Community Pharmacy (CP)
- Opportunity for students to practice skills learnt at University *e.g.*, undertaking Medication Reviews and Clinical Skills on real patients
- An opportunity to gain vital experience in a relatively new sector prior to Students' Oriiel choices
- To encourage Students to consider the South-West of England as somewhere to live and work in the future



Evaluation: Key Learning

Inaugural Multi-Sector Pilot Placement April 2022

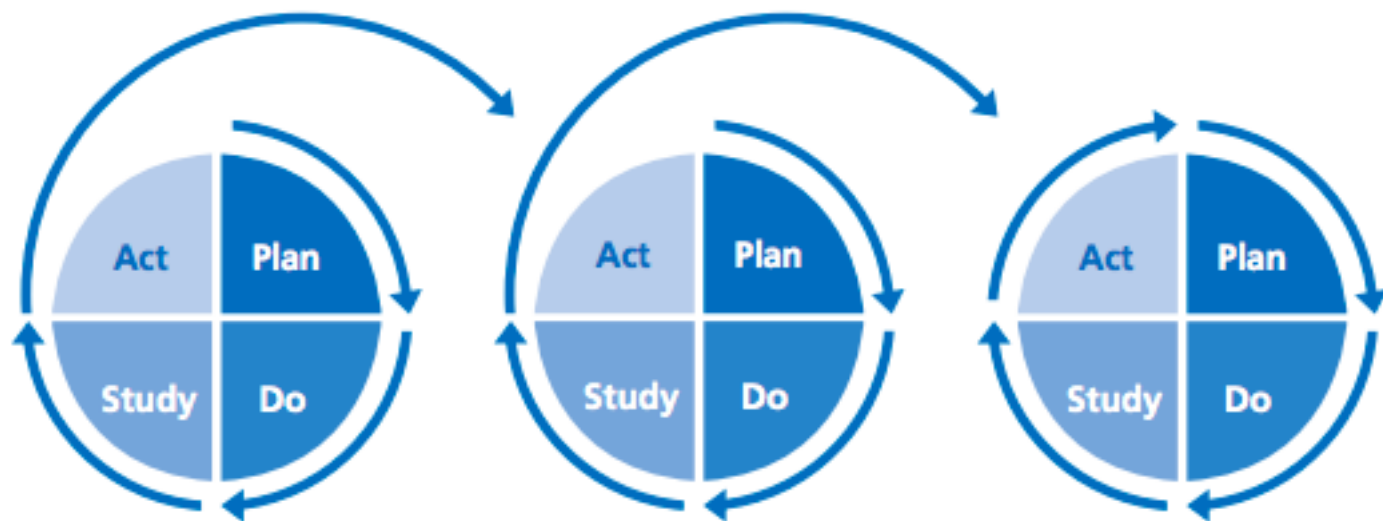
- 87 students
- 3 days GP, 2 days CP
 - 41 Providers
 - 1 Meds Review + 1 CPCS

What went well:

- Overwhelmingly positive feedback

Even better if:

- More face-to-face time with patients
- Split placement challenging
- Earlier communication with Students and Providers
- Better awareness of student competence needed by Providers



Evaluation: Key Learning

GP Practice Placement February 2023

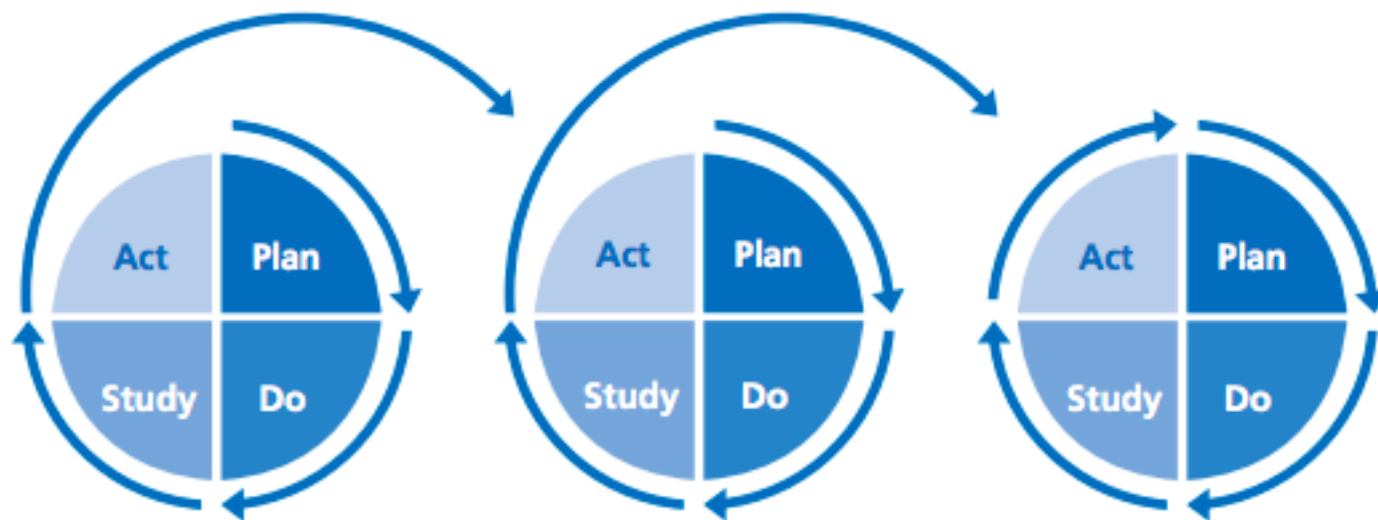
- 58 students
- 5 days GP Practice
- 38 Providers
 - 1 Meds Review +
1 Clinical skill

What went well:

- Very positive feedback from Tutors and Students
- Introduction of Clinical skill task demanded more face-to-face time with patients

Even better if:

- Students wanted more time in GP Practice



Evaluation: Key Learning

Multi-Sector Placement February 2024

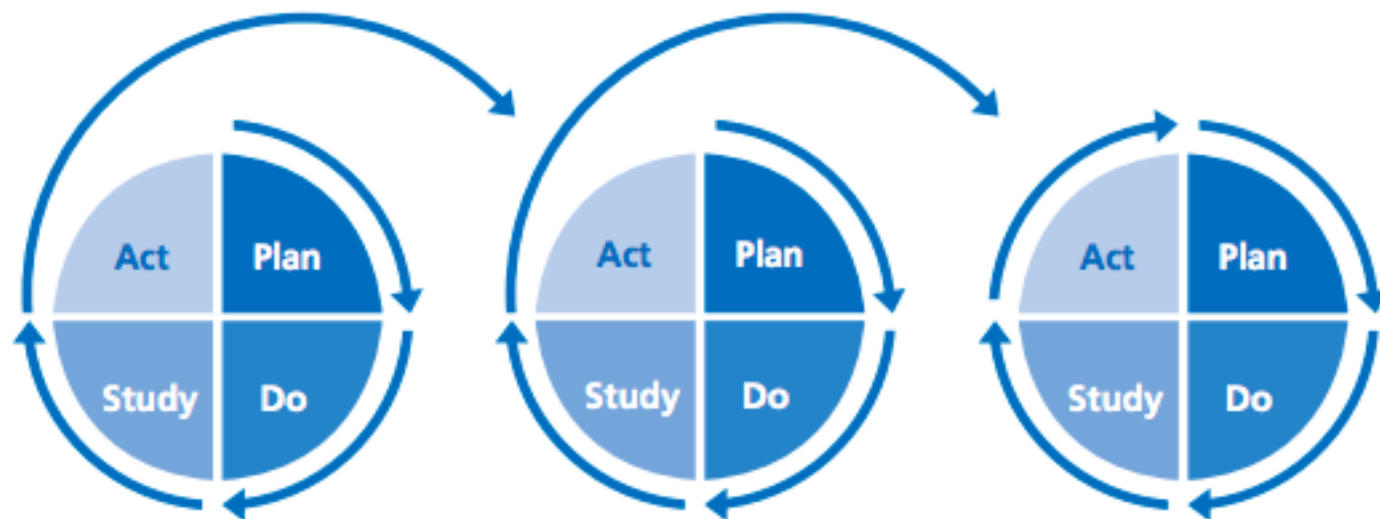
- 75 students
- 3 weeks (2 in GP Practice, 1 in CP)
- 43 Providers
 - 14 Practice-based Tasks (7 in GP, 7 in CP)

What went well:

- Expansion of placement provision in line with new MPharm strategy
- Placement-based tasks useful and relevant

Even better if:

- Change of culture for Students and Providers towards longer, multi-site placements
- Avoidance of public school holidays will improve Provider take-up



“We would welcome our students back at any time and have also raised the potential of final year projects with them - continuity of the work they started in practice as part of their mini audit

Senior Clinical Pharmacist, South Kerrier PCN, Cornwall



Placement Development

~~Challenges~~ *Challenges we are meeting these challenges:*

- Nearly 200 miles to our furthest placement provider!
- School of Pharmacy, University of Plymouth
- Poor public transport infrastructure in many areas
- Entrustable Professional Activities (EPAs)
- Accommodation and travel expensive to provide
- Face-to-face time with patients
- MPharm student numbers
- Transition from 'Knows how' to 'Does'
- QA of Placement Providers
- Recruitment of Placement Providers
- Marking / paperwork burden



Thank you for listening

Any questions?



Appendix slides

2021/22 Multi-Sector Placement Results from our students

(response rate 37% (32 responses from 86 students))

On the GP Practice element of the placement:

- **96.9%** respondents enjoyed their placement (rated 4 or 5 out of 5, where 5 = very much)
- **96.9%** respondents felt they had 'fully met' or 'met' the Intended Learning Outcomes
- **84.4%** respondents felt that the Medication Review activity was 'very useful' or 'useful'
- **93.8%** respondents said that their GP Practice Pharmacist Tutor had positively contributed to their placement experience (rating them 4 or 5 out of 5, where 5 = very much)
- Compared with **16.1%** respondents before the placement, **84.4%** of respondents said they would consider working in a GP Practice in the future (rated 4 or 5 out of 5, where 5 = very much)
- Students would like to have had more face-to-face experience with patients

Results from our students

(response rate 37% (32 responses from 86 students))

On the Community Pharmacy element of the placement:

- **31%** respondents enjoyed their placement (rated 4 or 5 out of 5, where 5 = very much)
- **66.6%** respondents felt they had 'fully met' or 'met' the Intended Learning Outcomes
- **60.7%** respondents felt that the CPCS / DMS / NMS activity was 'useful' or 'very useful'
- **59.3%** respondents felt that they could experience a different (and more advanced) range of activities in this placement compared to previous Community Pharmacy Placements arranged by the University
- **65.4%** respondents said that their GP Practice Pharmacist Tutor had positively contributed to their placement experience (rated either 4 or 5 out of 5, where 5 = very much)
- Compared with **17.2%** respondents before the placement, **10.7%** of respondents said they would consider working in Community Pharmacy in the future (rated either 4 or 5 out of 5, where 5 = very much)

Results from our Pharmacist Tutors

40% response rate (43 responses from 107 Pharmacist Tutors)

- **93%** respondents enjoyed hosting our students on placement (rated 4 or 5 on a sliding scale where 5 = very much)
- **86%** respondents felt that the placement had met it's Intended Learning Outcomes (rated 4 or 5 on a sliding scale where 5 = fully met)
- **74.5%** respondents could access the virtual training session ran by the University, either live or by catch-up
- **69.8%** respondents felt well prepared by the University before hosting students (rated 4 or 5 on a sliding scale where 5 = very much)
- **97.7%** respondents would consider hosting one of our students again for a similar placement

2022/23 GP Practice Placement Student Feedback

Student survey	Feel well prepared?	Placement well organised?	Meds review suitable?	MBPA suitable?	Tutor helped find appropriate patients for tasks	Placement gave access to a range of experiences?	Placement helped inform me of future career choices	The GP practice setting was appropriate for this placement
21/58 answered	90% yes 10% no	90% yes 10% no	75% Strongly Agree 5% Agree 5% Neutral 5% Disagree 10% Strongly Disagree	50% Strongly Agree 30% Agree 10% Neutral 5% Disagree 5% Strongly Disagree	100% yes	95% yes 5% no	95% yes 5% unanswered	100% yes

Multi-Sector Placement 2023/24 Feedback

GP placement Tutor feedback

Areas providers were able to give students experience in:

- 94.7% of providers were able to offer time shadowing a clinical pharmacist.
- 100% of providers were able to offer shadowing of other clinical team members.
- 94.7% of providers were able to offer shadowing of non-clinical team members.
- 94.7% of providers were able to offer face-to-face patient interaction.
- 84.2% of providers were able to offer telephone/online patient interaction.
- 84.2% of providers were able to offer patient engagement activities.
- 100% of providers were able to offer transfer and communication of care with other primary and secondary care settings.
- 94.7% of providers were able to offer safety and monitoring activities.
- 89.5% of providers were able to offer audit.
- 73.7% of providers were able to offer Quality Assurance work.
- 5.3% of providers were able to offer Dispensary Activities.

Multi-Sector Placement 2023/24 Feedback

- ***Other statistics from tutor feedback:***
- 63.2% of providers Strongly Agreed or Agreed students were well prepared on arrival for placement.
- 89.5% of providers Strongly Agreed or Agreed the tutor guide provided sufficient information on all aspects of the placement.
- 68.4% of providers Strongly Agreed or Agreed the tutor training event was useful and informative.
- 84.2% of providers Strongly Agreed or Agreed the placement tasks were appropriate for students.
- 57.9% of providers Strongly Agreed or Agreed the placement tasks were easy to organise.
- 73.7% of providers Strongly Agreed or Agreed the students were able to undertake all tasks in their practice base.
- 94.7% of providers Strongly Agreed or Agreed there was sufficient time on placement for tasks to be completed.
- 78.9% of providers Strongly Agreed or Agreed the student performance review was easy to complete.
- 84.2% of providers Strongly Agreed or Agreed that they understood the nature and level of assessment required.
- 73.7% of providers Strongly Agreed or Agreed that they were able to contact the University and receive a timely response to queries.
- 78.9% of providers Strongly Agreed or Agreed that the placement was well organised administratively.
- 78.9% of providers Strongly Agreed or Agreed that 2 weeks in GP practice was an appropriate length of time for the placement

Multi-Sector Placement 2023/24 Feedback

- ***General student feedback:***
- 100% of students felt well prepared for their GP placement.
- 85.3% of students felt their placement was well organised and structured.
- 70.6% of students felt two weeks was an appropriate length of time for this placement.
- 97.1% of students felt this placement helped inform them of their future career choices.
- 94.1% of students felt the GP setting was appropriate for this placement.

Multi-Sector Placement 2023/24 Feedback

Feedback on this placement being part of a 3-week placement

- 39.1% of students Strongly Agreed or Agreed that the structure of two weeks in a GP practice followed by one week in community pharmacy was suitable for their learning needs.
- 34.7% of students Strongly Agreed or Agreed that the combination of GP and Community sectors worked well for the placement.
- 26.1% of students Strongly Agreed or Agreed that they prefer this structure of placement versus the normal form.
- 30.4% of students Strongly Agreed or Agreed that they would like to do a placement this length again.
- 26.1% of students Strongly Agreed or Agreed that the length of this placement offered enough time to get all tasks for both parts completed.



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2024 Pharmacy Education Symposium

Remote extemporaneous compounding
practicals for Pharmacy students

Dr Ronald Lee



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MALAYSIA

Remote Extemporaneous Compounding Practicals for Pharmacy Students

Ronald F.S. Lee
School of Pharmacy
Monash University Malaysia



Background and need

- Extemporaneous lab skills are essential in Pharmacy education
- The need to develop remote approaches to laboratory teaching (e.g. in response to a pandemic)
- Kinesthetic component of lab teaching is challenging to address remotely



Our solution - Educational Activity and Setting

Setting: Pharmacy Schools in **Monash University Malaysia**, University of Michigan, and University of Maryland

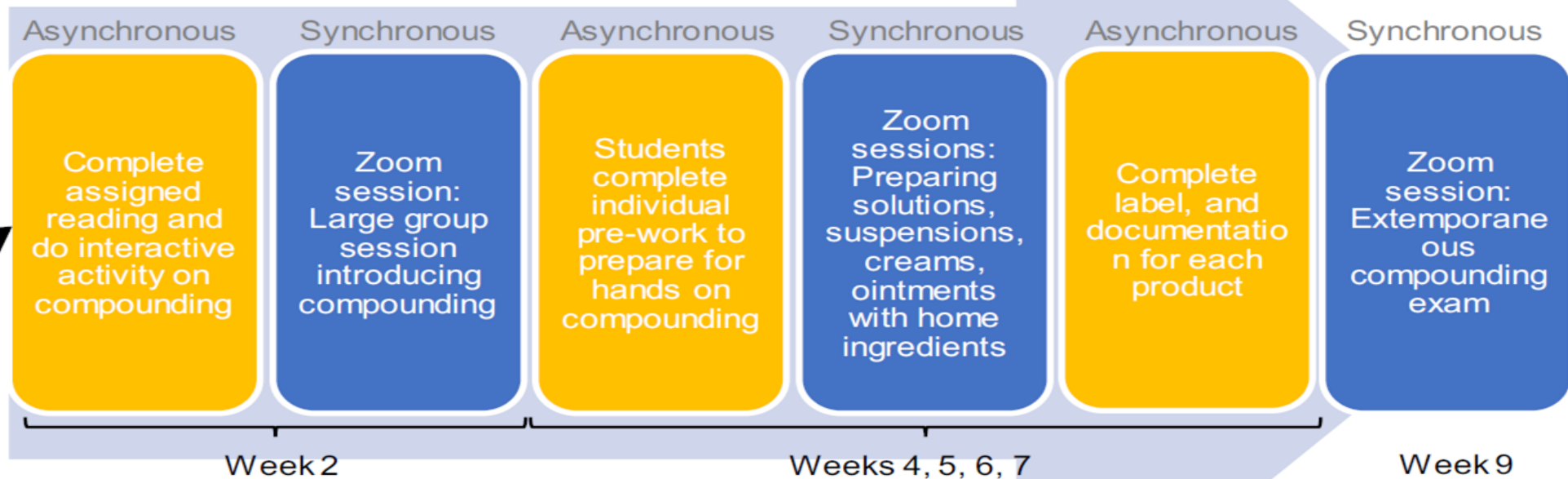
Population: Pharmacy students

Differences:

1. Whether equipment and consumables were supplied or self purchased
2. Whether the practicals were synchronous/asynchronous
3. Whether assessments were synchronous or asynchronous
4. Specific formulation type (though all schools used simple formulations)

Implementation Steps - Monash Malaysia

Students asked to procure a set of equipment and ingredients for remote compounding sessions (3 weeks prior to the semester starting)



All compounding course materials were available on the learning management system starting at week 1 including an interactive module for learning about extemporaneous compounding on Moodle. Students received the cases and prepared labels using MyDispense and were expected to prepare a product, label, and proper documentation. During Zoom compounding sessions and the compounding exam, students prepared extemporaneous preparations with video supervision by academics in breakout rooms with 10 students/facilitator.

Implementation

Formulations, ingredients, and equipment	Class size	Facilitator: student ratio
<p>Preparations:</p> <ol style="list-style-type: none">1. Citric acid mixture (salt, sugar, and water)2. Trimethoprim suspension (calcium carbonate tablets, 1% starch suspension and syrup)3. Sulphur and salicylic acid cream (aqueous cream/mayonnaise, turmeric powder, and salt)4. Liquid paraffin and white soft paraffin ointment (liquid paraffin and petroleum jelly) <p>Equipment:</p> <p>Tablespoons, teaspoons, syringes, kitchen scale, bottle, baking paper, metal spatulas, graduated measuring cylinders, glass funnels, beakers, mortar and pestle, plastic chopping board (to replicate ointment slab)</p> <p>All ingredients and equipment self-purchased by students, but students were provided with a fixed monetary compensation.</p>	<p>109 divided into 2 groups (pilot study)</p> <p>160 divided into 3 groups (full scale study)</p>	<p>1:10–11</p>

Pre classroom activities

Extemporaneous Dispensing Active Learning

Salicylic Acid & Sulfur Cream APF23



03:27 / 05:13

CHAPTER 4 MENU MAIN MENU

← PREV NEXT →

Synchronous Zoom sessions



Cases via MyDispense

MONASH University

YUI: Cream Prescription
EX: Salicylic acid and sulphur cream aqueous...

owee0002

Prescription 3248

Dr. Darshan Aman
18 Thanet St, Pharmville,
Victoria, 3052,
Ph: 78403332
Prescriber no. U629565

Patient's Medicine no. 4186 3618 SW 7
Pharmaceutical benefits entitlement no. []

Safety Net entitlement cardholder Concessional or dependant RPBS beneficiary or Safety Net concession cardholder

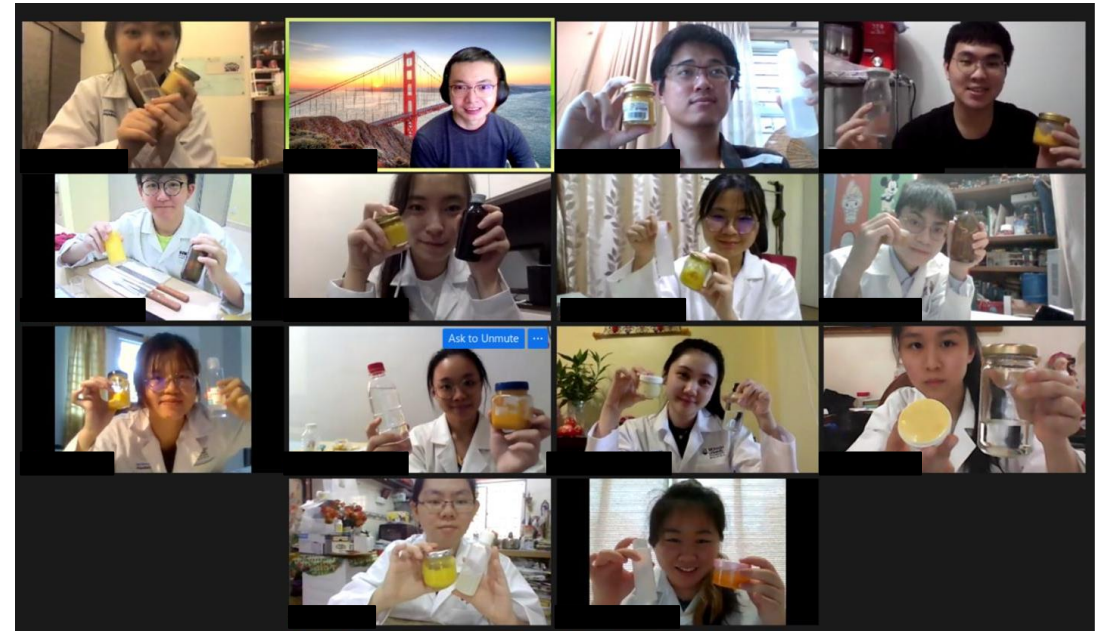
Patient's name: Emma-Lin Park
Address: 47 Holmes St, Pharmville, Victoria 3052
Date: 02 07 2021 Brand substitution not permitted

PBS X RPBS

Salicylic acid and sulfur cream aqueous APF 50 g
Apply at night QTY: 1 RPT: 0

PRESCRIPTION

Doctor to sign original and duplicate



Findings

Grades:

2019 (F2F) vs. 2021 (remote) scores

18.7 ± 0.93 and 18.9 ± 0.56

Qualitative

Commendations

“Really grateful and appreciative that the lecturers were able to find ways to conduct and give instructions for alternative practical compounding sessions right at home for all the students during these testing times, it was actually quite fun at the same time still able to understand a lot of theories and what to expect in a real work setting on compounding solutions for patients in the field”.

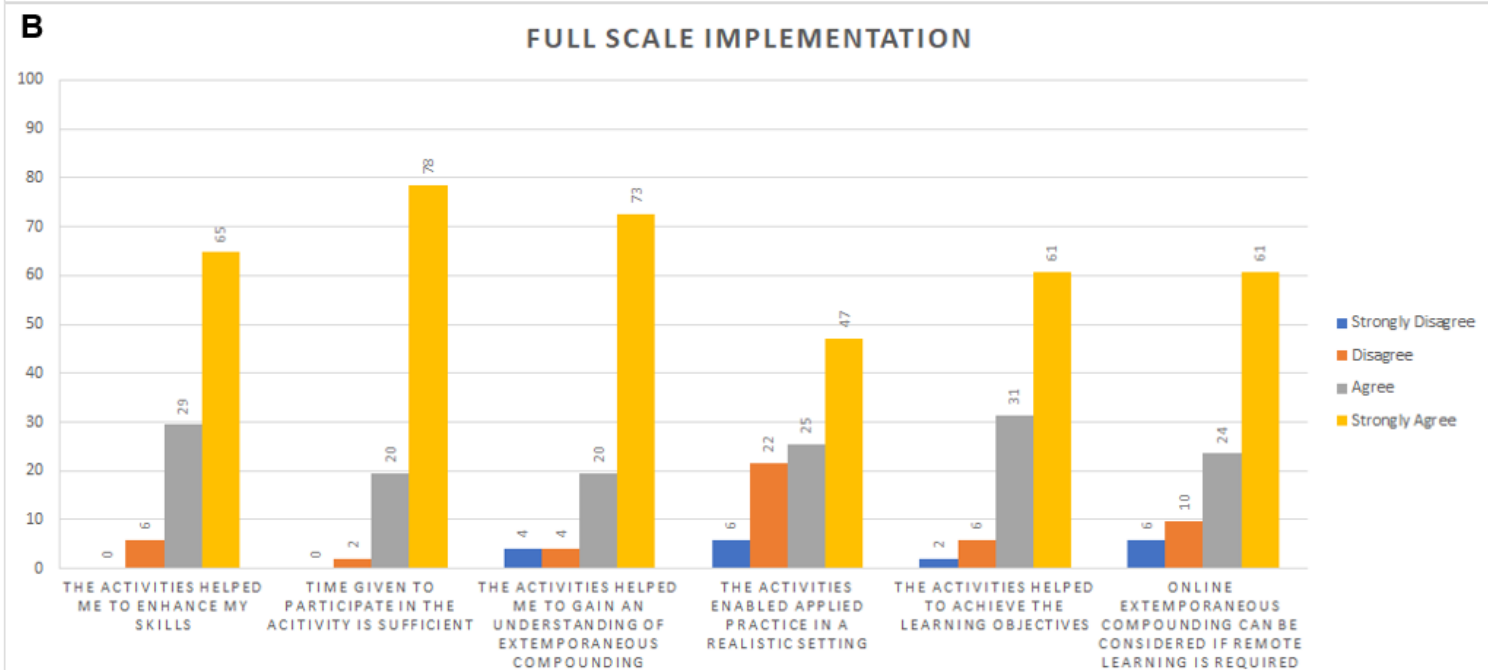
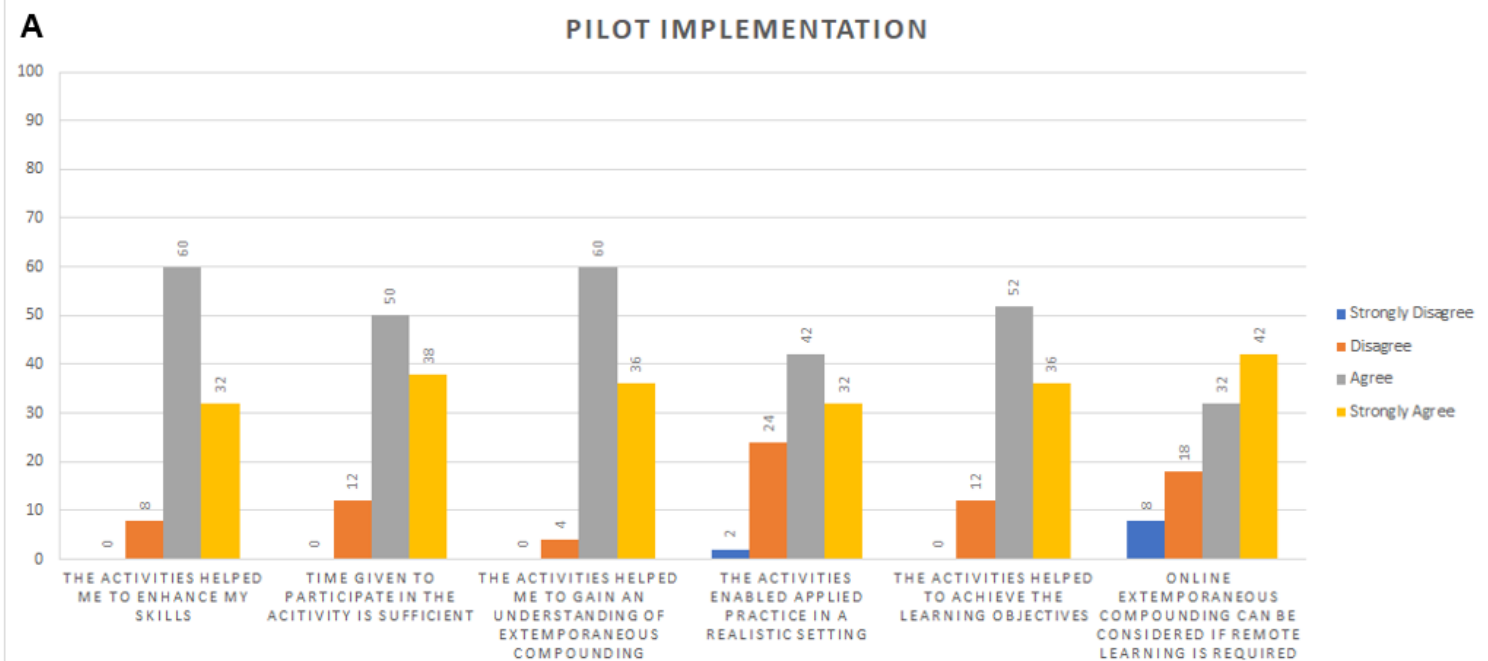
Suggestions:

“[perhaps can implement] a period where there is an intensive lab session month can be done.”

“It would be great to have a physical lab class so students get to use the apparatus and use the real materials and ingredients instead of substitutes. The environment at home is also less conducive for proper preparation and lack of interaction with other course mates as well.”

feedback:

Quantitative feedback



Challenges and Best Practices

Challenges	Best Practices
<ul style="list-style-type: none">• Difficult to assess:<ul style="list-style-type: none">a. Lab safety - home environment not labb. Equipment usage techniques - e.g. accurate measuring, using meniscusc. Product quality - cannot see particles, or feel smoothness of creams• Inconsistent delivery of content in breakout sessions• Logistical challenges in acquiring ingredients and equipment	<ul style="list-style-type: none">• Adequate scaffolding - pre classroom materials, briefings, real-time correction, gradual difficulty ramping with adequate time spacing• Flexibility when dealing with challenges to implementation and assessment• Strategies to deal with accessibility - access to items, financial issues and technology• Ensure consistency of delivery - brief facilitators clearly

Conclusion

- We successfully developed and conducted remote extemporaneous compounding labs for Pharmacy students
- Can be adapted based on different context and needs
- Students generally find the approach useful, and it can achieve very similar learning outcomes
- Challenges on delivery and assessments exist, but these can be overcome by adapting assessments and providing scaffolding

- The approach



Contents lists available at [ScienceDirect](#)

Currents in Pharmacy Teaching and Learning

journal homepage: www.sciencedirect.com/journal/currents-in-pharmacy-teaching-and-learning



te teaching is required

Experiences in Teaching and Learning

Remote extemporaneous compounding lab practical for pharmacy students during the COVID-19 pandemic

Juman Dujaili ^{a,b}, Wee Kiat Ong ^b, Bhuvan KC ^{b,c}, Sarah E. Vordenberg ^d,
Ashlee N. Mattingly ^e, Ronald F.S. Lee ^{b,*}

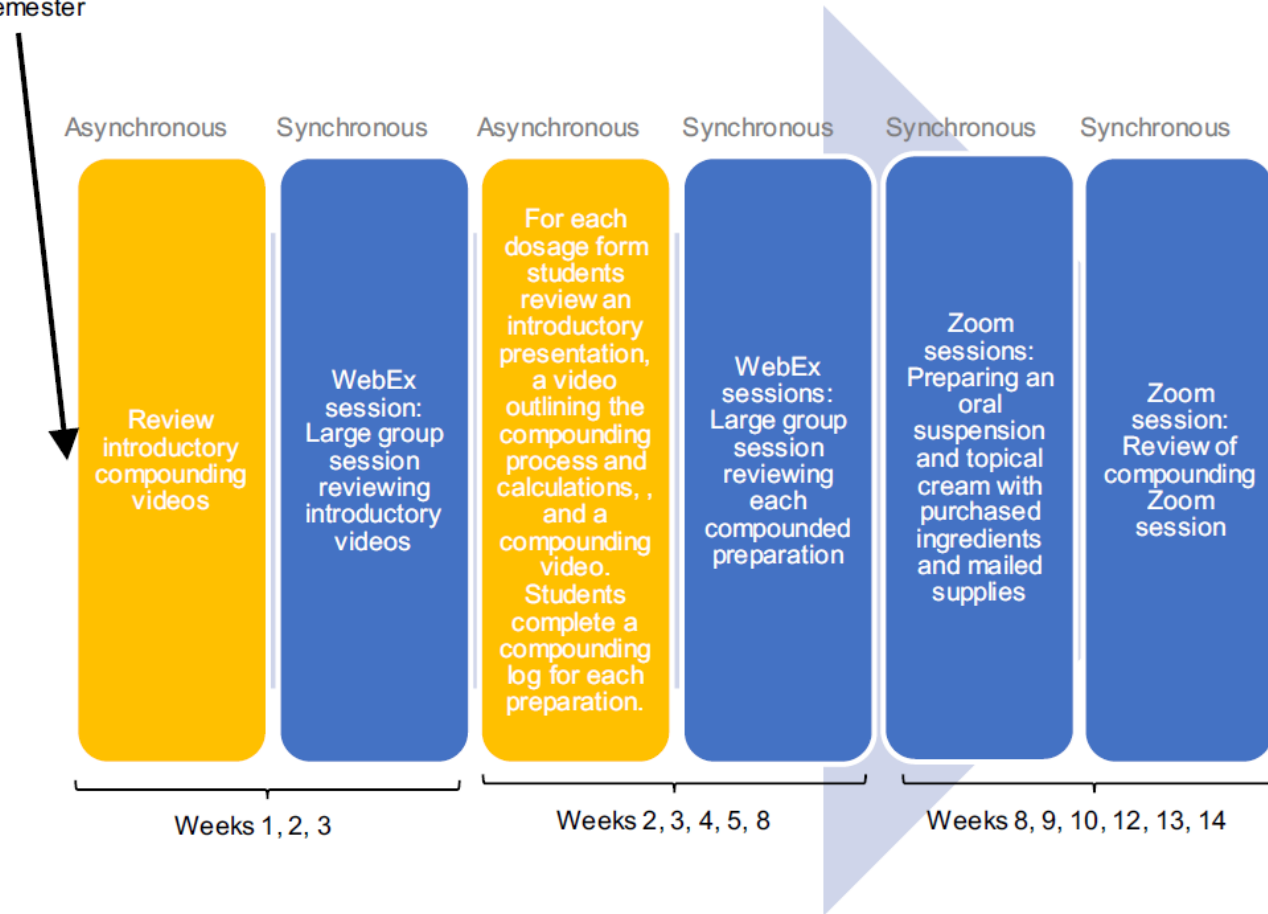
Q&A

Backup slides:

In case someone asks on the implementation in different universities

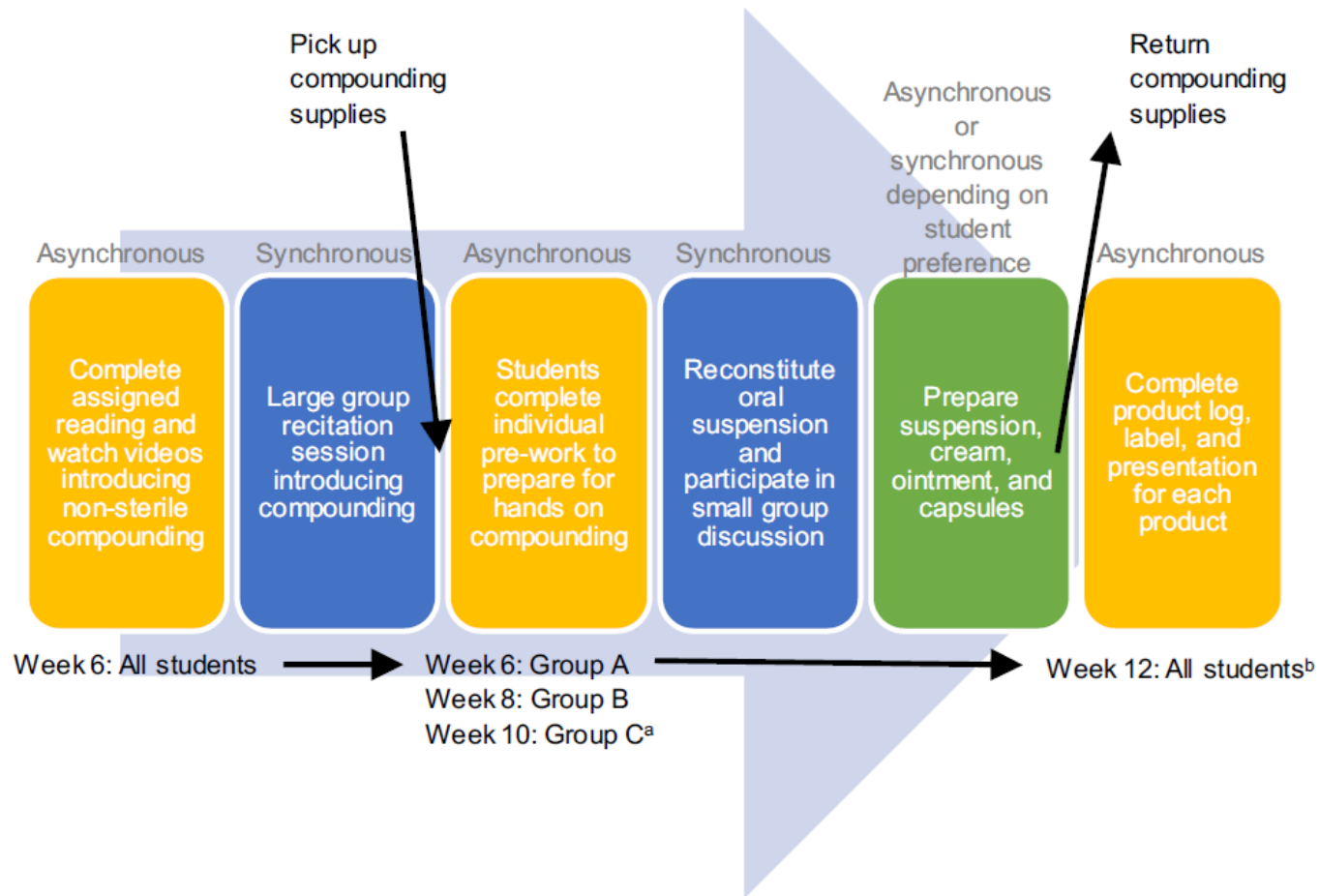
University of Maryland

Students asked to procure a set of equipment for 2 remote compounding sessions and compounding kits containing ingredients mailed to students' home address at the start of the semester



All compounding course materials were available on the learning management system starting at week 1. During Zoom compounding sessions, students prepared extemporaneous preparations with video supervision by a faculty member in a breakout room with 6 students/facilitator.

University of Michigan



^a All compounding course materials were available on the learning management system starting at week 5. Students were required to complete the hands-on activities during the week they were provided with the compounding kit. While students were encouraged to complete the associated activities during their assigned week, they were allowed until week 12 to complete the product log, label using MyDispense, and present demonstrations of how they prepared the suspension and ointment (PowerPoint) and cream and capsules (Flipgrid videos).

^b Students were divided into three groups due to the limited number of compounding kits. Each group of students have a compounding kit for one week and at which point they needed to return the supplies.



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2024 Pharmacy Education Symposium

Interprofessional Education for Health
Profession Trainees at a Regional Campus;
Navigating Barriers for Rural and Medically
Underserved Populations

Prof Stephanie Kiser

UNC Eshelman School of Pharmacy

Interprofessional Education for Health Profession

Trainees at a Regional Campus; Navigating Barriers for

Rural and Medically Underserved Populations



THE UNIVERSITY OF NORTH CAROLINA AT CHAPEL HILL

Background

- Interprofessional education & practice (IPEC) is an area of major emphasis for health sciences programs.
- Unique challenges tied to geography, scheduling and consistency of attendance occur when attempting to offer high quality experiences on a regional campus.
- An interprofessional team of faculty established a student IPEC team and collaboratively identified educational topics focused on social determinants of health and medically underserved populations.



Topics Included



Geriatric challenges in dental care



Gender Affirming Care



Navigating local resources



Substance use disorder



Rural health disparities



Caring for patients experiencing homelessness



Socioeconomic barriers tied to state and federal medical assistance programs



Purpose

The WHO states that ,*“Interprofessional education occurs when two or more professions learn about, from and with each other to enable effective collaboration and improve health outcomes.”*

- Create engaging opportunities for students from several health science disciplines to practice Interprofessional Education & Practice competencies.
- Assess learner confidence when working interprofessionally, and collect the perceptions of learners participating in virtual training events.



Methods

- Study included 181 participants from dentistry, nursing, pharmacy, physical therapy, public health, social work, and medicine.
- Two universities represented.
- Participants completed at least one of six interprofessional trainings offered virtually between September 2021 and March 2023.
- Students and faculty performed a self-efficacy scale survey and open-ended questions about key take aways at the completion of each training.

Interprofessional Education (IPE) Assessment PharmD Student IPE Self-Efficacy Instrument

IPEC Core Competencies for Interprofessional Collaborative Practice

- **Competency 1:** Work with individuals of other professions to maintain a climate of mutual respect and shared values. (Values/Ethics for Interprofessional Practice)
- **Competency 2:** Use the knowledge of one's own role and those of other professions to appropriately assess and address the health care needs of patients and to promote and advance the health of populations. (Roles/Responsibilities)
- **Competency 3:** Communicate with patients, families, communities, and professionals in health and other fields in a responsive and responsible manner that supports a team approach to the promotion and maintenance of health and the prevention and treatment of disease. (Interprofessional Communication)
- **Competency 4:** Apply relationship-building values and the principles of team dynamics to perform effectively in different team roles to plan, deliver, and evaluate patient/population-centered care and population health programs and policies that are safe, timely, efficient, effective, and equitable. (Teams and Teamwork)

		I am able to...					
Values/Ethics for Interprofessional Practice		Self-Efficacy Scale*					
VE1.	Place interests of patients and populations at center of interprofessional health care delivery and population health programs and policies, with the goal of promoting health and health equity across the life span.	1	2	3	4	5	6
VE2.	Respect the dignity and privacy of patients while maintaining confidentiality in the delivery of team-based care.	1	2	3	4	5	6
VE3.	Embrace the cultural diversity and individual differences that characterize patients, populations, and the health team.	1	2	3	4	5	6
VE4.	Respect the unique cultures, values, roles/responsibilities, and expertise of other health professions and the impact these factors can have on health outcomes.	1	2	3	4	5	6
VE5.	Work in cooperation with those who receive care, those who provide care, and others who contribute to or support the delivery of prevention and health services and programs.	1	2	3	4	5	6
VE6.	Develop a trusting relationship with patients, families, and other team members.	1	2	3	4	5	6
VE7.	Demonstrate high standards of ethical conduct and quality of care in contributions to team-based care.	1	2	3	4	5	6
VE8.	Manage ethical dilemmas specific to interprofessional patient/ population centered care situations.	1	2	3	4	5	6
VE9.	Act with honesty and integrity in relationships with patients, families, communities, and other team members.	1	2	3	4	5	6
VE10.	Maintain competence in one's own profession appropriate to scope of practice.	1	2	3	4	5	6
Roles/Responsibilities							
RR1.	Communicate one's roles and responsibilities clearly to patients, families, community members, and other professionals.	1	2	3	4	5	6
RR2.	Recognize one's limitations in skills, knowledge, and abilities.	1	2	3	4	5	6
RR3.	Engage diverse professionals who complement one's own professional expertise, as well as associated resources, to develop strategies to meet specific health and healthcare needs of patients and populations.	1	2	3	4	5	6

Interprofessional Education (IPE) Assessment: PharmD Student IPE Self-Efficacy Instrument
Last updated: v2019.09.05 (Zeeman)

Page 1 of 3



Results



Mean scores on the self-efficacy scale ranged from 4.85 to 5.32 on a 6-point scale.



The highest score was for **feeling respected** as a member of the team.



The main themes regarding what participants learned were the importance of each team member, perspectives of other disciplines, and collaboration.



Learners became more acquainted with the knowledge that each team member contributes to the team, such as pharmacists' knowledge about medications and social workers' knowledge about community resources.



Students felt they had learned better ways to work together as a care team and consider the whole patient in the context of surrounding socioeconomic factors.



Key Themes

Importance of Team Members

“Honestly, it was so refreshing to hear all my teammates so surprised at how many pharmacy knows about medications, chronic disease state management, as well as way to address barriers to care surrounding drug prices and adherence...”

, “... it was nice to hear from everybody on the possible middle ground solutions... the team member who was a med student suggested a less invasive procedure that the patient could start that I would not have known to think about.”

Perspectives of Other Disciplines

One respondent stated, “It seems very obvious, but it's not something I considered previously; all disciplines are essentially looking at the same (or very similar) set of information from a client, and we are all interpreting that information with different lens...as it helps to identify the needs of a patient from multiple perspectives.”

One participant highlighted, “...interesting to see how many clinicians (pharmacists, physicians, nursing, PT) aim to address downstream goal while public health students and social workers were more focused on upstream goals.”

Hands-On Learning

“.... with a better understanding of how important it is to include the entire care team when working with patients with complex health needs. I thought this was a very productive use of our time, and we gained a LOT of real-life experience!”

“Though we all treat people, being trained in different disciplines and then working together results in a more complete care for our patients than one discipline alone.”



Promising Findings

Recruitment Tool for Regional Campus

*IPE experience is perceived as a **bonus** to being a part of the regional campus.*

Faculty Support

The faculty across all programs felt supported by the collaborative framework which facilitated a strong level of student interprofessional engagement.

Student Leadership Opportunities

Regional campus students embraced the opportunity to plan, implement and lead interprofessional education efforts which led to cross program promotion and sustainability.

Inclusive and Challenging Topics

Students led the way in selecting topics addressing health equity, inclusive care and challenging patient issues.

Questions?



UNC

**ESHELMAN SCHOOL
OF PHARMACY**

References

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MONASH University
Pharmacy Education
Symposium 2019

**Start as you mean to go on; ensuring equality, diversity
and inclusion are embedded in an introductory skill
module**

Dr Dan Corbett

2024 Pharmacy Education Symposium

Start as you mean to go on; ensuring equality, diversity and inclusion are embedded in an introductory skill module

Dr Dan Corbett



**QUEEN'S
UNIVERSITY
BELFAST**

SCHOOL OF
PHARMACY

Start as you mean to go on: Ensuring equality, diversity, and inclusion are embedded in an introductory skills module

Dan Corbett, Maurice Hall, Carole Parsons, and Lezley-Anne Hanna
School of Pharmacy, Queen's University Belfast, UK

Why EDI?

- The considered inclusion of EDI training from the outset of MPharm programmes is **crucial**
-

“...essential to both addressing health equity and improving care for underserved populations.”

Arif et al., 2023

“...diversity, equity, and inclusion (DEI) training amongst healthcare professionals reduces biases that contribute to health disparities.”

Tillman et al., 2022

Why EDI?

- The considered inclusion of EDI training from the outset of MPharm programmes is **crucial**

“...greater emphasis on equality, diversity and inclusion to combat discrimination and deal with health inequalities...”

Standards for the Initial Education and Training of Pharmacists – General Pharmaceutical Council (2021)



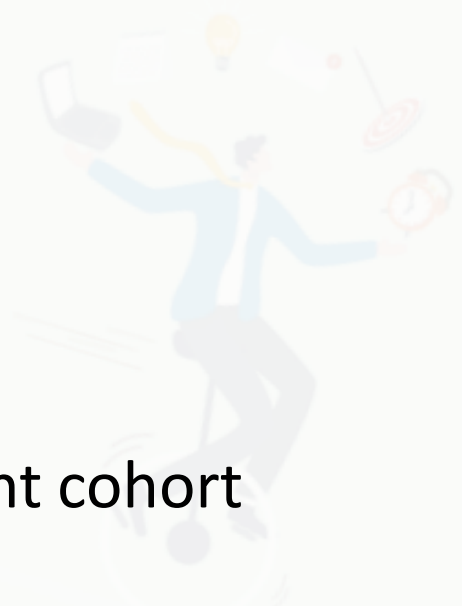
FIP Development Goals



UN Sustainable Development Goals

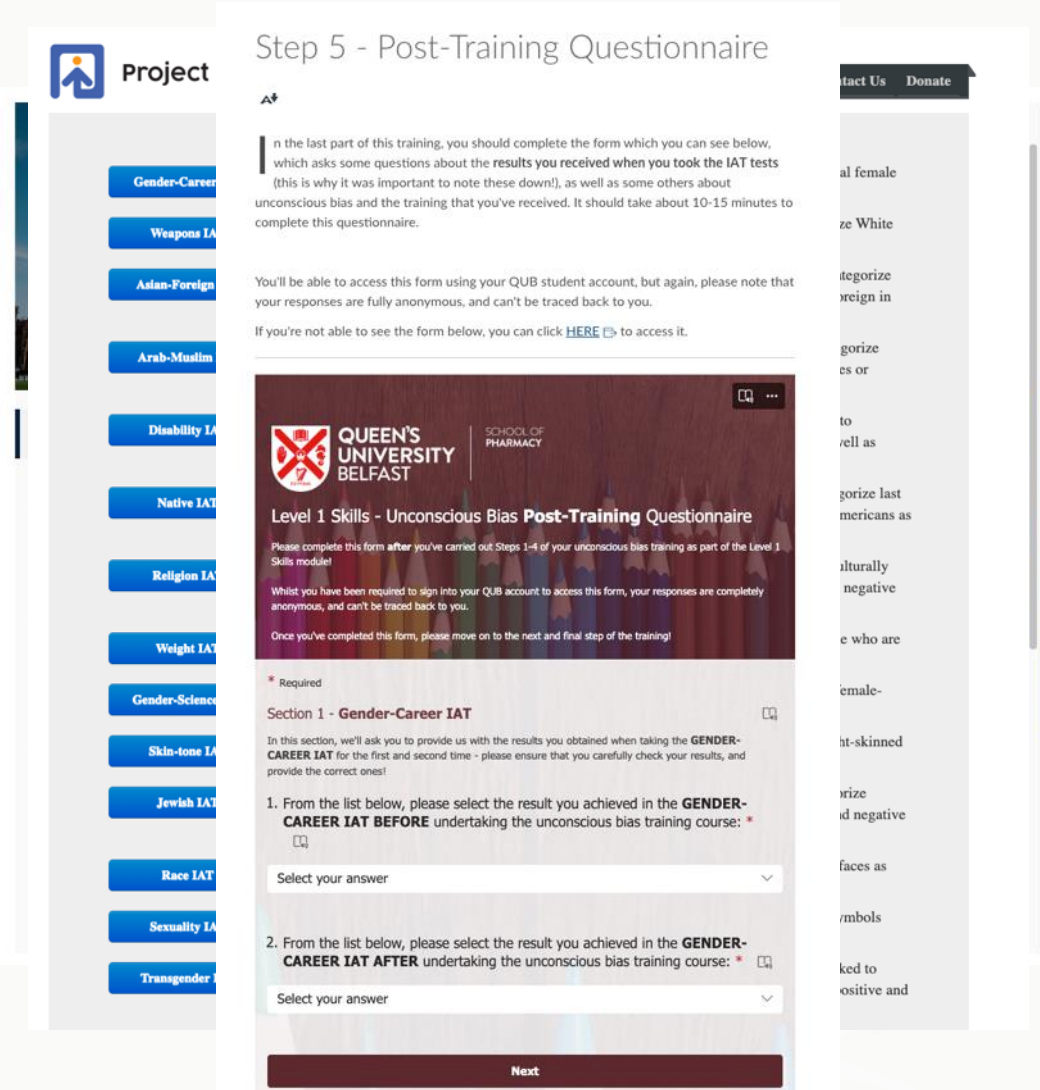
Our approach: Embedding EDI from the outset

- Level 1 “*Skills for Pharmacy*” module presented a useful opportunity
- To both provide **early-stage training**...
- ...and to put this into **practice**
- Development processes included:
 - **Review** of associated professional standards
 - **Incorporation** of previous feedback
 - **Consultation** with School EDI Committee and related staff
- Module rollout: 2023/24 academic year; assessment with student cohort soon thereafter



Delivery Methods

- **Online self-study** (with associated compulsory assessment and related in-person activities):
 - **Unconscious bias training** (developed in conjunction with an e-Learning consultancy)
 - Pre/post-training **Harvard IAT tools**
 - Pre/post-training **questionnaires**



Project


- Gender-Career IAT
- Weapons IAT
- Asian-Foreign IAT
- Arab-Muslim IAT
- Disability IAT
- Native IAT
- Religion IAT
- Weight IAT
- Gender-Science IAT
- Skin-tone IAT
- Jewish IAT
- Race IAT
- Sexuality IAT
- Transgender IAT

Step 5 - Post-Training Questionnaire

In the last part of this training, you should complete the form which you can see below, which asks some questions about the results you received when you took the IAT tests (this is why it was important to note these down!), as well as some others about unconscious bias and the training that you've received. It should take about 10-15 minutes to complete this questionnaire.

You'll be able to access this form using your QUB student account, but again, please note that your responses are fully anonymous, and can't be traced back to you.

If you're not able to see the form below, you can click [HERE](#) to access it.


QUEEN'S UNIVERSITY BELFAST | SCHOOL OF PHARMACY

Level 1 Skills - Unconscious Bias Post-Training Questionnaire

Please complete this form **after** you've carried out Steps 1-4 of your unconscious bias training as part of the Level 1 Skills module!

Whilst you have been required to sign into your QUB account to access this form, your responses are completely anonymous, and can't be traced back to you.

Once you've completed this form, please move on to the next and final step of the training!

* Required

Section 1 - Gender-Career IAT

In this section, we'll ask you to provide us with the results you obtained when taking the **GENDER-CAREER IAT** for the first and second time - please ensure that you carefully check your results, and provide the correct ones!

- From the list below, please select the result you achieved in the **GENDER-CAREER IAT BEFORE** undertaking the unconscious bias training course: *

Select your answer

- From the list below, please select the result you achieved in the **GENDER-CAREER IAT AFTER** undertaking the unconscious bias training course: *

Select your answer

Next

Delivery Methods

- Online self-study (with associated compulsory assessment and **related in-person activities**):
 - Welcome talk – student charter, belonging and more
 - United Nations Sustainable Development Goals
 - Group working
 - Code of Conduct/professional behaviour
 - Student support resources and signposting
- Reference to online training made ahead | during | follow-up
- Develop belonging/inclusion via social activities, provision of branded scrubs

Student Development Outcomes – The Numbers

- **≈100%** attendance/engagement with module activities
- Key impacts – unconscious bias training:
 - Understanding of unconscious bias: **63% increase**
 - Increased awareness of unconscious bias: **94%**
 - IAT | Gender-Career | Little to no automatic preference: **13% increase**
 - IAT | Gender-Science | Little to no automatic preference: **18% increase**
 - Satisfaction with training provided: **91%**
 - Agreement with institutional rollout: **93%**



Student Development Outcomes – The **Feedback**

*“...understanding more about it [unconscious bias] and realising how much it **impacts my perception of people.**”*

*“...will benefit me in the future...**treating everyone equally** in whatever field of pharmacy I work in after university.”*

*“...it made me **aware of my biases** (particularly towards my own gender).”*

*“...a good **sense of belonging**...I reckon we got **closer to each other**...”*

Provision of branded scrubs has been well-received

What Does this All Mean?

- The integration of EDI awareness/training activities appears to have been well received, engaged with, and understood
- Explicit/implicit approaches appear to have led to reduced gender biases amongst the cohort
- The success of these smaller interventions/developments set the scene for a deeper and more expansive EDI focus throughout the MPharm
- Initial engagement at the outset of the MPharm programme should equip students to extract full value from those further activities – enhancing outcomes

Start as You Mean to Go On?

- The development of skills and attributes centred on EDI must continue throughout the MPharm programme
- Opportunities to demonstrate these skills have and will continue to be incorporated throughout the Queen's MPharm programme
- Supported by processes which allow skills gaps, inappropriate behaviours, etc. to be addressed

Normalising and fully integrating EDI-focused activities is central to achieving these aims



Thank you!

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X | Instagram | Facebook / pharmacyatQUB

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A stylized map of Australia is shown in a darker blue shade against a background of lighter blue wavy lines. A white location pin is placed on the eastern coast of Australia. The word 'LUNCH' is written in white, bold, uppercase letters across the center of the map.

LUNCH