

● ● ● Kiran Parsons BPharm MPS,
Pharmacist, Lecturer
Doctor of Education candidate

Theory-Informed Pharmacy Simulation Design:

Developing Person-Centred
Communication Through Supportive
Learning Environments That Enable
Interpersonal Risk-Taking



HRE2025-0221 Approval number



Curtin University

● ● ● Collaborative and immersive learning

Context: The Challenge

- Developing person-centred (PC) communication skills in pharmacy students
- **Interpersonal risk involved:**
 - Fear of humiliation from making mistakes in front of peers and tutors
 - Looking incompetent from not meeting the traditional “expert” view of professionalism
 - Lack of safe spaces to practice vulnerability ¹
- Without psychological safety → avoid risks, hide mistakes
- With psychological safety → engage in learning behaviours
- You can’t guarantee psychological safety in the classroom but how can you support it?
- Grounded in Mezirow’s transformative learning theory ², this study asks: **Can theory-informed simulation-based learning (SBL) create supportive environments to enable transformative learning?**



Theoretical & Design Framework

Build psychological safety in the classroom

- Ground rules
- Normalising mistakes
- Facilitator vulnerability
- Emphasis process over perfect performance
- Extensive practice with peers
- Progression from simple to complex cases
- Debrief using advocacy/inquiry approach & guided reflection

Healthcare Simulation Standards of Best Practice™³

- Simulation Design
 - Facilitation
 - The Debriefing Process
- Format:
- Pre-brief
 - Simulation
 - Debrief using Advocacy-Inquiry



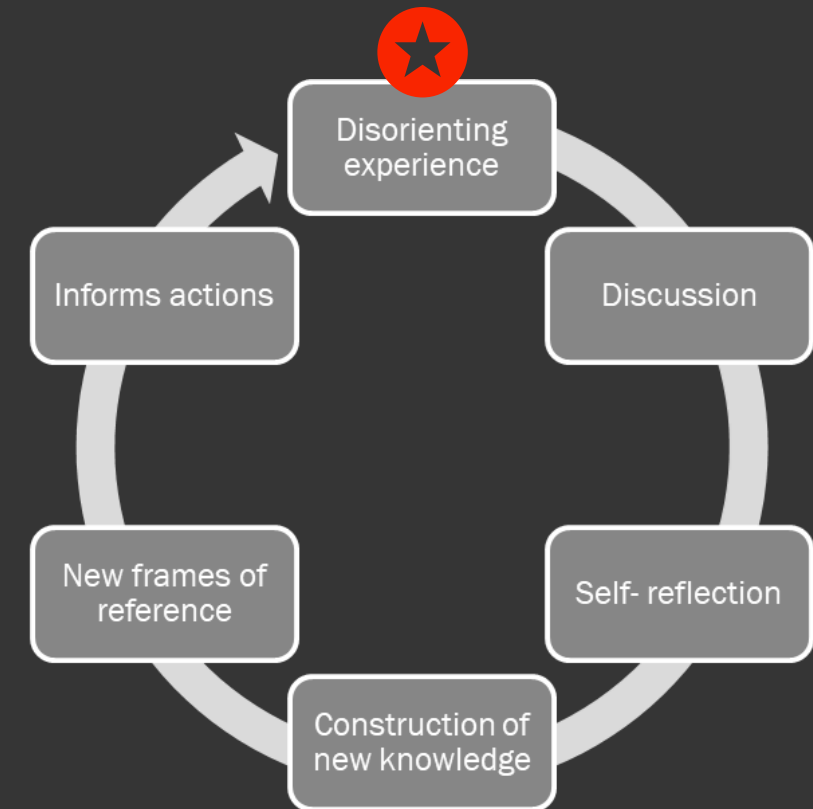
There's No Such Thing as "Nonjudgmental" Debriefing⁴

2) <https://doi.org/10.1002/ace.7401>

3) <https://doi.org/10.1016/j.ecns.2025.101774>

4) <https://doi.org/10.1097/01266021-200600110-00006>

Disorienting dilemmas challenge assumptions



Transformative learning theory²

Longitudinal Study Overview

● ● ● Collaborative and immersive learning

Simulation 1

Sem 1, 2025

Cohort A – Y2
BPharm (Hons)
n=133

Setting: Community pharmacy

Scenario: OTC consult
n = 45 paired surveys
Focus group n = 8

Simulation 2

Sem 2, 2025

Cohort B – Y3
BPharm (Hons)
n= 135

Setting: Hospital ward

Scenario: Best possible medication history
n = 20 paired surveys
Focus group n = 2 (illustrative)

Simulation 3

Sem 1, 2026

Cohort B – Y4
BPharm (Hons)
n= 135

Setting: Community pharmacy

Scenario: OTC consult employing motivational interviewing
n = 25 paired surveys
Focus group n = 7

Simulation 2

Sem 2, 2026

Cohort A – Y3
BPharm (Hons)

Simulation 3

Sem 1, 2027

Cohort A – Y4
BPharm (Hons)

To be delivered

Consistent features:

- Immersive, high-fidelity simulation
- Unknown standardised patient



What We Measured



RESEARCH DESIGN - MIXED METHODS

- **QUANTITATIVE** observers (Sim 1 and 3) and direct participants (Sim 2)
 - **Impact on Attitudes toward Patient-Centred Care: (Sim 1, 2, 3)**
RUS-LATCon survey; Pre-post design (14 statements)
 - **Behavioural Assessment (Sim 1 and 3):**
Modified PaCT; Peer assessment of communication skills
Rubric also used in Clinical Skills Exam
- **QUALITATIVE** (observers and participants from Sim 1 and 3):
 - Post-simulation focus group
 - Sim 1, n=8 ; Sim 2, n=7
 - Thematic analysis using NVivo
 - 6 themes identified, 309 coded references (Sim 2 excluded)

RUS-LATCon

Attitude Measurement

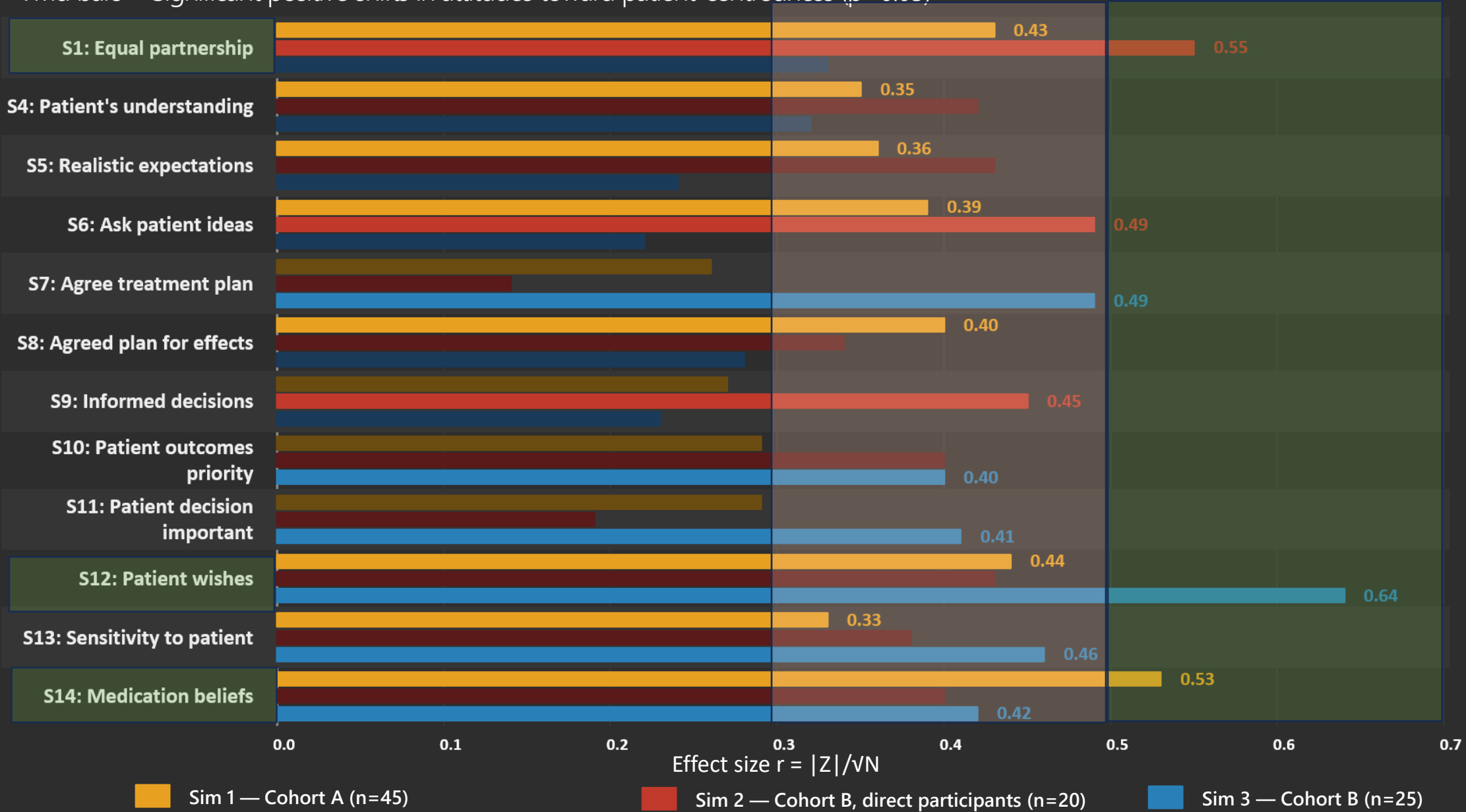
Revised United States
Leeds Attitudes towards
Concordance tool for
measuring attitudes
toward patient-
centredness
(*Ng et al., 2018*)

Modified PaCT Behavioural Assessment

Patient-Centred
Communication Tools
adapted for brief
pharmacy consultations
in community & hospital
settings
(*Grice et al., 2017*)

Impact on Attitudes to Person-centredness Findings: Attitude Change Across Three Simulations

Pre-Post attitude measurement of observers (RUS-LATCon);
Vivid bars = Significant positive shifts in attitudes toward patient-centredness ($p < 0.05$)



The Student Voice

Qualitative findings from Sim 1 and Sim 3 focus group data
6 Themes emerged from 309 coded references



Relatability as Foundation for Engagement

- ① Connecting to peers and to real-world practice
(67 refs)

Practiced Frameworks as Structural Anchors

- ③ Structural scaffolds for confidence
(34 refs)

Theory-Practice Dissonance

- ⑤ Workplace barriers to PCC
(35 refs)

Vulnerability & Mistakes as Catalysts for Learning

- ② Role of risk-taking in learning
(98 refs)

Differential Learning by Role and Modality

- ④ Comparative learning value
(32 refs)

Person-Centred Competency Development

- ⑥ Recognition, identity transformation & internalisation of PC values
(86 refs)

The Student Voice

Theme 1: Relatability Enabled Learning

(67 refs)

Peer relatability (strongest & most consistent)

Sim 1: "If [student] can do that, I can do that. If it was two actors doing it correctly, I'd be like, well, they're not a second-year student, so I probably can't do that."

Sim 3: "This is what someone at my point in my journey is doing... It's like, oh, if someone can do it so well, that means that I can."

Unknown standardised patient (19 refs)

Immersion in experience (9 refs)

Theme 2: Vulnerability & Mistakes as Catalysts for Learning

(98 refs)

Risk-taking & Courage (strongest in Sim 3)

Sim 1: "The more you risk and you have a chance of failure, the more you'll learn."

Sim 3: "You get to see that you can do something even if you're really nervous about it. The more that you do something that you find really scary, the easier it will be. You learn what you're capable of and it takes the fear away."

Theme 6: PC Competency Development

(86 refs)

PC Communication Recognised

Sim 1: "I could tell [student] was like 100% invested in that patient, like just his body language. He was like leaning forward and he was just talking through it and making that eye contact. His hands even they weren't like by his side, they were leaning out towards the patient. It's just all very patient focused."

Professional Identity Transformation

Sim 3: "I've always been quite invested in patient-centred care, but the main takeaway I took from this is that it's better sometimes to just let them talk. I've tried to integrate that into my own pharmacy practice - just bouncing back patients' ideas at them, being more conversational."

● ● ● Collaborative and immersive learning

Recommended Design Elements



Peer participants over expert demonstrations

"we're in this together"
relatability



Unknown standardised patient

Creates authentic context



Explicit observer role with analytical task

Meaningful engagement



Structured frameworks provide an anchor

Safety net for risk-taking



Classroom culture in which students are willing to take interpersonal risks

Focus on learning, not perfection



Evidence-based frameworks for:

- **Pre-brief**
- **Simulation**
- **Debrief**

Supports transformative learning

● ● ● Collaborative and immersive learning

Thank You for Listening

Any questions?

Healthcare Simulation
Standards of Best Practice™



INTERNATIONAL NURSING ASSOCIATION
for CLINICAL SIMULATION and LEARNING

Thank you to my supervisors!

PRIMARY SUPERVISOR

Assoc. Prof. Audrey Cooke
Curtin School of Education

CO-SUPERVISOR

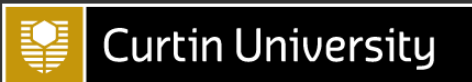
Assoc. Prof. Andrew Stafford
Curtin School of Diagnostic and Therapeutic Sciences

CO-SUPERVISOR

Dr Alina Miranda
Curtin School of Diagnostic and Therapeutic Sciences

kiran.parsons@curtin.edu.au

This research was partially funded by Curtin School of Education





Impact of a Design Thinking Based Interprofessional Education Workshop on Student Attitudes Regarding Dementia Care

Deepti Vyas, PharmD, CHSE

*Professor, Department of Pharmacy Practice & Director of Interprofessional Education
and Instructional Design*

University of the Pacific - Thomas J. Long School of Pharmacy

Background

- Why Design thinking:
 - Health care professionals are increasingly involved in designing physical spaces, developing innovative services, and creating patient-centered education materials.
 - It is essential that health professions students learn to approach problem-solving systematically, with a focus on the end user.
- Why Dementia:
 - ~1 in 9 people in the US are living with the disease.
 - In the US, most persons with advanced dementia reside in specialized memory care units.
 - The Netherlands pioneered a nontraditional care approach → dementia village.
 - Interest in the Dutch concept inspired this design thinking IPE workshop for health professions students at the University of the Pacific.

Traditional US Dementia Care

Secured nursing homes and memory care units.

Unfamiliar, institutional environments.

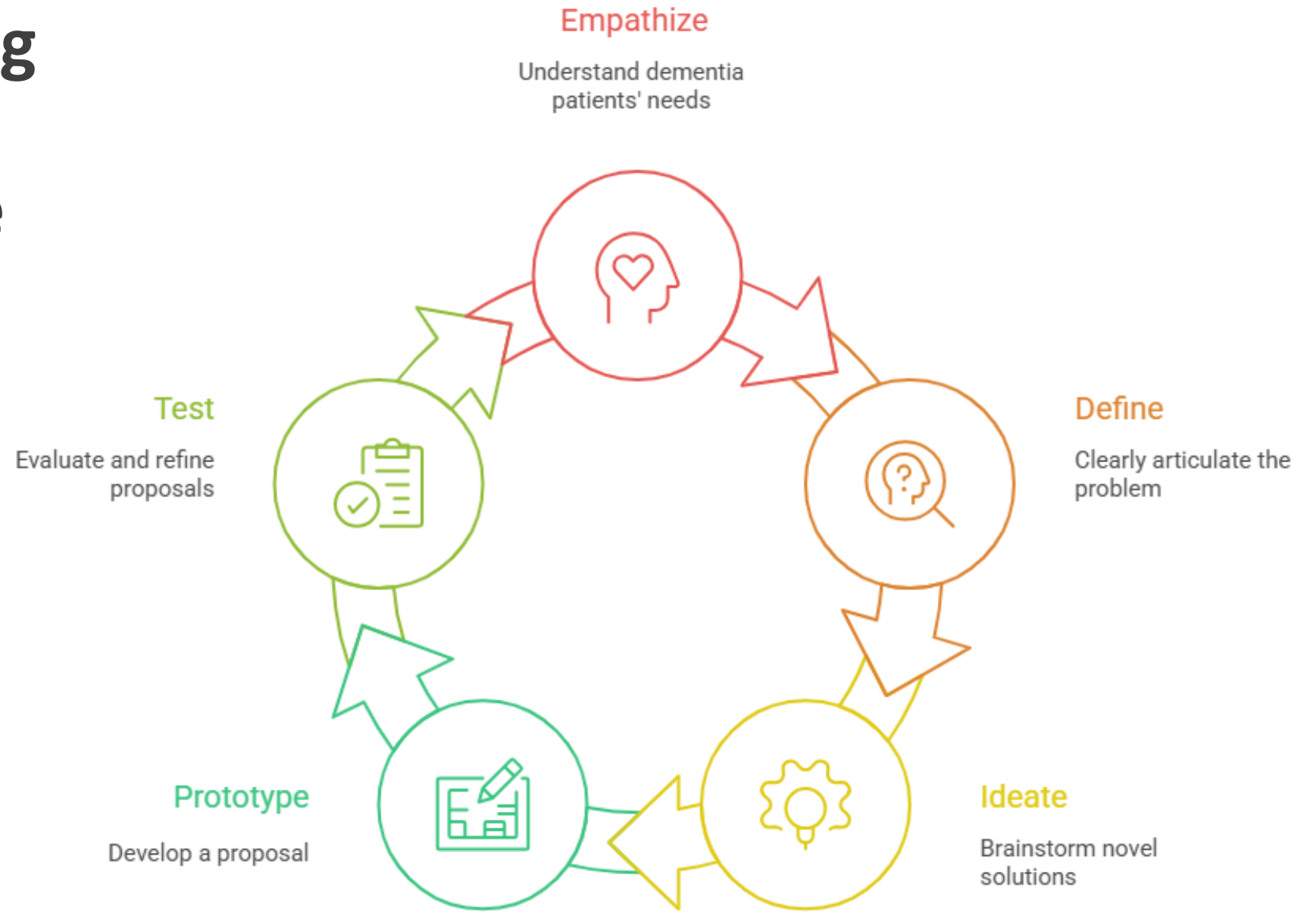
Fragmented care coordination.

Focus on restriction and physical safety.

The Dutch Model (Hogeweyk Dementia Village)

- ✓ Dementia villages designed to simulate normal society.
- ✓ Familiar, community-integrated environments.
- ✓ Focus on social inclusion and reduced stigma.
- ✓ Promotes independence and quality of life.

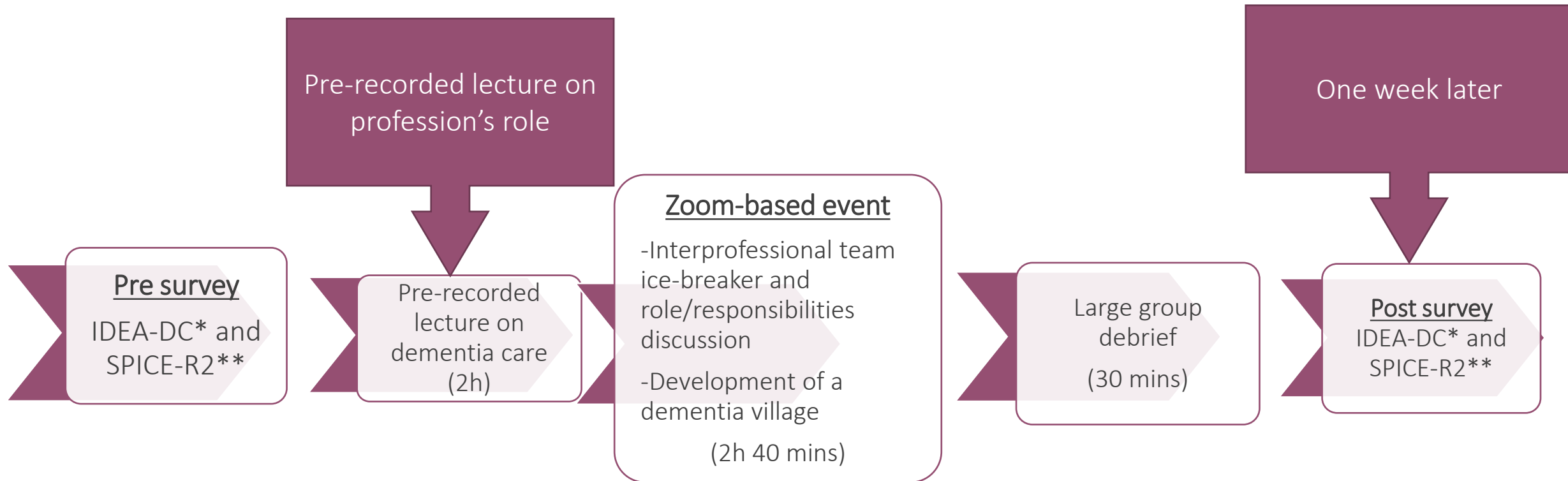
Design Thinking Process for Dementia Care



Purpose

To measure the impact of a 3-hour virtual interprofessional education (IPE) workshop on student attitudes regarding design thinking and interprofessional collaboration and teamwork.

IPE Design



*Advancement of Dementia Care (IDEA-DC) survey

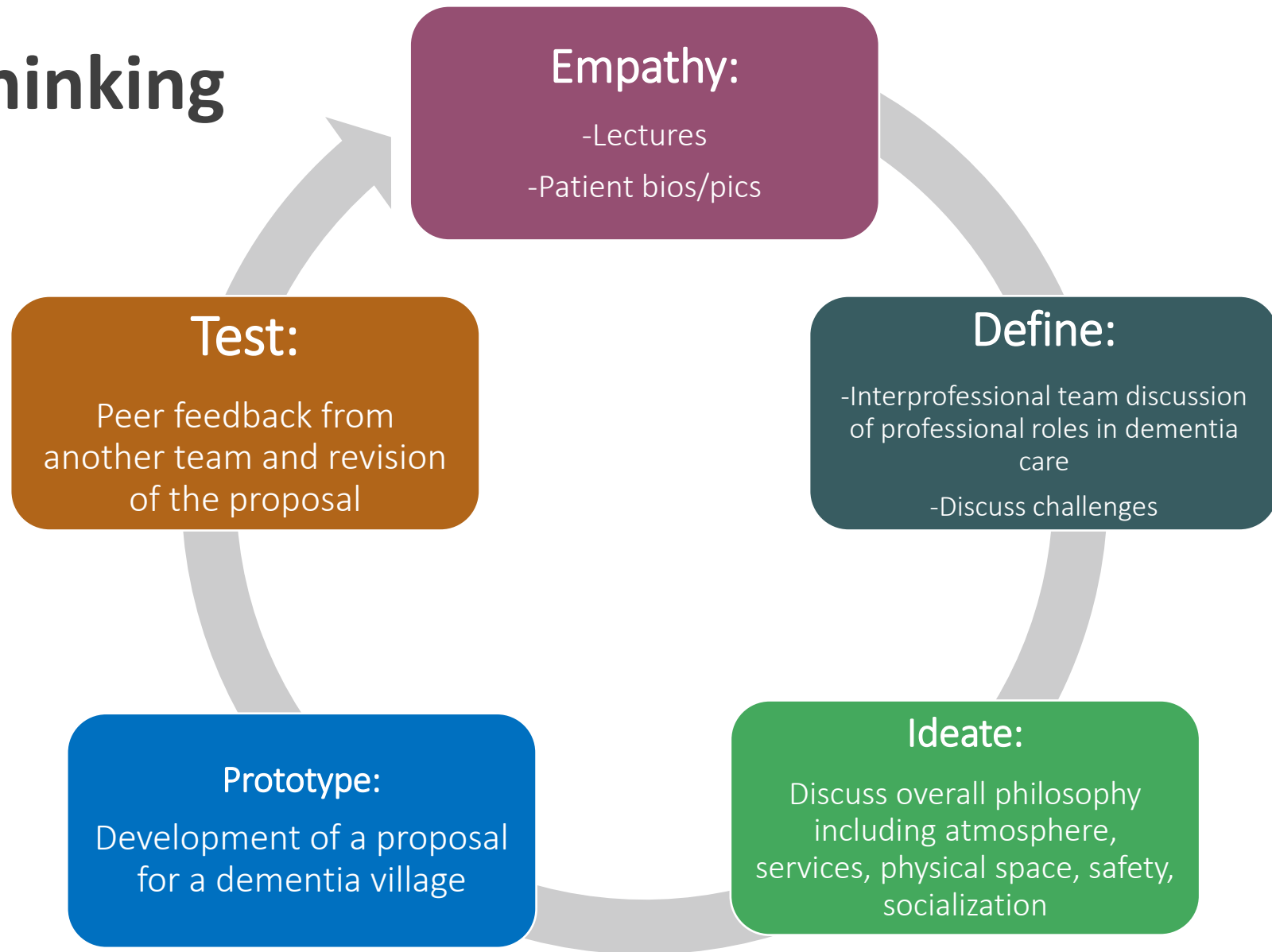
**Students' Perceptions of Interprofessional Clinical Education-Revised version 2 (SPICE-R2) survey

417 Participants

1st- or 2nd-year
students from 9 health
professions across 3
campuses at the
University of the Pacific

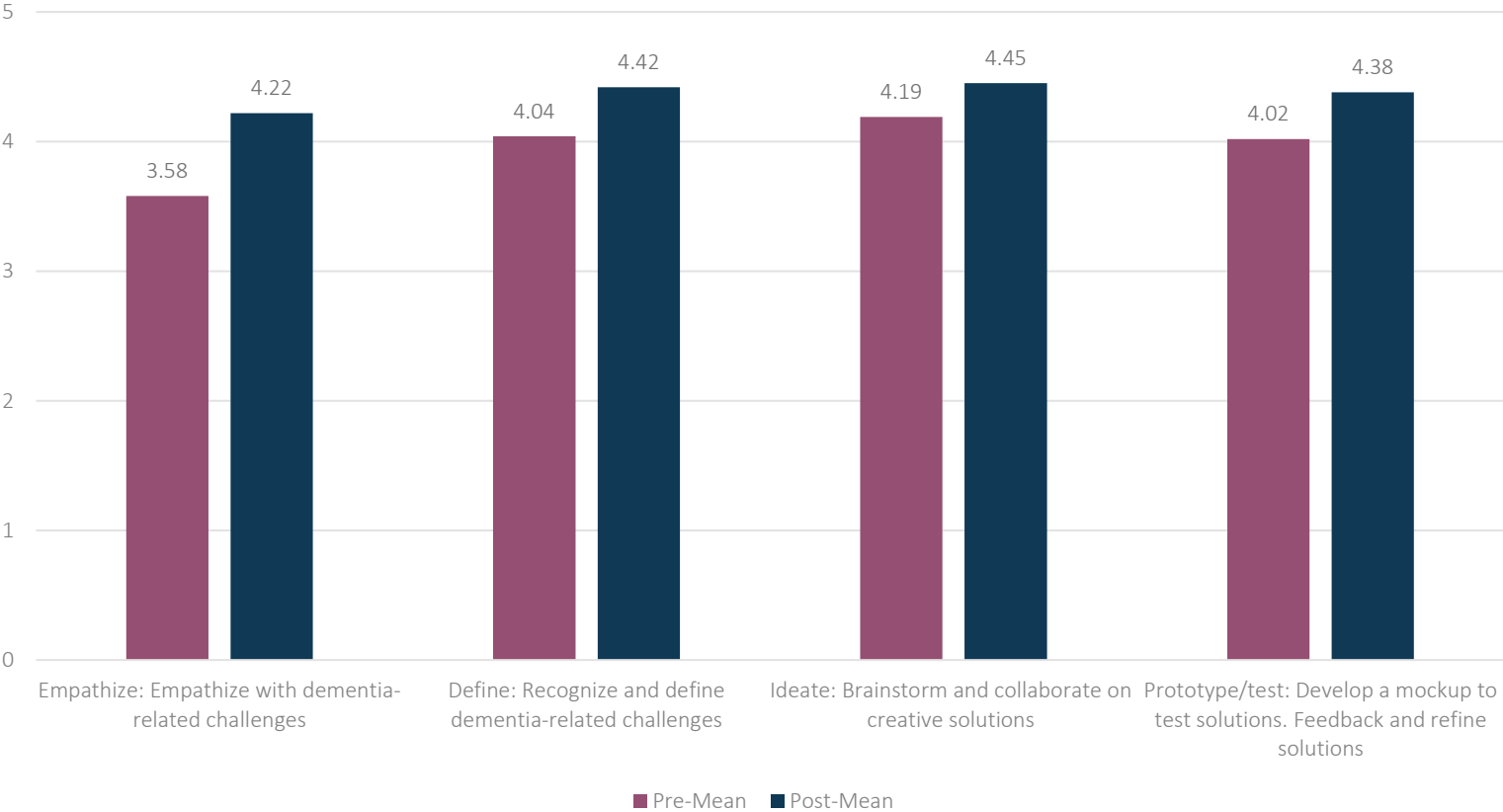


IPE Design Thinking Module

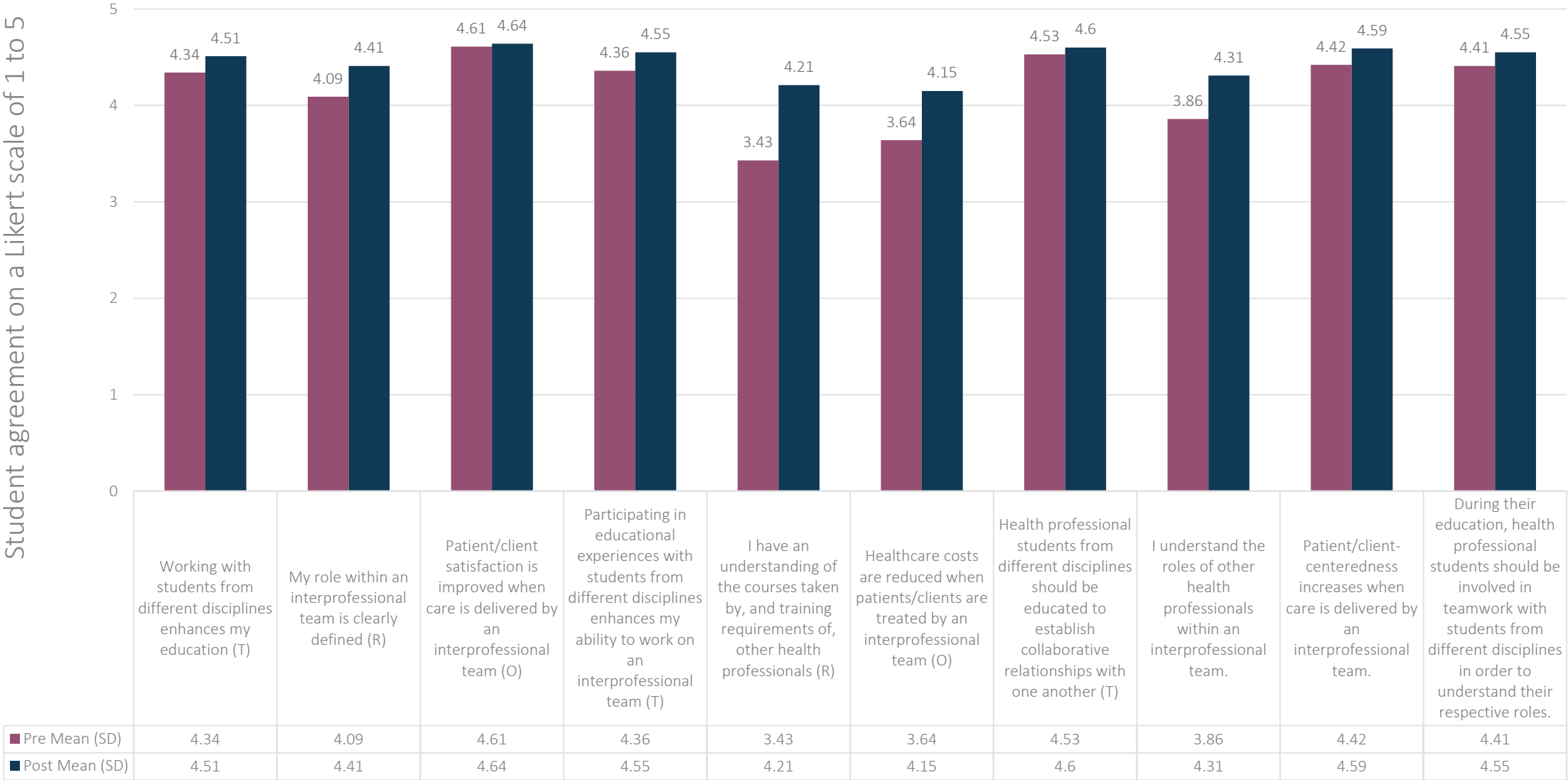


Results

Comparison of Pre-and Post-IPE Scores on the IDEA-DC Survey (N=349)



Comparison of Pre- and Post-IPE Workshop SPIC R2 scores (N=349)



Shifting the Pedagogical Framework

Standard Case-Based IPE

Given a diagnosis.

**Find the correct
clinical treatment.**

**Siloed expertise
applied sequentially.**

Design Thinking IPE

Given a human need.

**Invent a novel care
model.**

**Synthesized expertise
applied iteratively.**

Co-Authors

Nancy Hamler DMSc, MPA



Jessica Beaudoin DHSc,
RDN



Nurit Fischer-Shemer, PhD,
MSW



Tracey DelNero DMSc, PA-c

References

Thank You & Questions

`dvyas@ pacific.edu`

Faculté de pharmacie

Université 
de Montréal



Immersive Simulation for Pharmacy Education: A Framework for Collaborative Learning

Pharmacy Education Symposium, July 2026

Presenter:

Francis Richard, PharmD, MScPhm
Clinical assistant professor

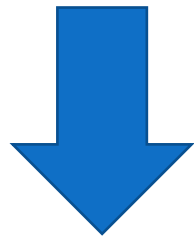
Co-authors:

Claude Mailhot, full professor
Jérôme Tousignant, instructor
Marie-Ève Larocque, instructor

Expanded scope of practice in Quebec (Canada)

Bills 41 (2015), 31 (2021) and 67 (2026)

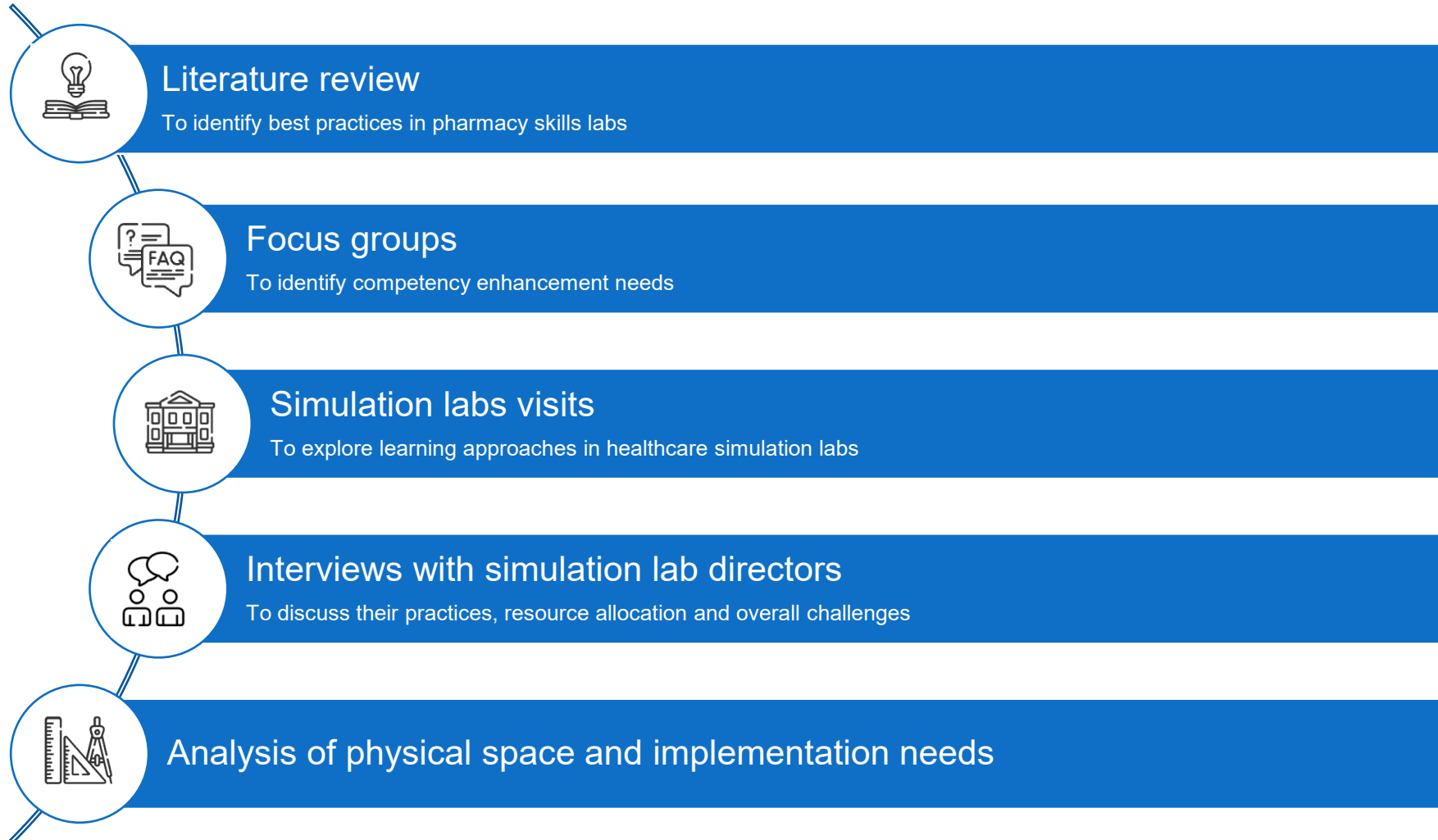
- **Scope of practice evolving rapidly**
- Need to develop students' **abilities and competencies** to practice to their full expanded scope with confidence and efficiency
- Need to **optimize our skills labs** to improve quality of learning



**Reinforce
experiential learning**



Skills labs modernization project



Simulation and virtual reality centre

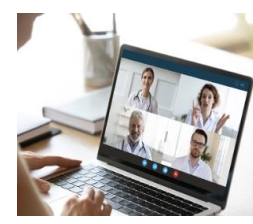
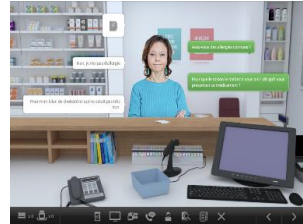


Skills and competencies development

 Partially

 Fairly

 Strongly



	Virtual simulation	Immersive simulation (community pharmacy)	Interprofessional telesimulation	Hospital environment discovery room
Communication				
Teamwork and interdisciplinary collaboration				
Physical and mental assessments				
Supervision and management of pharmacy services				
Ethical practice				
Professional identity				
Stress management				

Immersive simulation

- Reproduction of real professional practice situations in a **realistic simulated environment**
- **Enhanced preparation** for the challenges of professional practice and team management before clerkships and graduation
- Involvement of **simulated patients** and **instructors**
- **Debriefing**

Significant philanthropic support
for the entire project



Centre de simulation Pharmaprix

Université
de Montréal







Simulation debriefing



Achievements and implementation

- ✓ Construction of 3 mocked community pharmacies
- ✓ Healthcare simulation training for clinical professors
- ✓ Budget planning with the Faculty's executive committee
- ✓ Installing new electronic health record (Ubik) and telephony system
- ✓ Donations and purchase of medications (Rx and OTC)
- ✓ Audiovisual recording system (Laerdal SimCapture)
- ✓ Earpiece communication system for simulated patients (ListenTech)
- ✓ Recruitment and training of instructors and simulated patients
- ✓ Development of multiple scenarios
- Progressive implementation since fall 2025
 - Piloting of new scenarios
 - Evaluation of activities by students and instructors

Scenarios

Examples of targeted themes:

- Cold chain breach
- Non-compliant or falsified prescription
- Ethical and confidentiality issues
- Anger and manipulation
- Drug recall
- Medication error management
- Crisis resource management (e.g., overload), including prioritization and delegation

Shared across the PharmD program and QeP (international pharmacy graduates bridging program).

Increasing complexity throughout both programs: competencies targeted for each semester.

Complementarity with activities already in place in the skills labs.

Student Testimonials

*“I appreciated being able to **concretely see what pharmacists and pharmacy technicians do** and how they respond to **unexpected situations** and **collaborate**. I look forward to doing more immersive simulations to practice pharmacist activities and **become more familiar with the environment**.”*

*“I really like the **debriefing**. It allows the team to **reflect on what worked well and what didn’t**. The scenarios are enjoyable, and the fact that they are **not graded reduces stress** and allows us to fully benefit from the learning experience.”*

*“I appreciated the **realism**, such as receiving calls from outside the room simulating patients or verbal prescriptions. I felt like I was **in a real pharmacy with real patient files**.”*



Acknowledgements

- Pharmaprix/Shoppers Drug Mart (largest pharmacy chain in Canada)
- Generic drug companies: Pharmascience, Jamp Pharma, Sandoz
- Faculty's Allies (*Les Alliés de la Faculté*, philanthropic fund)
- Vice-Rectorate for Student Affairs and Studies (pedagogical innovation fund)
- Faculty of Pharmacy (fund supporting pedagogical projects)

Faculté de pharmacie

Université 
de Montréal
et du monde.

Integration of Student-led Quality Improvement into Experiential Learning: Evaluation of Extended Placements

Presenter: Dr Vilius Savickas v.savickas@uea.ac.uk; [@viliussavickas](https://twitter.com/viliussavickas)

Co-Authors: Alina Mazalu-Dragu, Dr Jeremy Sokhi, Dr Michael Twigg,
Prof James Desborough

Background – What is Quality Improvement?

"The combined and unceasing efforts of everyone – healthcare professionals, patients and their families, researchers, payers, planners and educators – to make the changes that will lead to better patient outcomes (health), better system performance (care) and better professional development (learning)."

(Batalden and Davidoff 2007)

Origins in
manufacturing



NHS Next
Stage Review

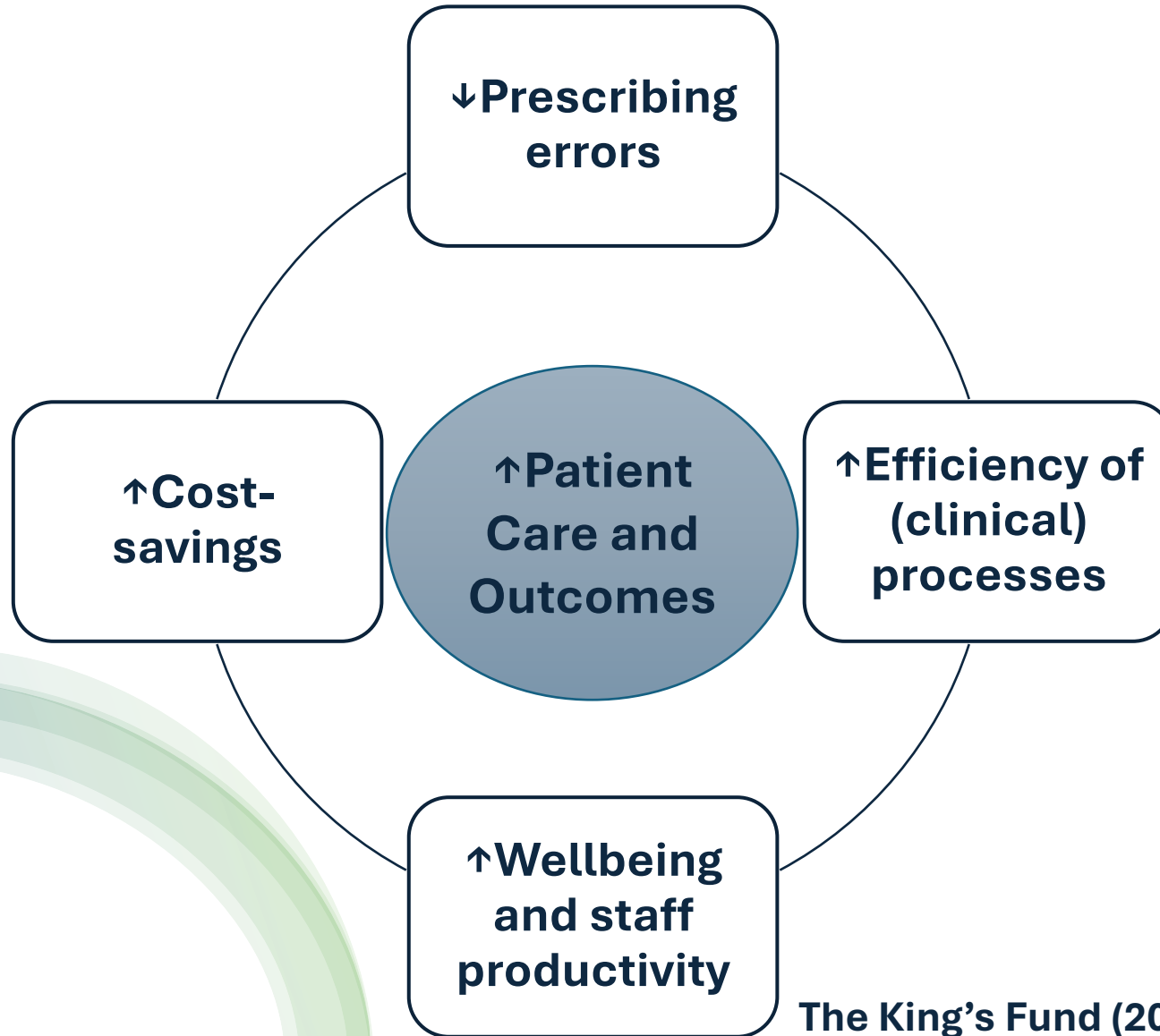


Application to
pharmacy
services

*"safety, experience of care, and
effectiveness of care."*

(Department of Health 2008)

Background – Why QI in Pharmacy?



Example:

- ✓ Collaboration between primary and secondary care in North of England
- ✓ Novel routine medication reviews in care homes
- ✓ Consultation with patient/next of kin and multidisciplinary team
- ✓ Over 12 months, deprescribed 704 medicines for 422 residents in 20 care homes
- ✓ Generated cost savings of £77,000.

The King's Fund (2017b)

The King's Fund (2017a) and Gulzar et al. (2022)

Background – Why Involve Pharmacy Students?



Patient-facing
and Practice-
relevant

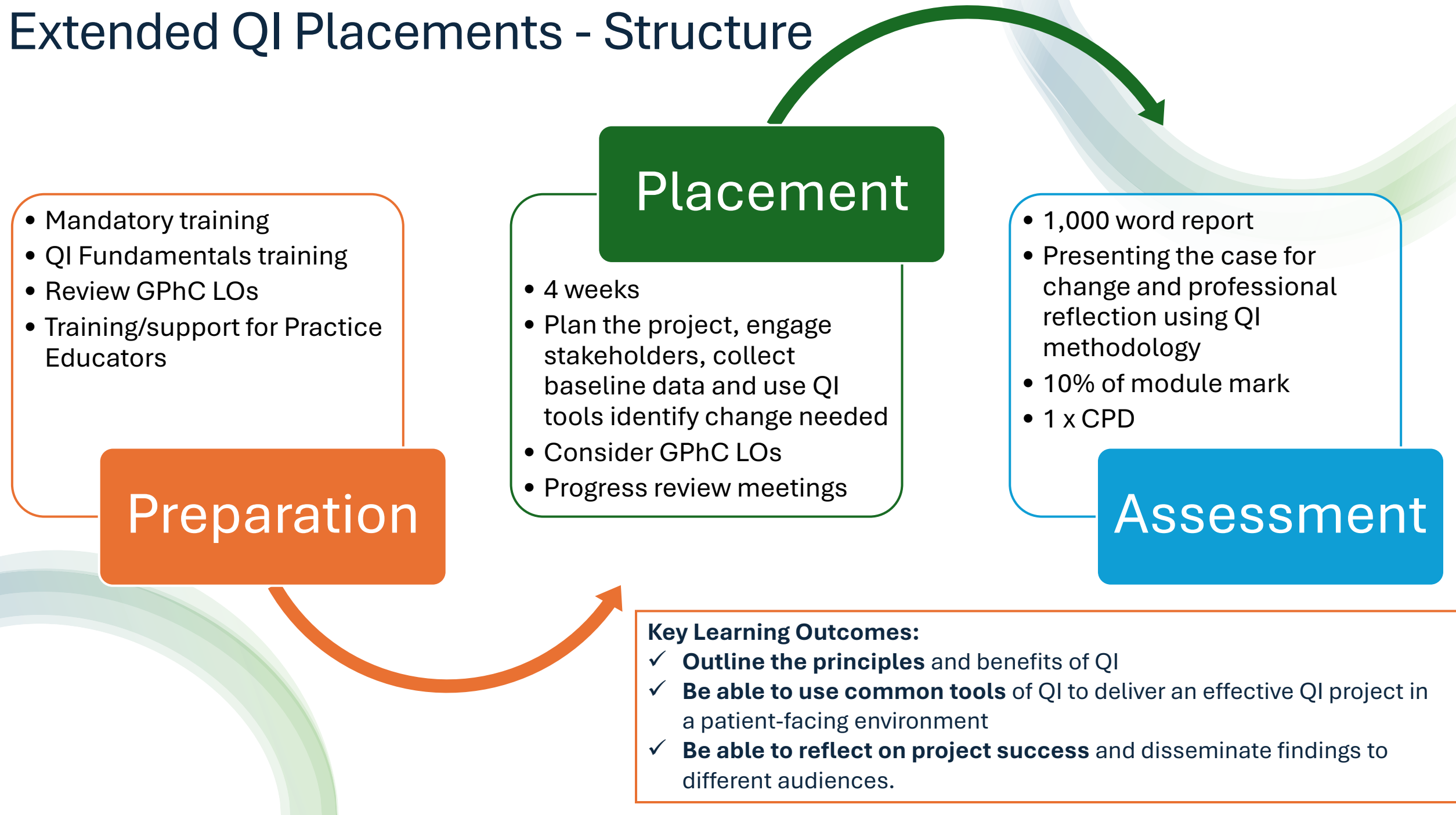
Improved
Services/Patient
Outcomes

Why QI?

Audit/Research
Skills

Improved
Services/Patient
Outcomes

Extended QI Placements - Structure



Evaluation – Likert-Scale Questionnaire



26 providers,
including hospitals,
pharmacies, GP
surgeries and other

**72/91
(79%)**

Completed Questionnaire

**61/72
(85%)**

Overall Satisfaction with Placement

**58/72
(81%)**

Placement met Objectives

**63/72
(88%)**

Satisfaction with Educators

Strengths



Placement preparation and guidance: provided excellent preparatory materials, regular support through supervisor check-ins and weekly feedback sessions.



Improved understanding of the pharmacy profession, with a specific focus on QI (88.9%, 64/72). New learning/skills would assist in future studies and career (87.5%, 63/72).



Development of communication skills (97.2%, 70/72), organisation/time management (93.1%, 67/72), problem-solving ability (91.7%, 66/72) and teamworking (81.9%, 59/72).



Integration and impact: first-hand learning opportunities when interacting with patients, felt integrated within multidisciplinary teams, thought that projects would improve services and/or patient outcomes.

Examples of Project Impact

Hospital

- **Patient safety:** Only 26% of IV heparin rate changes recorded on time; implementation of routine e-alerts for nurses.
- **Operational efficiency:** 35% of oncology surgical discharges > 2h waiting time; support for mobile dispensary
- **Cost-savings:** loss of £163,000/year due to off-contract purchases; creation of novel tool.

Primary Care

- **Antimicrobial stewardship:** 30% of quinolone prescribing supported by microbiology data; creation of targeted training for clinicians.
- **Deprescribing:** Lidocaine patches not reviewed; deprescribing increased by 30% in 4 weeks through structured consultations & customised patient plans.
- **Optimisation of monitoring:** >30% of patients on anticoagulants not routinely monitored; clerk-led process led to 88% patients flagged within 2 weeks.

Challenges



Communication/expectations: better alignment between the University and placement sites needed to ensure staff are informed about project expectations.



Project Scope: was too large and complex for the timeframe and need more structured support.



Environment: Challenges in approaching staff and patients.

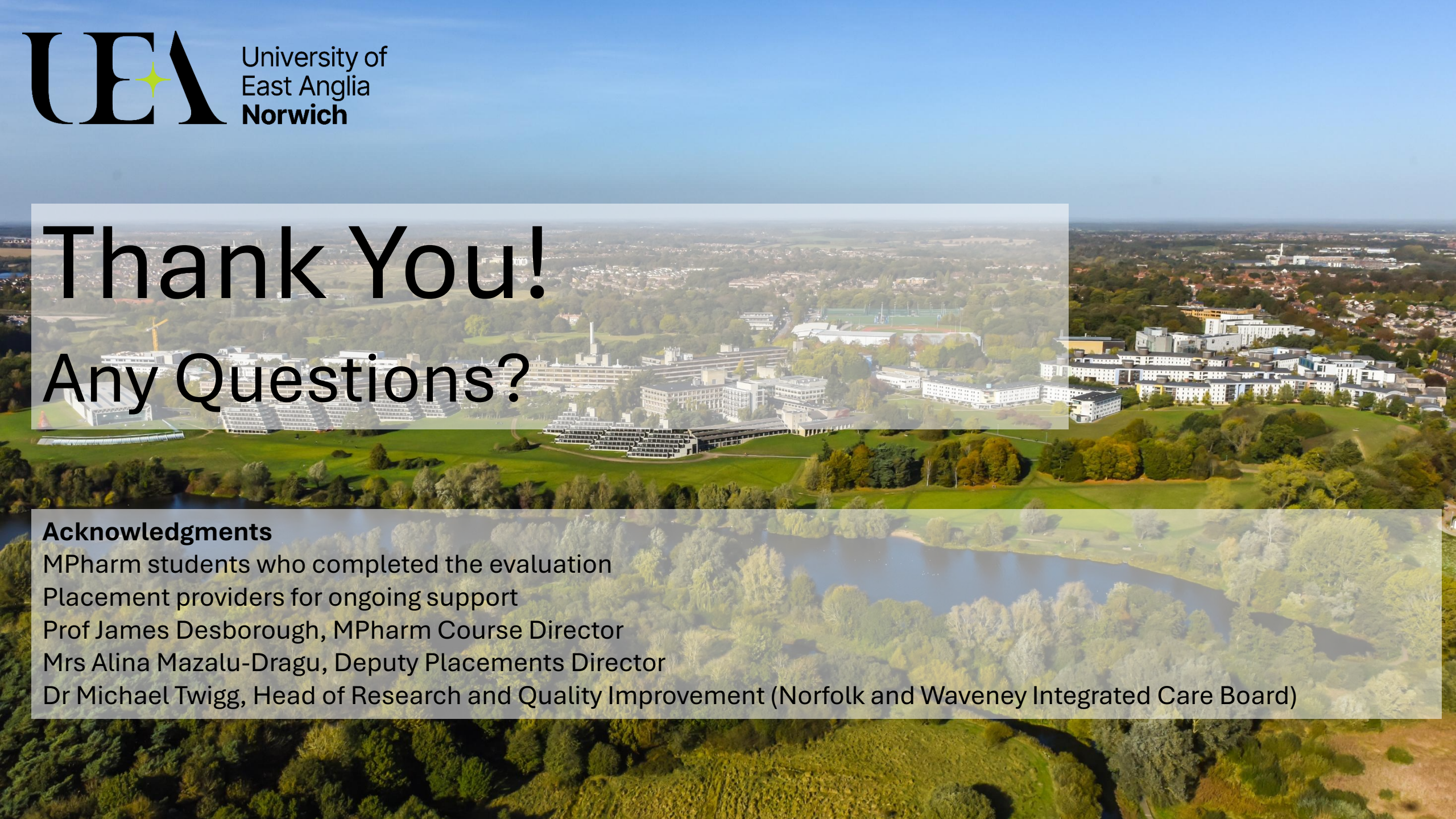


Variety vs. focus: Need to balance clinical and project-related activities.

Key Messages

- **QI is at the forefront of healthcare service development** and UK pharmacists are progressively more involved.
- **Undergraduate students** should be viewed as both learners and integral members of healthcare teams.
- **QI-focused placements** may benefit students, providers and universities.
- **Several challenges**, such as lack of QI understanding amongst providers and competing professional commitments, are yet to be addressed.



An aerial photograph of the University of East Anglia campus in Norwich, showing various academic buildings, green spaces, and a river in the foreground.

Thank You!

Any Questions?

Acknowledgments

MPharm students who completed the evaluation

Placement providers for ongoing support

Prof James Desborough, MPharm Course Director

Mrs Alina Mazalu-Dragu, Deputy Placements Director

Dr Michael Twigg, Head of Research and Quality Improvement (Norfolk and Waveney Integrated Care Board)

References

1. Batalden P, Davidoff F. Teaching Quality Improvement: The Devil Is in the Details. *Jama* 2007;298(9):1059-61. doi: 10.1001/jama.298.9.1059
2. Department of Health. High Quality Care For All: NHS Next Stage Review Final Report [Internet]. 2008. Available from: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/228836/7432.pdf [Accessed 02/06/2026]
3. General Pharmaceutical Council. Standards for the initial education and training of pharmacists [Internet]. 2021. Available from: <https://www.pharmacyregulation.org/students-and-trainees/education-and-training-providers/standards-education-and-training-pharmacists> [Accessed 02/06/2026]
4. The King's Fund. Making the case for quality improvement: lessons for NHS boards and leaders [Internet]. 2017a. Available from: <https://www.kingsfund.org.uk/publications/making-case-quality-improvement> [Accessed 02/06/2026].
5. Gulzar N, Latif A, Ansong T & Gohil S. Quality improvement in pharmacy practice. *Pharmaceutical Journal*. 2022 [Internet]. Available from: <https://pharmaceutical-journal.com/article/ld/quality-improvement-in-pharmacy-practice> [Accessed 02/06/2026]
6. The King's Fund. Example 3: Medicines optimisation and polypharmacy [Internet]. 2017b. [Available from: <https://www.kingsfund.org.uk/publications/making-case-quality-improvement/example-3> [Accessed 02/06/2026].

Collaborative and Immersive Learning: Outcomes from a Large-Scale Interprofessional Simulation Experience

Christy Sherrill, PharmD, FCCP, BCACP, BC-ADM

UNC Eshelman School of Pharmacy, Asheville, North Carolina, United States

Katie Neligan, MSN, RN, CNL, PCCN

Mountain Area Health Education Center, Asheville, North Carolina, United States

ETHICS: This study was reviewed by the UNC Institutional Review Board and was found to be exempt.

DISCLOSURE: Authors have nothing to disclose concerning possible financial or personal relationships.

FUNDING: No funding was required to conduct this research.



Introduction

Interprofessional
Collaboration

Leads to improved quality of care¹⁻²

Required per pharmacy education
accreditation standards³

Research
Question

Can a large-scale IPE simulation increase
confidence and attitudes related to
interprofessional learning and communication?



Methods

Prospective educational intervention
with pre/post surveys

Inclusion Criteria

- Students from four healthcare disciplines and two universities with campuses in Western North Carolina:
 - Pharmacy (University of North Carolina (UNC))
 - Medicine (UNC)
 - Nursing (Western Carolina University (WCU))
 - Social Work (WCU)



Pre-survey (immediately before)	Post-survey (immediately after)
• Consent • Demographics • Confidence regarding interprofessional communication (5-item Likert) • Modified Brief Attitudes for Interprofessional Collaborative Learning (BASIC-L)⁴ (11-item Likert)	• Confidence regarding interprofessional communication (5-item Likert) • Modified BASIC-L⁴ (11-item Likert) • Reflection on the simulation (6-item Likert, 6-item free response)

Educational Intervention

Logistics

Two sessions, 2 hr 10 min each

10 groups per session

5-6 students per group with at least 1 from each profession when possible

1 facilitator per group*

1 standardized patient per group*

*Could repeat both sessions

Prebrief (20 min)

- Orientation to the activity and role of different professions, including a video of an interprofessional team "rounding" on a patient

"Get to know you" activity (20 min)

- In assigned interprofessional teams, students discussed a provided list of questions to orient all students to different professions' background, education, and roles/responsibilities

Standardized patient simulation (60 min)

- In the same assigned teams, students reviewed a provided patient case and formulated a plan for the encounter (30 min), followed by a standardized patient encounter (30 min)

Debrief (30 min)

- Back in the large group, facilitators led a debriefing session, followed by students completing the study post-survey



Results

- 112 students participated in the educational intervention
- 93 (83%) completed both surveys:
 - 15 pharmacy, 24 medicine, 43 nursing, 11 social work
- Average age 28 years, 83% female

Confidence, mean results: 1=not at all confident, 2=only slightly confident, 3=somewhat confident, 4=moderately confident, 5=very confident		All Participants (N=93)			Pharmacy (n=15)		
		Pre	Post	p-value	Pre	Post	p-value
1	Explain my role and responsibilities to other healthcare professionals.	4.0	4.3	<0.05	3.9	4.1	0.38
2	Describe the roles and responsibilities of other healthcare professionals.	3.3	4.2	<0.05	3.1	4.1	<0.05
3	Communicate effectively with other healthcare professionals.	3.6	4.3	<0.05	3.3	4.1	<0.05
4	Provide my unique perspective based on my role within the healthcare team during interprofessional discussions.	3.6	4.3	<0.05	3.5	3.9	<0.05
5	Provide my unique perspective based on my role within the healthcare team while talking to a patient.	3.7	4.3	<0.05	3.4	4.0	<0.05



Modified BASIC-L, ⁴ mean results: 1=strongly disagree, 2=disagree, 3=undecided, 4=agree, 5=strongly agree		All Participants (N=93)			Pharmacy (n=15)		
		Pre	Post	p-value	Pre	Post	p-value
1	Patients would ultimately benefit if interprofessional student teams worked together to address patients' concerns.	4.7	4.8	0.30	4.9	4.9	1.0
2	Collaborative learning can increase my ability to positively impact patient care.	4.5	4.7	0.07	4.5	4.9	0.27
3	Collaborative learning can help me understand my own professional limitations.	4.5	4.7	<0.05	4.7	4.9	<0.05
4	Collaborative learning can help me understand the value of other health professionals.	4.6	4.8	0.06	4.7	4.9	0.08
5	Collaborative learning can help me to communicate better with patients.	4.5	4.7	0.06	4.7	4.9	<0.05
6	Collaborative learning can help me to communicate better with other professionals.	4.6	4.7	0.15	4.7	4.9	0.16
7	Collaborative learning during patient encounters is likely to improve services for the patient.	4.6	4.8	<0.05	4.7	4.9	0.10
8	I would welcome the opportunity to work in small group settings or rounds with students from other professions.	4.4	4.7	<0.05	4.7	4.9	0.08
9	I would welcome the opportunity to participate in lectures, tutorials, or workshops with students from other professions.	4.3	4.6	<0.05	4.6	4.9	<0.05
10	Learning with students from other professions can make me a more effective member of an interprofessional team.	4.6	4.8	<0.05	4.7	4.9	<0.05
11	Learning with students from other professions can further develop my teamwork skills.	4.5	4.8	<0.05	4.7	4.9	0.08



Reflection Data

Reflection, mean results (N=93): 1=strongly disagree, 2=disagree, 3=undecided, 4=agree, 5=strongly agree		Post
1	Working in an interprofessional team was helpful for my understanding of the different roles/responsibilities of healthcare team members.	4.7
2	Working in an interprofessional team was helpful for my understanding of how to best care for a patient.	4.8
3	This activity would have been just as effective if I had completed it with students only from my healthcare discipline.	3.1
4	The introductory activity where we got to know members of other healthcare disciplines was engaging and effective.	4.6
5	The inpatient patient case simulation was engaging and effective.	4.7
6	I would recommend this educational opportunity to other learners within my discipline.	4.7



In your opinion, what is the greatest strength of this educational intervention?



How did this activity affect your perception of your role within the healthcare team (i.e., professional identity formation)?

- Feeling valued and part of a team
- Understanding roles and interprofessional relationships
- Increased confidence and appreciation of others

What strategies, if any, will you employ to communicate with other healthcare disciplines in the future?

- Asking questions and seeking input
- Open and clear communication
- Team coordination and collaboration
- Building relationships and professionalism

Conclusions

This interprofessional simulation activity:

- Increased learners' confidence in explaining their and others' roles and responsibilities within the healthcare team
- Enhanced professional identity formation via improving confidence in providing unique perspectives of individual roles within the healthcare team
- Improved most items related to attitudes toward interprofessional collaborative learning

Overall, participants strongly agreed that working in an interprofessional team was beneficial, and they would recommend this activity to others



References

1. Saragih, I, et al. (2024, March) Interdisciplinary Simulation-Based Teaching and Learning for Healthcare Professionals: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. *Nursing Education in Practice* (76). <https://doi.org/10.1016/j.nepr.2024.103920>
2. van Diggele, C., Roberts, C., Burgess, A., & Mellis, C. (2020). Interprofessional education: tips for design and implementation. *BMC medical education*, 20(Suppl 2), 455. <https://doi.org/10.1186/s12909-020-02286-z>
3. Accreditation standards and key elements for the professional program in pharmacy leading to the doctor of pharmacy degree ("Standards 2025"). Accreditation Council for Pharmacy Education. <https://www.acpe-accredit.org/pdf/ACPEStandards2025.pdf>
4. Schneider, G. W., Lage, O., Fairclough, J., Raventos, V. D., & De Los Santos, M. (2021). The Brief Attitudes Survey for Interprofessional Collaborative Learning: The Design, Reliability, and Validation of a New Instrument. *Cureus*, 13(12), e20238. <https://doi.org/10.7759/cureus.20238>



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

David Steeb, PharmD, MPH

PhD Student, Pharmacy and Pharmaceutical Sciences Education
Monash University

Dean, College of Global Population Health
University of Health Sciences and Pharmacy in St. Louis



Background

- Universities continue to establish international partnerships with one another, but the science of collaboration behind these partnerships is limited
- Interorganizational collaboration** is defined as “the pooling of appreciations and/or tangible resources, by two or more stakeholders, to solve a set of problems which neither can solve individually” (Gray, 1985)

Table I. Facilitative Conditions at Each Phase of Collaboration

Problem-setting	Direction-setting	Structuring
Recognition of interdependence	Coincidence of values	High degree of ongoing interdependence
Identification of a requisite number of stakeholders	Dispersion of power among stakeholders	External mandates
Perceptions of legitimacy among stakeholders		Redistribution of power
Legitimate/skilled convenor		Influencing the contextual environment
Positive beliefs about outcomes		
Shared access power		

Gray B. Conditions facilitating interorganizational collaboration. Human relations. 1985 Oct;38(10):911-36.

Interorganizational Collaboration

<i>Reference</i>	<i>Successful features</i>
Gray (1985)	Sufficient power distribution to insure partners influence direction.
Doz (1988)	Develop convergence of purpose to avoid internal competition; ensure consistency of position and manage the cultural differences.
Kernaghan (1993)	Inclusion of all stakeholders in decision making, mutual dependence gives a balance of power. Respect the role of each partner. A sense of self-efficacy among the stakeholders, trust, a sense of ownership and professional commitment. Reduction in conflict.
Moss-Kanter (1994)	The value added by each partner, trust, commitment of the partners, interdependence between partners, specific investment, communication, integration and institutionalization (i.e. the degree of formal status).
Gulati (1995)	Social network and strategic interdependence.
Gaster and Deakin (1998)	Accountability, ability to innovate, deploy resources, change structures, develop new management skills around boundary crossing, negotiating, managing turbulence, political networking and joint decision making.
Coulter (1999)	Mutual respect and recognition of the advantages of combining resources.
Coleman and Rippin (2000)	Agreement, mutuality and trust.
Sanatoro and Gopalakrishnan (2000)	Trust that facilitates the institutionalization of knowledge transfer activities.

Table 7

Features of successful partnerships

Casey M. Partnership--success factors of interorganizational relationships. *J Nurs Manag.* 2008;16(1):72-83. doi:10.1111/j.1365-2934.2007.00771.x

Study Aims and Design

Aims

- Primary: How are international health professions education partnerships between universities described in the literature?
- Secondary: How do health professions education partnerships align with the principles of interorganizational collaboration?

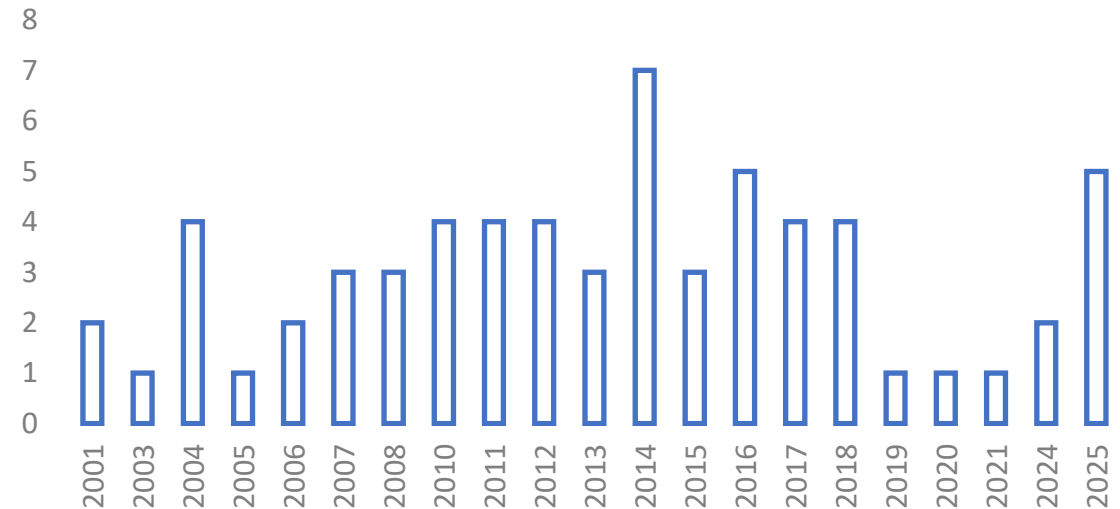
Design

- Joanna Briggs Institute (JBI) methodology and PRISMA-ScR reporting for peer-reviewed articles in English from 2000-2025 in MEDLINE, Embase, Scopus, and CINAHL
- Articles must state partnership purpose and describe at least two of the following: partnership development, outcomes, or insights
- Conventional content analysis with one descriptive coding cycle by two coders using a living codebook

Results

- 9568 abstracts screened in Covidence
 - 608 full text reviews
- 64 articles included
 - Most in medicine (n=38; 59%) followed by nursing (n=22; 34%)
 - N=1 for pharmacy
 - Most externally funded (n=40; 63%)
 - Top countries: USA (n=47; 73%), Canada (n=13; 20%), and UK (n=9; 14%)
 - Significant majority global north-south partnerships

Articles by Year



Results

Partnership Purpose

- Most collaborations emphasized capacity building and workforce development programs. Some had specific, measurable goals while others were broad and vague.

Partnership Development

- Communication, trust, and stakeholder engagement supported partnership development and growth. These often manifested in the form of personal and professional relationships

Partnership Outcomes

- Curricular changes, training programs, and workforce development were the most reported outcomes. Many described short-term outputs rather than long-term outcomes.

Partnership Insights

- Leadership support, stakeholder engagement, and governance were critical for sustaining partnerships over time

Implications

- International health professions education partnerships are **interorganizational collaborations**.
 - Require navigation across different educational, healthcare, regulatory, and cultural environments
- **Shared value** emerges when partners leverage complementary strengths and resources toward a clear, common purpose.
- **Trust development** requires understanding cultural, professional, and organizational differences. Personal and professional **relationships** strengthen trust.
- **Senior leaders** and **partnership champions** play a critical role in sustaining collaboration and demonstrating **commitment**.
- Addressing **power dynamics** is essential for equitable participation and long-term partnership success.

	Sole-Creation-----→ <u>Co-Creation</u>
SOURCES OF VALUE	
Resource Complementarity	<i>Low-----→ High</i>
Resource Nature	<i>Generic-----→ Distinctive Competency</i>
Resource Directionality	<i>Unilateral-----→ Conjoined</i>
Linked Interests	<i>Weak/Narrow-----→ Strong/Broad</i>
TYPES OF VALUE	
Associational Value	<i>Modest-----→ High</i>
Transferred Resource Value	<i>Depreciable-----→ Renewable</i>
Interaction Value	<i>Minimal-----→ Maximal</i>
Synergistic Value	<i>Least-----→ Most</i>
Innovation	<i>Seldom-----→ Frequent</i>
STAGES	<i>Philanthropic-----→ Transactional-----→ Integrative→ Transformational</i>

Figure 2. Collaborative value creation spectrum

Austin, J. E., & Seitanidi, M. M. (2012). Collaborative Value Creation: A Review of Partnering Between Nonprofits and Businesses: Part I. Value Creation Spectrum and Collaboration Stages: A Review of Partnering Between Nonprofits and Businesses: Part I. Value Creation Spectrum and Collaboration Stages. *Nonprofit and Voluntary Sector Quarterly*, 41(5), 726-758.

What's next?

- Three round modified e-Delphi study to determine core principles of collaboration for health professions education partnerships
- 80+ panelists from medicine, pharmacy, nursing, dentistry, and public health across 27 countries
- Data analysis underway – stay tuned!

The background features a large, dark blue triangle pointing towards the bottom right. Inside and around this triangle are numerous thin, white, diagonal lines that create a sense of motion and depth. The overall color scheme is dark, with the blue and white elements providing contrast.

Questions?

David.steeb1@monash.edu

Thank you to Paul White, Tina Brock,
Caroline Sasser, and Mario Sos for
their support and collaboration

Making Reasoning Visible

Service evaluation of a suite of micro-interventions to strengthen history taking and prescribing readiness in pharmacists

William Swain

Associate Professor of Pharmacy Practice

UCL School of Pharmacy

July 2026



Background

The UCL Clinically Enhanced Pharmacist Independent Prescribing (CEPIP) Course is a 6-12 month Programme for registered Pharmacists.

A large component of the face-to-face teaching is dedicated to developing **clinical assessment skills**.

Each contact day covers 2 body systems e.g., cardiovascular and respiratory, and consists of a half day developing **history taking** led by a GP and a half day developing **physical examination skills**. This gave us an intervention and control group.

During the history taking portion of the day, students take part in several role-play exercises in groups of 3 including the role of pharmacist, patient and observer.

The model was credible because it was:

- aligned to the course's workplace-based assessments and OSCE expectations, including consultation structure and history-taking behaviours
- feasible and scalable across a cohort (no tech)
- popular with students in routine feedback
- familiar to facilitators and learners

The Educational Problem: An established model with hidden learning

Our low-fidelity role-play model is scalable, assessment-aligned and popular with students, but several challenges emerged through reflection by the course team:

Challenge	Educational issue
Limited facilitator visibility	One GP facilitator cannot meaningfully observe 10 triads across 3 simultaneous cases. This gives freedom for psychological safety.
Inexperienced peer feedback	Observers have checklists, but may struggle to listen, interpret and give developmental feedback in real time
Hidden clinical reasoning	Uninterrupted histories show questions asked, but not how learners interpret emerging information
Cognitive load	Learners may be using mental effort just to remember the consultation sequence

Table 1

Design response

Three micro-interventions:

Challenge	Micro-intervention	What changed in the session
Cognitive load of remembering the consultation sequence	History Relay	A short warm-up where students rapidly recalled the full history-taking structure in triads
Peer observers may struggle to give useful feedback	Fishbowl with structured observer roles	Role play in larger groups where several observers were given clearer feedback roles and used a plus/delta approach to make debrief more structured
Clinical reasoning remains hidden during uninterrupted history taking	Reasoning Pause	Students paused during the consultation to state top differentials, most likely diagnosis and least likely diagnosis (Bayesian Reasoning)

Table 2

Evaluation approach:

Surveys and descriptive facilitator feedback

Micro-intervention 1: History Relay

A 5-minute triad warm-up before role-play: Rapid recall of the full history-taking sequence

Measure	Usual format n=15	History Relay n=27
Mean confidence before session /10	6.80	6.44
Mean confidence after session /10	8.33	7.70
Mean change in confidence /10	+1.53	+1.26
Reported increased confidence	8/15, 53%	18/27, 67%



Table 3: Intervention 1 survey feedback data, n = 42/70 (60%)

Micro-intervention 2: Structured fishbowl / observer roles

A role play between 2 people with an expanded number of observers – each with their own role/ specific feedback themes and used a **plus/delta** structured debrief.

Measure	Fishbowl format (n=24)	Fishbowl + feedback norming (n=28)
Comfortable giving constructive/negative feedback	8/16, 50%	13/17, 76%
Theme-organised debrief was clearer/actionable	20/24, 83%	26/28, 93%
Fishbowl effective for developing history taking	21/24, 88%	24/28, 86%
Supportive environment maintained	13/19, 68%	15/20, 75%



Table 4: Intervention 2 survey feedback data, n=52 (74%)

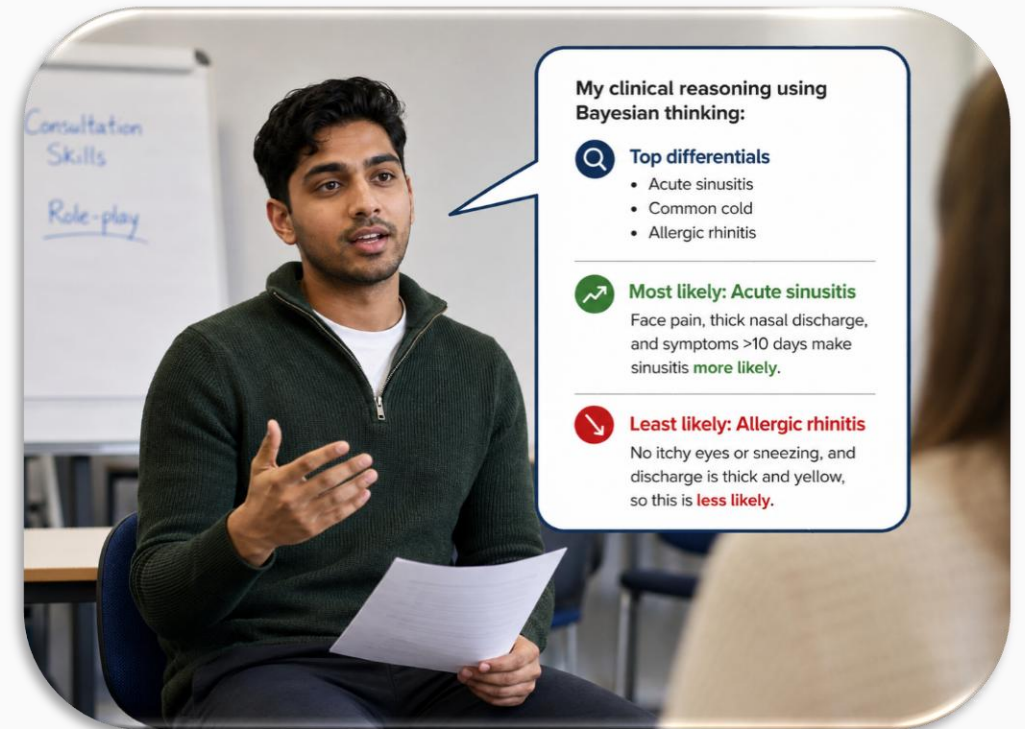
Micro-intervention 3: Reasoning Pause

A series of short pauses during role play where the pharmacist is expected to verbalise their probabilistic reasoning

Measure	Usual format n=22	Reasoning Pause n=22
Mean confidence gain /10	+1.00	+1.91
Reported increased confidence	13/22, 59%	18/22, 82%

Table 5: Intervention 3 survey feedback data, n=44 (63%)

GP Facilitator: *"it was fairly easy to implement and appeared to encourage earlier thinking about differentials"*



Discussion

Small design changes can increase the educational yield of low-fidelity role play

Finding from this evaluation	How this relates to the literature
The existing role-play model was worth keeping, but some learning remained hidden.	Clinical reasoning is difficult to teach because it is complex, context-specific, often tacit and effectively invisible to students (<i>Delany and Golding, 2014</i>).
History Relay may have supported structured history-taking, even though confidence gains were not greater.	Novices need scaffolds to organise information and transform the patient's story into a usable clinical summary or "problem representation" (<i>Bowen, 2006</i>).
Structured fishbowl made the observer role more active and feedback-focused.	Making thinking visible requires explicit routines and repeated practice; learners need concrete structures to notice, interpret and discuss reasoning processes (<i>Delany and Golding, 2014</i>).
Reasoning Pause appeared to offer the clearest way of surfacing diagnostic thinking.	Think-aloud approaches make implicit reasoning explicit and allow learners and supervisors to focus on <i>how</i> a conclusion is reached, not just the answer (<i>Pinnock et al., 2015</i>).
The Reasoning Pause asked learners to compare likely and less likely diagnoses.	Clinical reasoning involves both analytic reasoning and pattern recognition; learners need to use both flexibly rather than relying on one approach alone (<i>Eva, 2005</i>).

Table 6: Key take-aways

Limitations

Limitation	Why it matters
Service evaluation, not controlled study	The aim was local curriculum improvement, so findings should be treated as exploratory.
Non-randomised groups	Differences may reflect timing, group characteristics, facilitator delivery or case mix rather than the intervention alone.
Small sample sizes	The data are useful for signalling patterns, but not for strong claims about effectiveness.
Self-reported outcomes	Confidence and Likert ratings may not reflect actual improvement in history-taking or reasoning performance.
Ceiling effects in Likert data	Several items were rated highly in both groups, limiting their ability to detect added value.
Variable implementation fidelity	Some interventions, especially Reasoning Pause, were harder to monitor consistently across simultaneous triads.

Table 7: Limitations

References

Bowen, J.L. (2006) 'Educational strategies to promote clinical diagnostic reasoning', *New England Journal of Medicine*, 355(21), pp. 2217–2225.

Delany, C. and Golding, C. (2014) 'Teaching clinical reasoning by making thinking visible: an action research project with allied health clinical educators', *BMC Medical Education*, 14, article 20.

Eva, K.W. (2005) 'What every teacher needs to know about clinical reasoning', *Medical Education*, 39(1), pp. 98–106.

Pinnock, R., Young, L., Spence, F., Henning, M. and Hazell, W. (2015) 'Can think aloud be used to teach and assess clinical reasoning in graduate medical education?', *Journal of Graduate Medical Education*, 7(3), pp. 334–337.

Five years' experience of simulation-based learning in the therapy of serious infections:

Long-Term Learning Outcomes and Student Satisfaction

Presenter: Kiran Parsons

(on behalf of Associate Professor Petra Czarniak)

Research Team: Assoc. Prof Petra Czarniak, Assoc. Prof Leanne Chalmers, Dr Ya Ping Lee, Dr Alina Miranda, Ms Kiran Parsons

HREC2019-0368 Approval number



Simulation Based Learning (SBL)

- 
- Provides effective learning opportunities in healthcare professional training to practice & develop clinical skills
 - Utilises objective-driven role-plays with simulated patients
 - Can replicate clinical settings
 - No risk to real patients
 - Engages students by involving them in case studies

The Resource Challenge in SBL



Context:

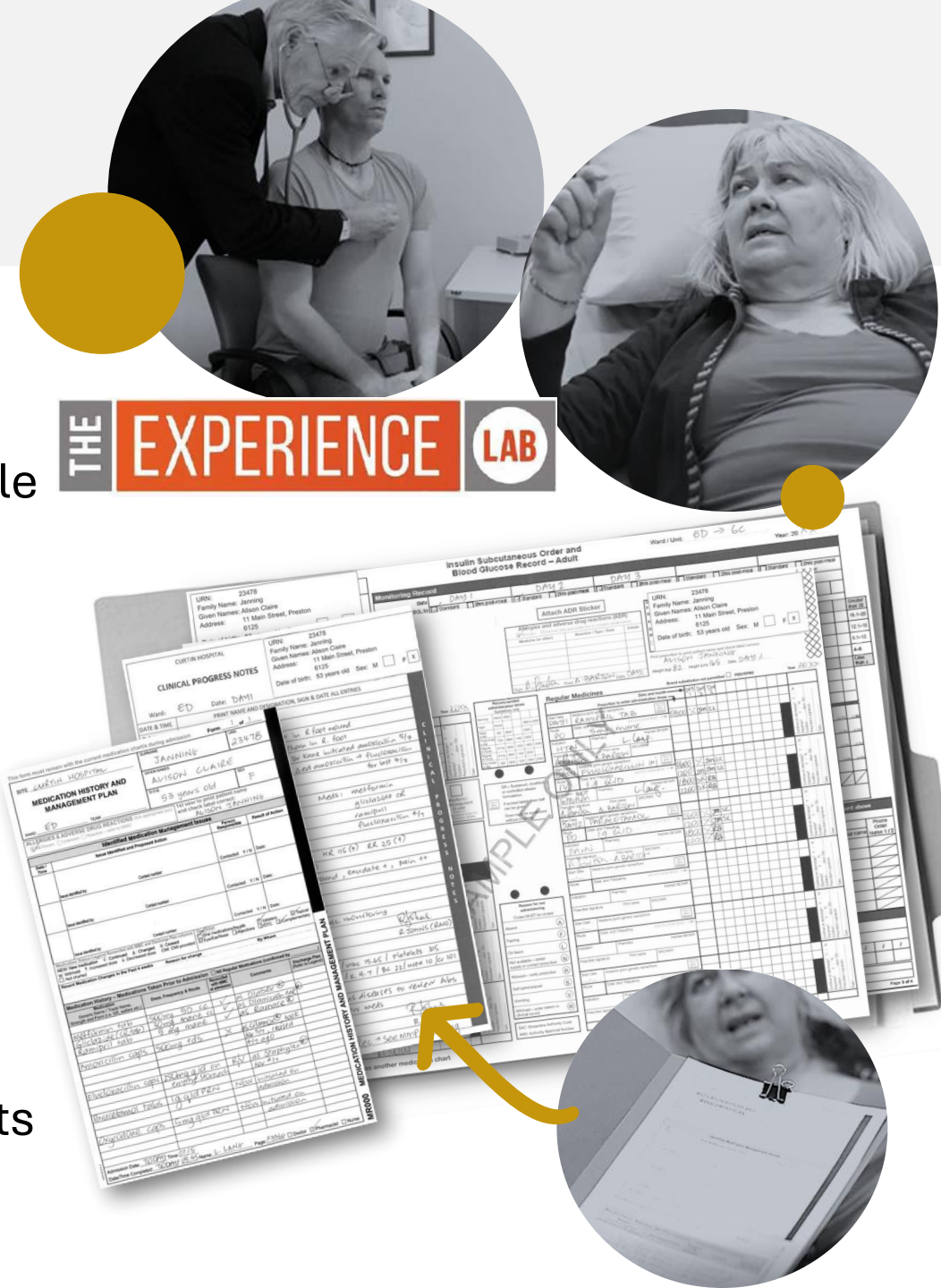
- Antimicrobial Chemotherapy: principles, resistance, clinical applications
- Content-heavy, complex topic
- Relatively low pass rates (88%)
- Students lack clinical experience
- Limited resources for on-going high-fidelity simulation

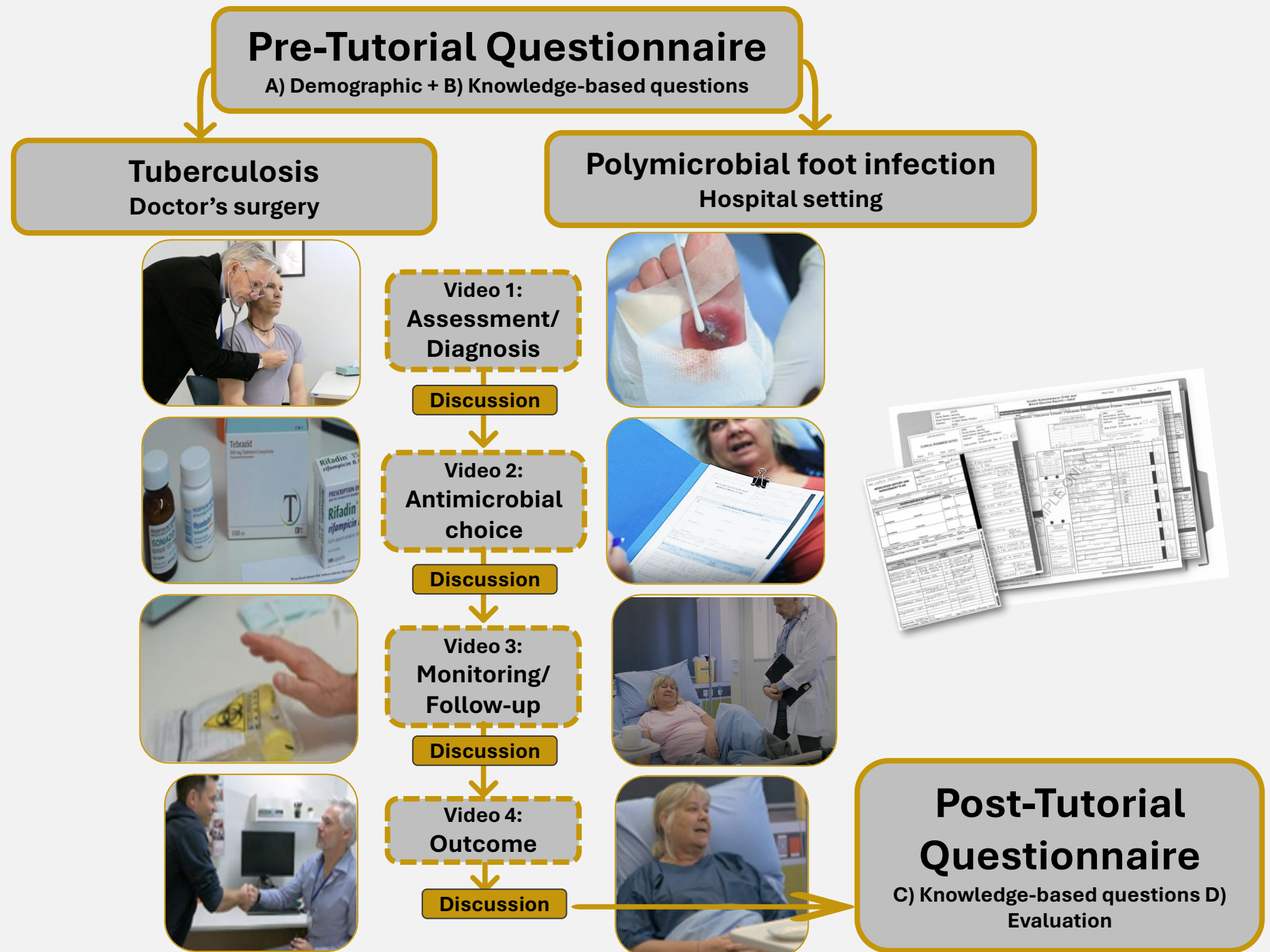
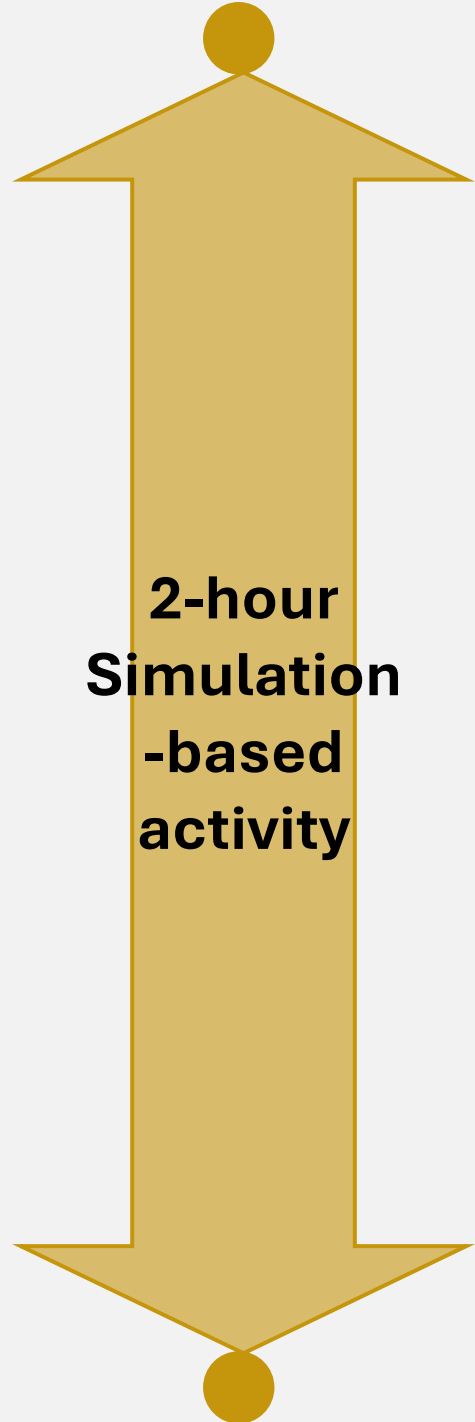
The Challenge:

Can we deliver an effective and engaging learning experience reflecting real-life practice that is sustainable and resource-conscious?

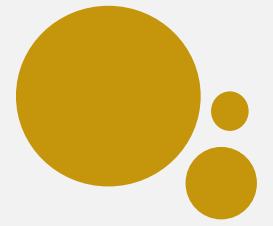
Resource-Conscious Design:

- Developed two authentic clinical scenarios with expert clinical input (Jason Seet – Antimicrobial Stewardship pharmacist)
- Professional videos of simulated patients as sustainable alternative
- Other resources developed:
 - Inpatient clinical progress notes
 - Medication chart
 - Insulin and blood glucose chart
 - Pre-brief guide
 - Discussion guides between videos
 - Debrief guide
 - Pre- and Post- knowledge checks
- Reusable, standard classroom technology requirements
- Scalable with consistency

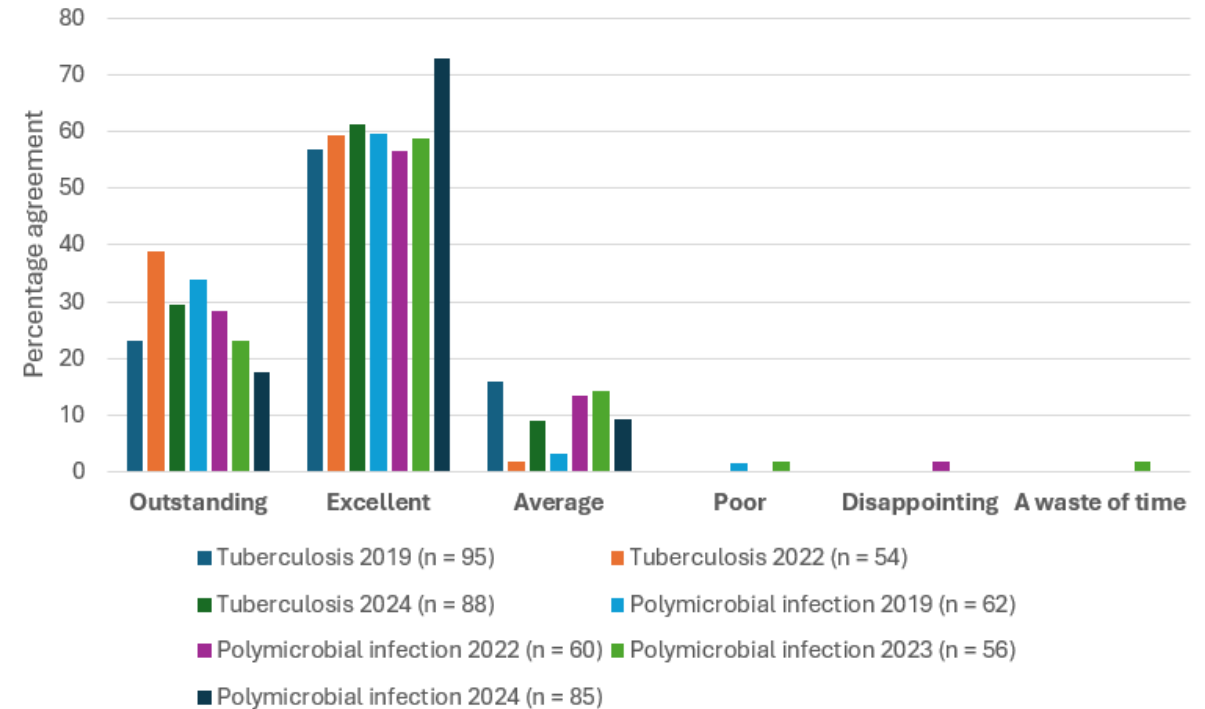




Our Evaluation: Student Satisfaction

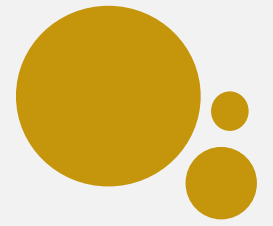


- Overwhelmingly positive ratings
- Self-reported development of critical thinking skills
- Helped them learn better
- High demand for expansion



Students' experience of the tuberculosis and polymicrobial infection SBL activities.

Our Evaluation: Learning Outcomes

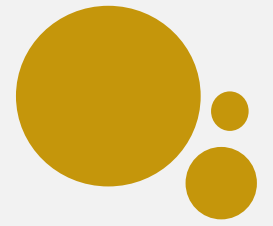


- Students consistently demonstrate measurable knowledge gains across 5-year time-frame

Year	Number of students enrolled in the unit	Number of students who completed the activity	Pre-tutorial data	Post-tutorial data	p-value
			Mean	Mean	
Tuberculosis SBL					
2019	123	85	7.19 ± 2.079	7.65 ± 2.240	0.062
2022	112	60	4.95 ± 1.799	6.12 ± 1.992	<0.001
2024	138	88	3.78 ± 1.631	8.98 ± 1.508	<0.001
Polymicrobial infection SBL					
2019	123	74	5.41 ± 2.119	6.77 ± 2.058	<0.001
2022	112	60	4.95 ± 1.799	6.12 ± 1.992	<0.001
2023	128	56	5.64 ± 1.667	6.20 ± 1.542	0.017
2024	138	85	3.49 ± 1.770	7.60 ± 1.699	<0.001

Pre- and post-questionnaire data for the tuberculosis and polymicrobial infection SBL activities from 2019 to 2024.

Discussion:



- Students reported many benefits of the SBL activities including:
 - Positive engagement
 - Consolidating knowledge of material taught in lectures
 - Development of critical thinking skills
- Overall:
 - Student satisfaction was very high (96.2%)
 - Most would like more SBL activities in future
- Sustainable approach to enhancing students' learning experience
- Remained relevant & well received over the study timeframe

Limitations & Future Plans



- Build adaptable, future-proof content
- Enable cross-disciplinary application
- Broaden disease categories
- Consider lower-quality production
- Barrier is still time



**Thank you for
listening**

**Any
Questions?**

kiran.parsons@curtin.edu.au



This research was funded by Curtin
Faculty of Health Sciences

Take-Home Messages

- Resource-conscious SBL can work
- Students love being ***engaged & involved*** in authentic scenarios
- Consider video simulations to enhance your program