

How do repeated in-class team-based activities impact students' cognitive & affective learning & development?

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PHS1101 The Billion-Dollar Pill: Bench to Bedside Drug Development
Foundation / Gateway Undergraduate Course in Pharmaceutical Sciences
AY25/26 Sem 1 Enrolment: 120 Students (65 1st Majors, 55 Non-Majors)

The Challenge / Gap

- 1. (Perceptions of) Struggling with Assessments.
 - 2. Declining In-Class Attendance & Engagement.
- = course structure **may not be sufficiently motivating** with students experiencing low expectancies and perceptions of unsupportive learning environments (Ambrose et al., 2010)

- How can we motivate, engage and help students learn in-class?
- How do we build a community of learning in the classroom that supports collaboration and peer relationship building?

Traces of Evidence

The change was well-executed and effective in engaging students and improving learning and motivation.

Peer Observations:

“... was a **well-executed tutorial** conducted during scheduled lecture time, demonstrating a clearly planned and competently delivered lesson focused on **active engagement**.”

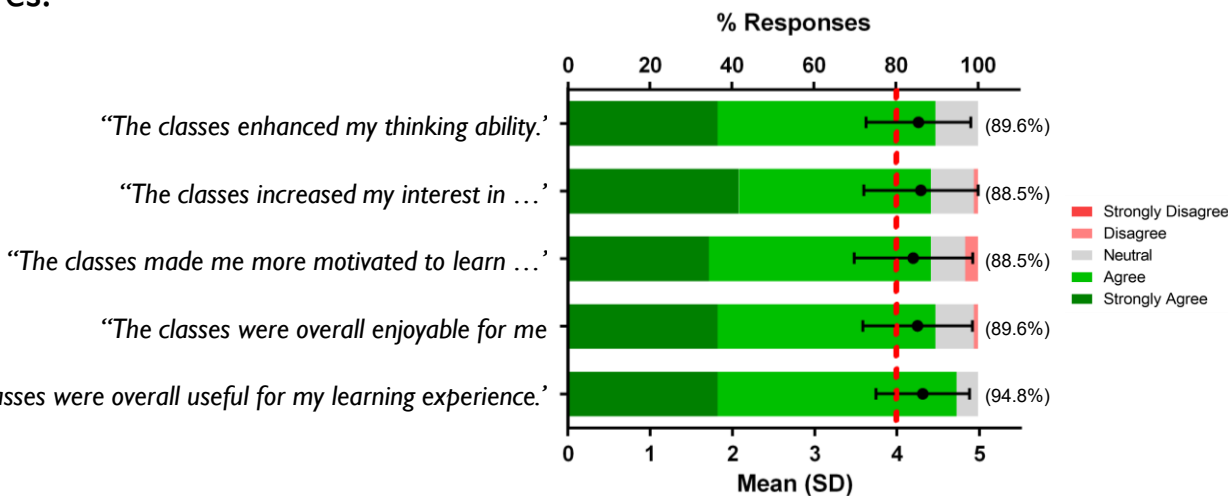
“There was a **high degree of student engagement** where many questions were posed to the class especially during the tutorial/CLW session. Dr. Neo also **engaged the students by having several different activities** (some team-building) throughout the session...”

“The teaching/tutorial session was **interactive** and students were **encouraged to think systematically and critically**.”

Student Feedback:

“... **group discussions** really help aid our learning”

“... having more **tutorials to discuss case studies** were particularly useful because it helped me understand the application of the concepts we learned during the lectures.”



How many classes did you attend in-person? (n = 96)	% Responded	How useful do you find the following modes of learning? (1 = least, 5 = useful) (n = 96)	Mean ± SD	% Selected as Most Useful
Almost all of them	58.3%	In-Person (Face-to-Face) Classes	4.20 ± 0.84	50.0%
More than half of them	32.3%	Webcast Recordings	3.93 ± 1.12	34.4%
Less than half of them	7.3%	Multiple Short e-Learning Videos	3.78 ± 1.01	15.6%
Only a handful / none of them	2.1%			

Further Insights

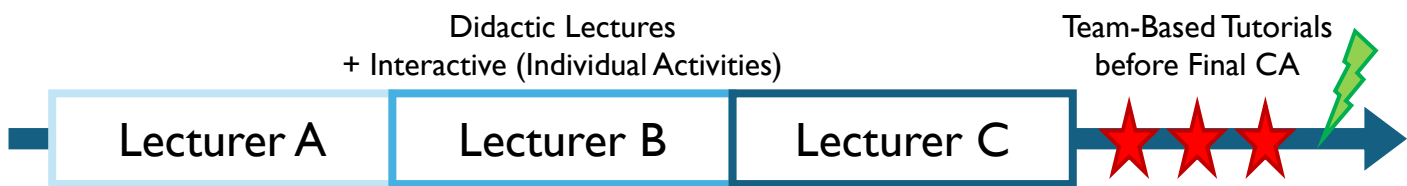
- 1. Effective peer learning depends on task difficulty AND facilitation during activities (Zone of Proximal Development [Vygotsky, 1978]).
- 2. Team-based learning is time intensive (need to balance in-class and out-of-class learning with alignment to broader programme goals).
- 3. Open questions: Are there major-specific differences in impact? Are findings generalizable across multiple cohorts? Do peer relationships persist beyond this course?

Acknowledgements: Thanks to Kiruthika Ragupathi (CTLT) and the Reflective Inquiry in Teaching (RITE) for the feedback and opportunity to present this work.
References: Ambrose, S., et al. (2010). *How learning works: 7 research-based principles for smart teaching*; Vygotsky, L. S. (1978). *Mind in society: The development of the higher psychological processes*.

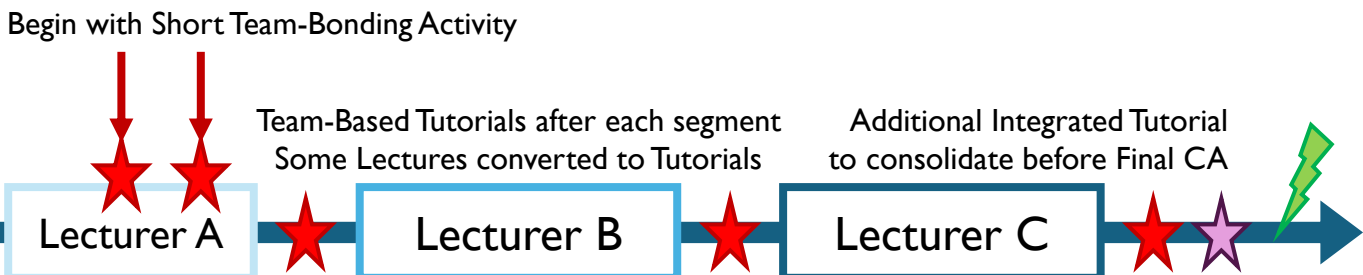
The Small Change

⚡ Final CA ★ Team Tutorial ☆ Integrated Team Tutorial

AY24/25 Sem 1 Course Run:



AY25/26 Sem 1 Course Run:



Team-based learning (TBL) groups foster supportive peer relationships amongst Pharmaceutical Science (PHS) majors.

Who do you (or are most likely to) approach when you need ... (n = 57)

Academic help?

- 1. **TBL Groupmates = 89.8%**
 - 2. Other Peers/Friends/Partners = 52.5%
 - 3. Major Classmates (non-TBL) = 35.6%
- Non-academic help?

- 1. Other Peers/Friends/Partners = 91.5%
- 2. Family/Relatives = 72.9%

3. **TBL Groupmates = 27.1%**

Observation: Students also observed to attend class and sit with their TBL groups even in classes without team-based activities

Relational and social aspects and interactivity emerge as key factors driving students' motivation to attend in-person class.

What motivates YOU to come for classes in-person/face-to-face? (n = 99)

1. **Social and Relational Aspects** (n = 26) including:

- Meeting and interacting with their teammates and instructors;
- Engaging in group discussions and informal conversations, and;
- Socializing (such as having lunch together after class).

2. **Interaction and Engagement** (n = 10) including:

Preference for interactive, activity-based and participatory classes

Student feedback: “i think its quite pointless to have lectures f2f, there shld be more tutorials focusing on how to approach questions”

3. Other Factors including:

- Immediate clarification and feedback (from teacher and peers)
- Maintaining academic pace (learning synchronously)
- Intrinsic value in learning (genuine interest in content)
- Better learning environment (for attention and focus)

Conclusions

Repeated in-class team-based learning appears to benefit both **cognitive and affective domains**.

Students reported **improved understanding** through repeated opportunities to apply concepts collaboratively, while also demonstrating **increased motivation, attendance and peer connectedness**.



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