

Project Title

Does timing matter? The impact of compact versus paced learning in a specialised tertiary hospital pre-registration pharmacist training course

Project Lead and Members

Project lead: Cedric Poh

Project members: Shirley Ng, Joseph Ong

Organisation(s) Involved

KK Women's and Children's Hospital

Project Period

Start date: May 2020

Completed date: Jan 2021

Aims

Hypothesis: Compacting sectional discussions into a 2-week duration at the start of the pre-registration training will increase training efficiency without impacting performance outcomes.

Background

See poster attached/ below

Methods

See poster attached/ below

Results

See poster attached/ below

Lessons Learnt

Challenge #1: Getting buy-in from major stakeholders (section trainers and facilitators)

Effectively pitching to the major stakeholders to gain their support and contribution is crucial for the success of the project. During this process, we first had to pre-seed the idea with the stakeholders by sharing with them our idea in an informal setting and seek their advice. From the conversations, we were also able to learn about the pain points that trainers face, which includes having to repeat discussions multiple times throughout the year to different group of learners. The pre-work done before the actual pitch allowed us to prepare our pitch in a manner that solves the stakeholders' problems and gain buy-in.

Challenge #2: Addressing concerns about pre-registration pharmacists will forget what was taught weeks before their actual in-section training

A common point raised by trainers was the concern that pre-registration pharmacists will not be able to retain effectively what they had learnt during the introductory discussion series. However, we made use of this opportunity to introduce effective learning strategies from a curriculum design perspective. We reassured section trainers that this series would prime the pre-registration pharmacists on the disease conditions and medications they would see during in-section practice and subsequent exposure to these will provide a good opportunity for retrieval practice, thus solidifying long-term memory retention.

Conclusion

The 2-week consolidated introductory discussion series optimised trainers' manhours involved, and allowed higher level learning amongst learners, without increasing learners' burn-out nor impacting performance outcomes.

In the following year, we introduced effective learning strategies (e.g., retrieval practice, interweaving practice, and Pomodoro technique) as part of the new curriculum to the new batch of pre-registration pharmacists for them to learn more optimally during their training. We also shared with pharmacy staff who are passionate and involved in training on tips on remediating struggling learners as well as how to utilise emotional intelligence to develop learners' resilience and reduce burnout through a continuing education session. More components of active learning, rather than passive transfer of information, were also encouraged during the discussions in the following run.

Additional Information

This project does not address confounders such as inter-trainer variability and trainees' individual baseline competence.

Recipient of the Singapore Allied Health Conference (SAHC) 2021 Best Poster award – Future Ready Workforce category

Project Category

Healthcare Training & Education

Keywords

Healthcare Training & Education, Learning Approach, Productivity, Pharmacy, KK Women and Hospital, Future Ready Workforce, Active Learning, Retrieval Practice

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Introduction

KK Women's and Children's Hospital primarily manages obstetrics, gynaecology and paediatric related cases. For the NUS pharmacy graduates, caring for these specialised population may be novel to them.

With a shortened 6-month pre-registration training duration due to a new university curriculum, coupled with the increased healthcare strain during COVID-19 pandemic, it was imperative to optimise the training program's effectiveness and efficiency.

Traditional training method:

- Pre-Registration pharmacists were rotated in pairs to ambulatory care, paediatric acute care, and obstetrics and gynaecology (O&G) acute care.
- Small group introductory discussions were conducted by pharmacists in respective sections.
- This reduced the time for learners to undergo active on-the-job training, and skills application at higher levels as defined in Anderson and Krathwohl's taxonomy¹ (Figure 1).
- Trainers also had to repeat the same discussion up to 6 times throughout each cohort of trainees.

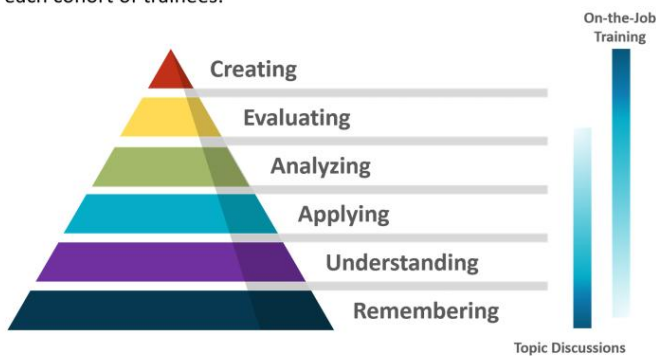


Figure 1. Levels of educational objectives proposed by Anderson and Krathwohl.

Hypothesis: Compacting these discussions into a 2-week duration at the start of the pre-registration training will increase training efficiency without impacting performance outcomes.

Methods

The training programme was revised for the June 2020 cohort of pre-registration pharmacists, to include a consolidated 2-week introductory discussion series prior to sectional rotations (Figure 2).

Effective study techniques were also incorporated. These include:

- Retrieval practice and spaced repetition²
- Priming effect to augment retrieval
- Collaborative learning to reflect the real-world multidisciplinary healthcare setting³



Figure 2a. Introductory topic discussions done at respective section for every new pair

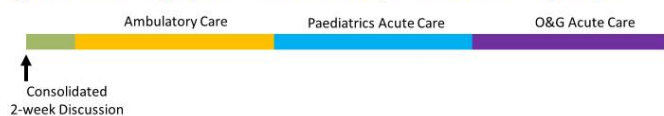
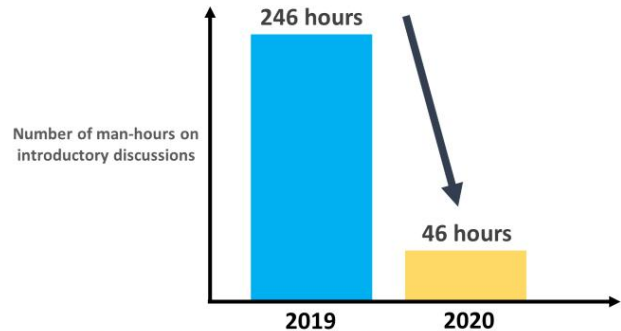


Figure 2b. Consolidated 2-week introductory topic discussions done at the start of pre-registration training

Results

1. Compact training increased efficiency in training.

- Decrease in man-hours on introductory discussions, allowing more time for active learning and application during on-the-job training.



2. Compact training did not increase burnout.

- All trainees agreed that the cognitive load was manageable and had sufficient rest.
- 75% of the trainers agreed that learners were adequately prepared for their sessions.

3. Compact training was not observed to affect mean topic assessment scores.

- No statistically significant difference between mean topic assessment scores of learners from 2019 vs 2020.

Epilepsy



Asthma



Pneumonia



Gastroenteritis



■ 2019
■ 2020

*Mean topical scores were compared using unpaired t-test.

Conclusion and Limitations

The 2-week consolidated introductory discussion series optimised trainers' manhours involved, and allowed higher level learning amongst learners, without increasing learners' burn-out nor impacting performance outcomes.

In future runs, we plan to equip pharmacists with skills on incorporation of effective study techniques when conducting sectional trainings. More components of active learning, rather than passive transfer of information, will also be encouraged during the discussions.

This project does not address confounders such as inter-trainer variability and trainees' individual baseline competence.

References

- 1 Anderson, L.W. and Krathwohl, D.R. *A taxonomy for learning, teaching, and assessing: A revision of Bloom's Taxonomy of Educational Objectives*. New York: Longman; 2011
- 2 Phillips JL, Heneka N, Bhattarai P, Fraser C, Shaw T. Effectiveness of the spaced education pedagogy for clinicians' continuing professional development: a systematic review. *Med Educ*. 2019;53(9):886-902.
- 3 Carstensen SS, Kjaer C, Möller S, Bloksgaard M. Implementing collaborative, active learning using peer instructions in pharmacology teaching increases students' learning and thereby exam performance. *Eur J Pharmacol*. 2020;867:172792.

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