Occupational Therapy Students' Experience of Team Based Learning: a Multi-year Study.

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A Traditional Lecture
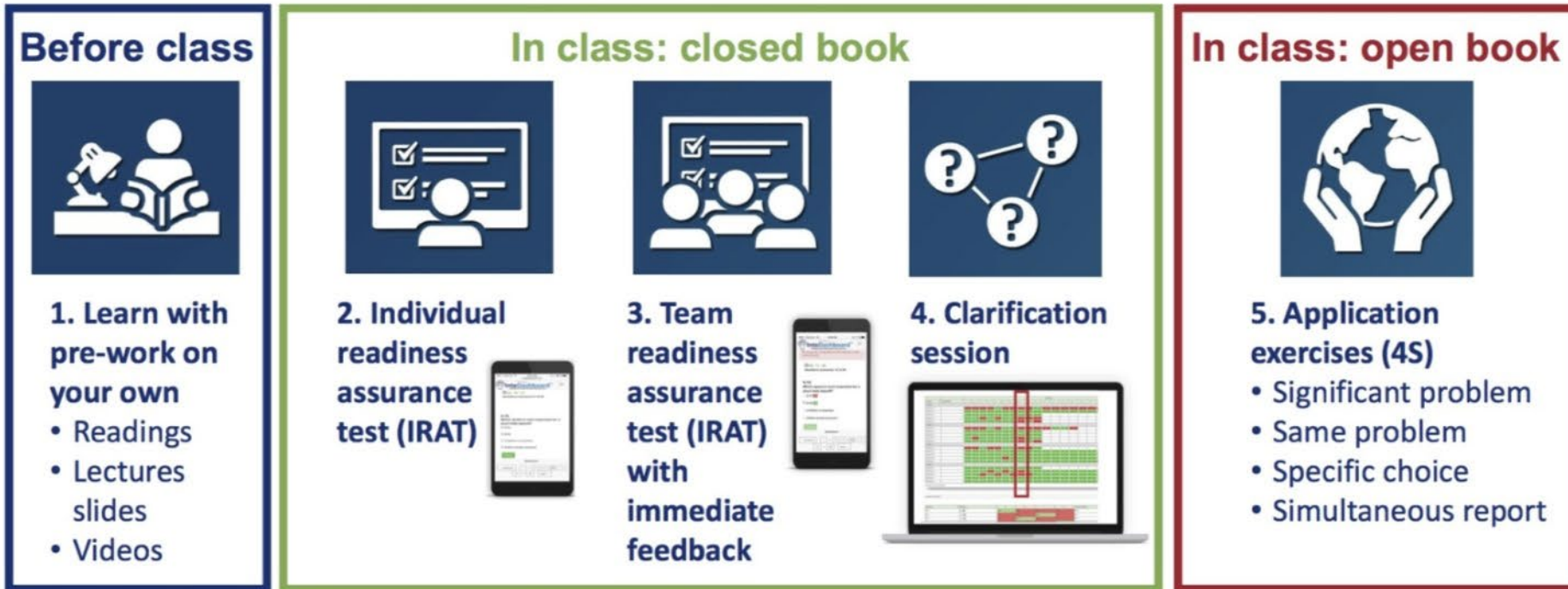

Photo credits: Anthony Chee

Team Based Learning Process

Before class

1. Learn with pre-work on your own
- Readings
- Lectures slides
- Videos

In class: closed book

2. Individual readiness assurance test (IRAT)

3. Team readiness assurance test (IRAT) with immediate feedback

4. Clarification session

In class: open book

5. Application exercises (4S)
- Significant problem
- Same problem
- Specific choice
- Simultaneous report

After class: Appeals and Peer evaluation

Source: Brian O'Dwyer (Adjunct Professor, Embry-Riddle Aeronautical University Commercial Founder and Executive Chairman, CognaLearn), Flipped Classroom Approach Forum, Hong Kong, December 8, 2017

E-Learning Videos

iRAT and tRAT

Name*

Week 1: Intellectual Disabilities

The name of the module, as shown to students.

Date

The date is used for sorting modules within the table on the course page (enter as YYYY-MM-DD or click to select date).

Response type

Team-Based Assessment ⚙ **Change response type**

Students respond individually to all questions in the module, and then gather in their groups and respond as a team to the same questions.

Team assignment
- ⦿ Use the permanent teams from the course
- ○ Let students assign themselves to new teams

Points

In the team round:

Answering correctly on attempt 1 is worth `5` points

Answering correctly on attempt 2 is worth `3` points

Answering correctly on attempt 3 is worth `1` points

(Correct responses in the individual round are worth the maximum number of points.)

+ Allow more attempts   **− Allow fewer attempts**

Team weight

Final score = 70% individual score + 30% team score

Score based solely on individual work ————————▯———————— Score based solely on team work

Responses in each round receive separate grades; for example, credit-bearing responses on two rounds of a three-point question would result in six points overall.

If the Participation Weight is changed, scores of students of the current round, past round/s and future round/s will get changed accordingly.

In class: closed book

2. Individual readiness assurance test (IRAT)

3. Team readiness assurance test (IRAT) with immediate feedback

4. Clarification session
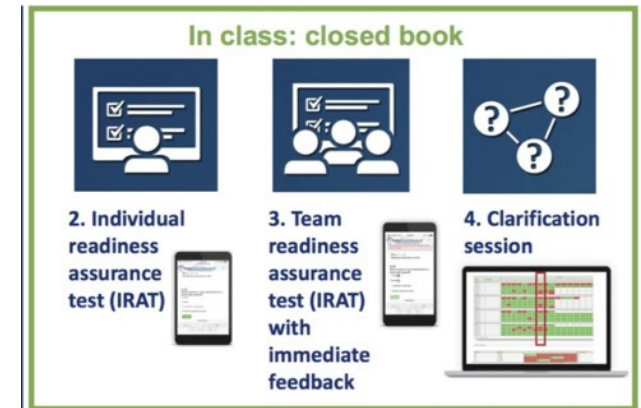
Clarifying Doubts: Q&A and Just-in-Time Lecture

2019 DLS Mental Health

1 | Daily Living Skills Mental Health

What makes KELS unsuitable for use in Long-term stay clients, and what makes MEDLS unsuitable for use in acute clients?

Regarding RTI-E, what does it mean by "the therapist generally score the highest level at which there is a clear pattern of performance"?

Regarding the assessments, does the RTI-E and MCAS be used for long term?

When do we use observational assessments instead of standardized performance based assessments?

2 | Overview of vDT Model of Creative Ability

If motivation can be unconscious, isn't the drive to survive in the stage of positive tone a form of motivation?

Q10. Why is VdTMoCA not considered a cognitive-behavioural frame of reference?

Under self differentiation, it stated: "volition is to explore the envm and differentiate things". Why is this not under motivation?

when we try to place a person in a certain level on the model, do we look at the lowest performing factor of the person? E.g. a person with mild ID but have self-harming tendencies

3 | vdt MOCA Levels

Question 17: Why does VdTMoCA not describes a person's cognitive level of functioning? With reference to the table, the different levels seem to be describing different cognitive ability.

Why does VdTMoCA describes a person's cognitive level of functioning? With reference to the table, the different levels seem to be describing different cognitive ability.

How is VdTMoCA used to grade self, environment and activity? (Q17)

Legend
- Yellow
- Pink
- Green
- Blue
- Purple
- Grey

Stormboard: https://stormboard.com/

In class: open book

5. Application exercises (4S)
- Significant problem
- Same problem
- Specific choice
- Simultaneous report

Team-Based Case Application

Background and Aims of the Study

- Medical and health sciences disciplines have adopted team-based learning as part of their education pedagogy.

- Studies showing increased classroom participation and learner satisfaction.

- Lack of mixed-methods studies that explore the learning experience of occupational therapy students across their undergraduate curriculum.

This study attempted to:

1) explore students' perception and experience of team-based learning.

2) capture changes in student experiences in team- based learning, as they progressed through the three team-based learning clinical modules.

3) explore relationships between students' perception of team-based learning and their academic performance.

Methods

- Two cohorts of students from Academic Year (AY) 2016 and 2017 completed the Team Based Learning Student Assessment Instrument (TBL-SAI) at the two time points.

  1. Baseline survey: end of the first clinical module OTY 2002 Daily Living Skills.
  2. Final survey: end of third clinical module OTY 3002 Play, School and Transition.

- During these surveys, students also completed a semi-structured questionnaire, to obtain qualitative information on their learning experience.
  - Thematic analysis was performed

Team Based Learning Student Assessment Instrument (TBL-SAI)

- A 33-item instrument used to measure students' experience with team-based learning (Mennenga, 2012).

- 3 subscales:

  - Accountability: a higher score indicates a higher level of accountability (24 is neutral).

  - Preference for Lecture or Team-Based Learning subscale: a higher score indicates a preference for team-based learning (48 is neutral).

  - Student Satisfaction subscale: a higher score indicates a higher level of satisfaction with team-based learning (27 is neutral).

- Composite score: a higher score indicates a more favourable experience with team-based learning (99 is neutral).

- Factor analysis conducted to establish the 3 subscales, with overall internal consistency of Cronbach α =0.941 (Mennenga, 2012).

- Accountability, Preference, and Satisfaction subscales obtained Cronbach α = 0.782, 0.893, and 0.942, respectively (Mennenga, 2012).

Open Ended Questions

Q1. Which aspects of team-based learning are the most helpful for your learning?

Q2. Which aspects of team-based learning are the least helpful for your learning?

Q3. Suggest other modes of delivery that may be more suitable for this module (e.g. lecture/tutorial) and explain your reasons. If there is no other more suitable mode of delivery, please indicate why.

Q4. Describe your experience of peer evaluation.

Q5. Please add any other comments you may have about your experience with team-based learning.

Results

- 127 occupational therapy students from both cohorts had full data for baseline and final survey and their data was analysed.

	Cohort	N	Mean	SD
Age	AY16	56	21.29	1.79
	AY17	71	22.20	3.05
Number of Years Worked Prior to Starting OT Programme	AY16	56	0.55	0.89
	AY17	71	1.08	1.99

		Cohort		Total
		AY16	AY17	
Prior Education	'A' Levels	30	27	57
	Degree	0	4	4
	Diploma	26	39	65
	IB	0	1	1
Total		56	71	127

Team Based Learning Student Assessment Instrument (TBL-SAI) Scores

	Mean	Std. Deviation	Neutral Cut-off
Final Accountability Sub-scale	31.42	3.73	24
Baseline Accountability Sub-scale	31.96	3.21	
Final Preference for Team Based Learning sub-scale	49.86	6.65	48
Baseline Preference for Team Based Learning sub-scale	50.95	6.28	
Final Student Satisfaction sub-scale	31.82	5.27	27
Baseline Student Satisfaction sub-scale	32.82	5.10	
Final Composite Score	113.09	12.84	99
Baseline Composite Score	115.73	12.37	

- At final survey, Paired T-test showed statistically significant reduction in TBL-SAI:

  ➢ Preference for Team based Learning sub-scale: t(126)= -2.74,p = 0.01
  ➢ Student Satisfaction sub-scale: t(126)= -3.32, p = 0.00
  ➢Composite scores: t(126)= -3.91, p = 0.00

- However, the final scores were still higher than neutral.

Effect of Prior Education on Positive Change in Team-Based Learning Experience

- One-way ANOVA showed a significant effect of prior education on positive change in TBL-SAI composite scores [$F(2, 124) = 3.76$, $p = 0.03$].

- Post hoc comparisons using the Tukey HSD test indicated that those with A' Levels qualifications had significantly more positive change in TBL-SAI composite scores than those with degree qualifications ($p=0.02$).

- No significant differences in baseline TBI-SAI subscale and composite scores among the students with different prior education qualifications.

Relationships Between Perception of Team-based Learning and Academic Performance

- Among the AY2017 cohort (n=71), Spearman's rho showed moderate positive association between Accountability sub-scale baseline score and academic results (r = 0.32, p = 0.00).

- Accountability sub-scale
  - Describes the extent that students prepare in advance for a class and/or contribute to other members of the team (Mennenga, 2012).

Qualitative Results

- Qualitative analysis was performed to answer the first aim of the study:
  - To explore students' perception and experience of team-based learning.

- 4 themes were generated:

The power of discussion	Change in learning process and outcome
Time use	Tailoring aspects of TBL to enhance learning

Qualitative Results

- Discussions could be viewed positively or negatively.

- Most students shared that the opportunity to discuss was beneficial as they got to hear about different perspectives.

  - "*Discussion with my team helps me to understand a question from different perspectives and allow opportunities for attempts in critical thinking and clinical reasoning to get the best answer*" (AY1728)

- Some felt that discussions created feelings of uncertainty as they were not sure whether their understanding was accurate.

  - "*Sometimes we are all unsure of a the topic we are discussing as they are information that we learn on our own and there is no conclusion.*" (AY1774)

Qualitative Results

Time use

Students felt that there was not enough time for case study discussion, despite the class being 3 hours in duration.

"*sometimes the case studies can be a bit rushed, the time for discussion and clarity of understanding may be compromised due to the rush*." (AY1779)

Qualitative Results

Change in learning process and outcome

- Students shared that their learning process had changed and they gained a deeper understanding of the subject.

  - *"When we explain the reasoning behind the answers we chose for tRAT, it helped us to understand better as everyone explain in their own ways (yet similar) but come to the same conclusion."* (AY1742)

- One student stated explicitly that TBL made learning fun.

  - *"It is helpful when everyone listed out their doubts about certain issue/topic, after that we will all discuss together. From this, we learn together as a team and when peers explain to you the concept in their own terms, it makes learning fun and easier to understand."* (AY1712)

Qualitative Results

Tailoring aspects of TBL to enhance learning

- Students gave suggestions to the style and structure of group discussions and time management.

- Students preferred discussion group sizes to be smaller.

- Due to the uncertainty in the accuracy of content generated from group discussions, students suggested to add sessions that could reconfirm the accuracy of their knowledge.

  - *"A mini lecture to go through key points of the reading materials will be good. This helps us in getting a clearer overview of what we have to know out of the many reading materials we have to read."(AY1728)*

  - *"Some lectures, to allow us to better identify and understand important information that we don't understand*." (AY1717)

Discussion and Conclusion

- Harnessing power of discussion and reinforce concepts through instructor-facilitation as well as clarification sessions:
  - ➢Question and answer session using Stormboard.
  - ➢Just-in-Time lectures.

- Faculty buy-in for team-based learning.
  - ➢Time management
  - ➢Reinforcing pertinent information.

- Team Size
  - ➢Around 5 for case-based discussions.

Students have attempted at least.....

497 iRAT questions by Year 3!
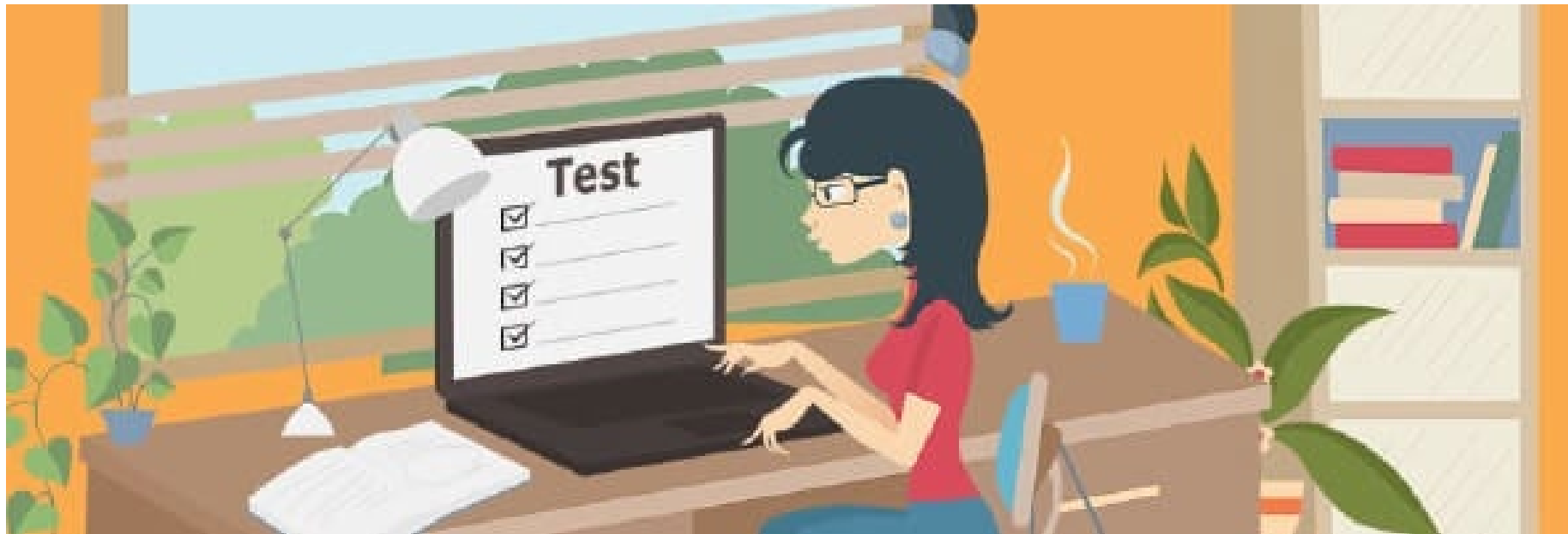
Acknowledgements

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The End