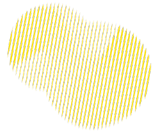


# Online Movement Instruction for Skill Acquisition: A Peer Evaluation Approach

**Presented by Jessica Bellamy & Dr Rachel Ward**  
**Faculty Medicine, School of Medical Sciences, Department of Exercise Physiology**

Office of the PVCESE  
2020 Learning and Teaching Forum – “Learning without limits: Leading the change”





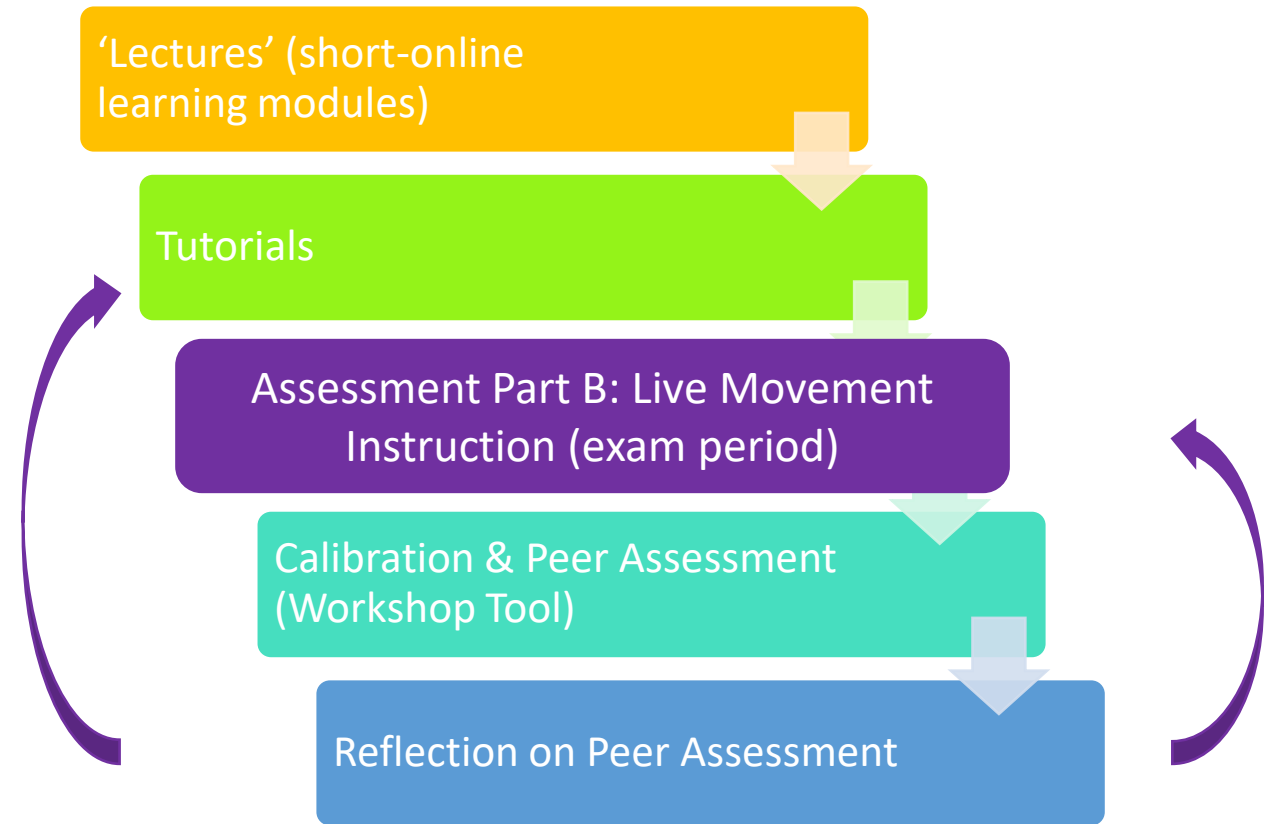
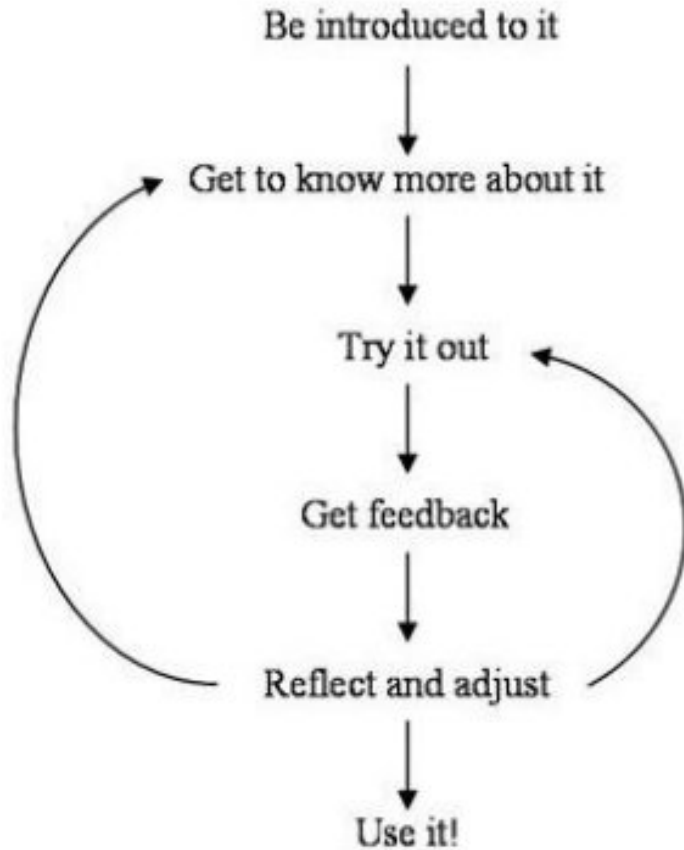
# Why movement instruction?

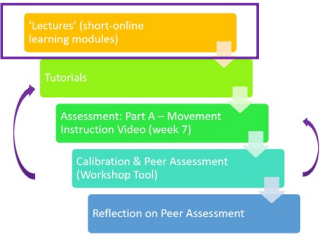
- Exercise Physiologists require the skills to effectively instruct patients in evidence-based exercises in the prevention and management of lifestyle related diseases
- HESC2452 Movement Assessment & Instruction is a 2<sup>nd</sup> year core subject designed to assist students develop skills to effectively facilitate patient conversion of verbal instruction and visual observation into meaningful goal-directed movement
- Assess student's ability to demonstrate appropriate and effective teaching, feedback and motivational strategies in movement instruction



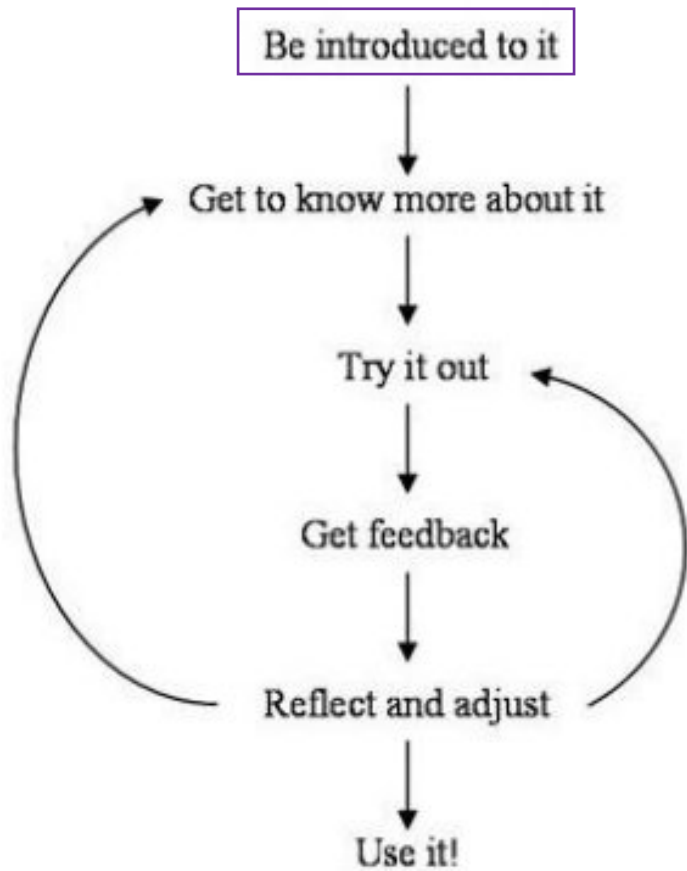


# Evidence-based practice of motor learning





# Evidence-based practice of motor learning



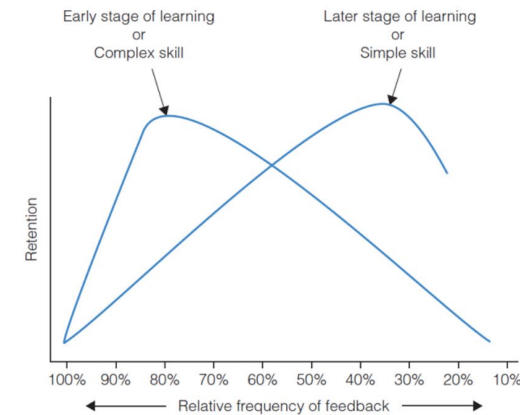
OUTLINE

Search

- 8. PRECISION OF FEEDBACK
- 9. PRECISION OF FEEDBACK
- 10. TIMING OF FEEDBACK
- 11. TIMING OF FEEDBACK
- 12. TIMING OF FEEDBACK - EXAMPLES
- 13. FREQUENCY OF FEEDBACK
- 14. FREQUENCY OF FEEDBACK
- 15. FREQUENCY OF FEEDBACK
- 16. FREQUENCY OF FEEDBACK
- 17. SCHEDULES FOR FADING FEEDBACK

## FREQUENCY OF FEEDBACK

- The effect of the frequency of feedback is dependent on the experience of the learner and the complexity of the task



Source: Edwards (2011), Figure 12.6, page 471.

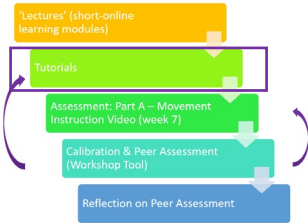
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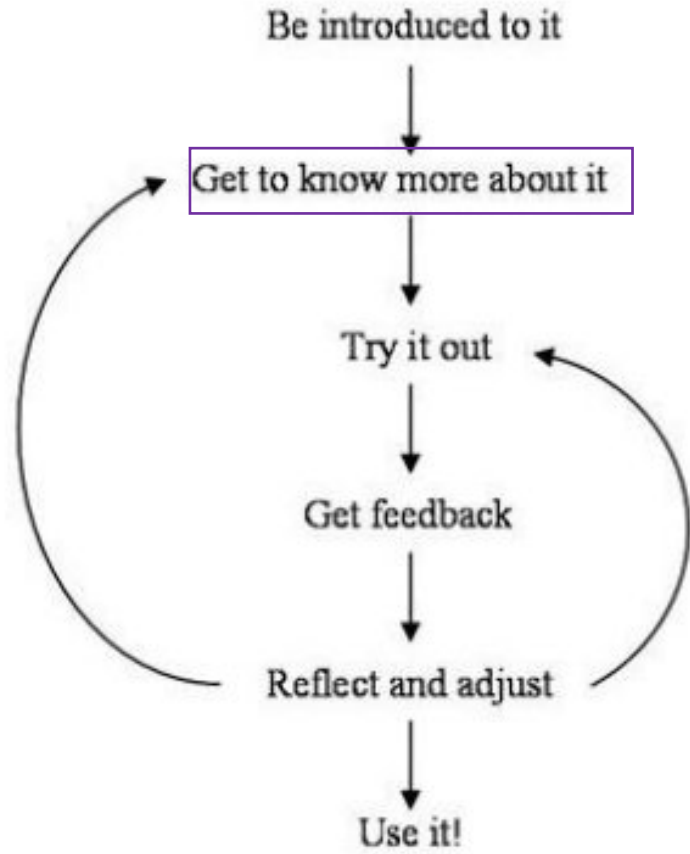


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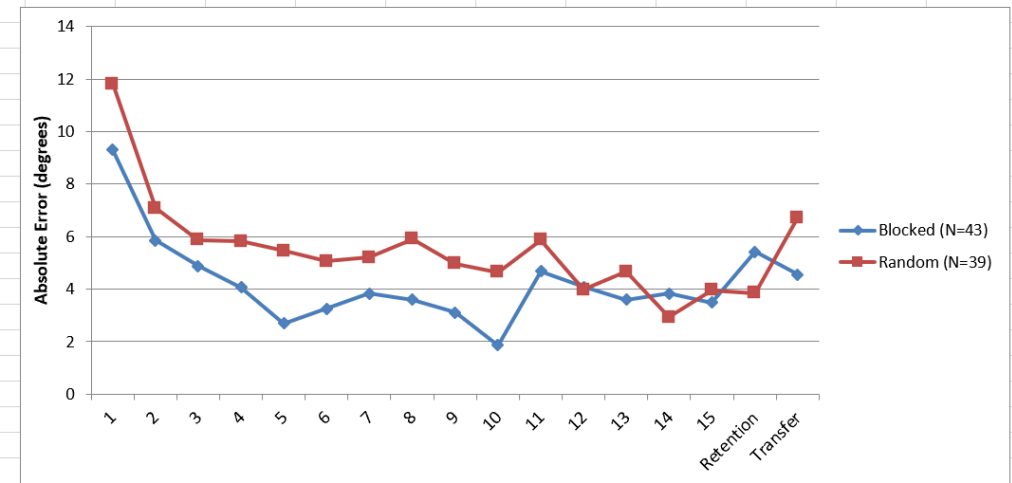




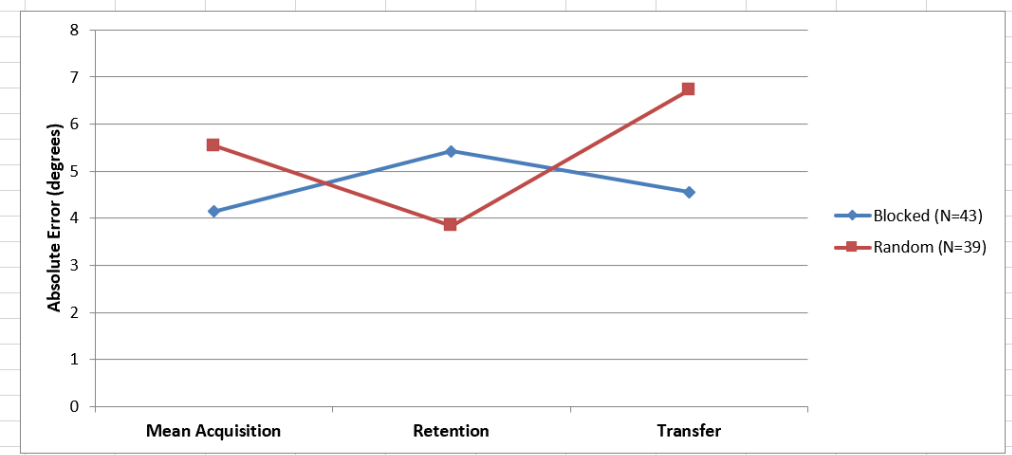
# Evidence-based practice of motor learning

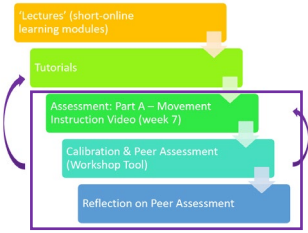


	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1															
2	<b>Trial</b>	<b>Blocked (N=43)</b>	<b>Random (N=39)</b>												
3	1	9.3	11.8												
4	2	5.9	7.1												
5	3	4.9	5.9												
6	4	4.1	5.8												
7	5	2.7	5.5												
8	6	3.3	5.1												
9	7	3.8	5.2												
10	8	3.6	5.9												
11	9	3.1	5.0												
12	10	1.9	4.6												
13	11	4.7	5.9												
14	12	4.1	4.0												
15	13	3.6	4.7												
16	14	3.8	2.9												
17	15	3.5	4.0												
18	Retention	5.4	3.8												
19	Transfer	4.6	6.7												

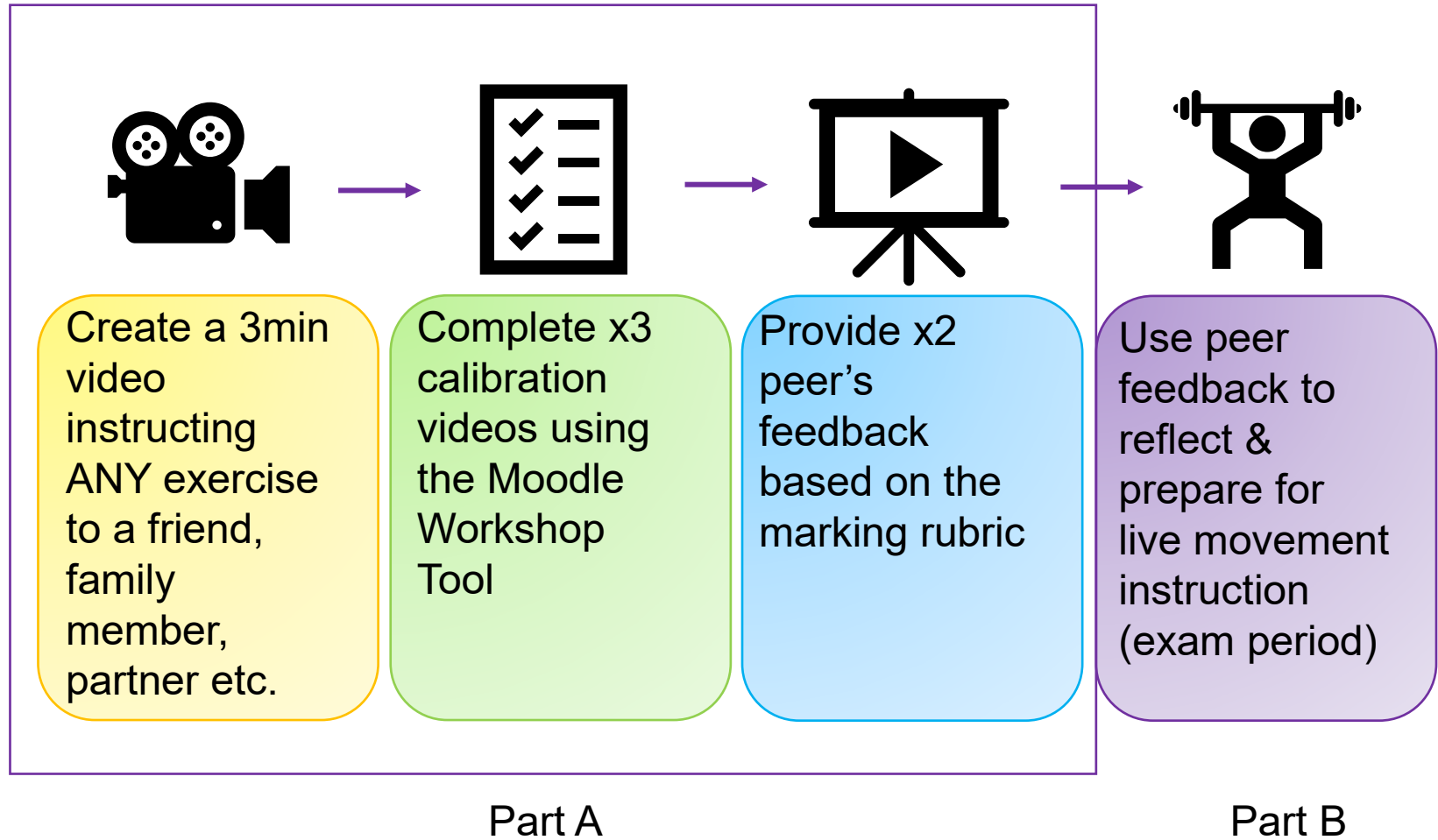
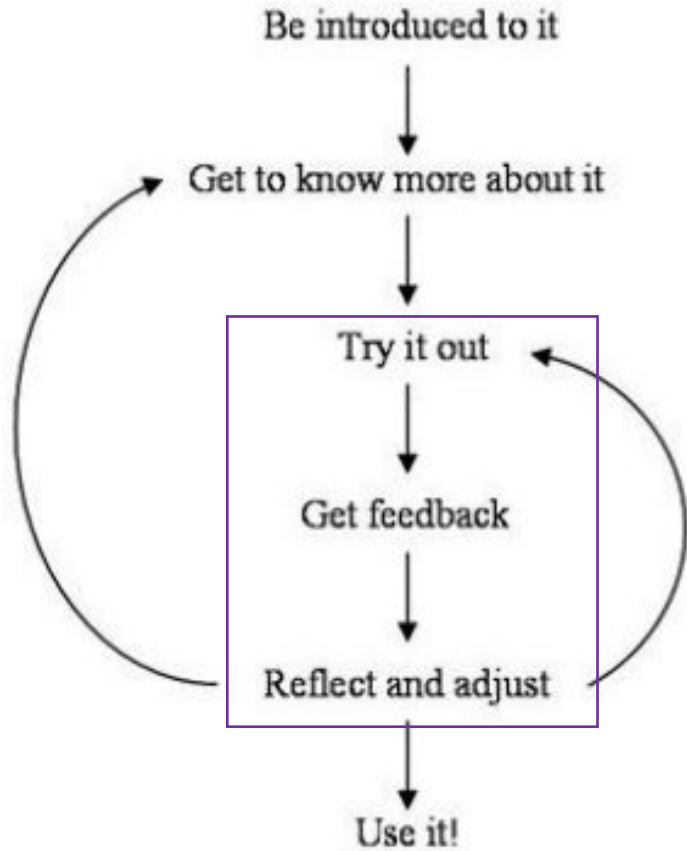


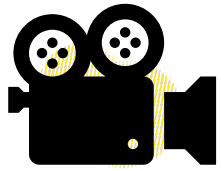
Trial	Blocked (N=43)	Random (N=39)
Mean Acquisition	4.1	5.5
Retention	5.4	3.8
Transfer	4.6	6.7





# Online Movement Instruction Using Peer Evaluation





# Online Movement Instruction Using Peer Evaluation

Step 1: Each student to create a short 3min video of themselves instructing an exercise of their choice



	Absent 0 marks	Developing 1 mark	Proficient 2 marks	Advanced 3 marks
<b>Instruction</b>	Very poor instruction  Incorrect and inappropriate critical features presented	Poor instruction. Too many OR too little critical features given  Lack of clarity and emphasis on critical features  Too rushed.  Seemed uncertain on how to phrase instruction	Good instruction. Well timed  Correct & appropriate critical features explained  Only 2-3 critical features focused on  Summarised instruction before learner first practice	Excellent instruction. Correct & appropriate critical features explained  Only 2-3 critical features focused on  Excellent repetition of critical features, summarised well before learner first practice  Included external focus of attention
<b>Demonstration</b>	Did not demonstrate at all  Only partial demonstration	Completed demonstration, but very rushed, or very poor technique  Demonstration does not complement verbal instruction	Completed demonstration  Good pace and technique  Compliments all verbal instruction  More than one demonstration completed	Good pace & technique of demonstration  Compliments all verbal instruction  More than one demonstration completed, with at least one 'primer'  Strategic placement of learner for optimal observation of demonstration
<b>Feedback</b>	Minimal or no feedback given  Just said "very good" or similar	Minimal "descriptive" feedback given (e.g. information on specific positive or negative)  Too much "prescriptive" feedback given (e.g. information on how to improve)	Good mix of "descriptive" and "prescriptive" feedback given  Good use of "sandwich effect" in feedback delivery	Good mix of "descriptive" and "prescriptive" feedback given  Good use of "sandwich effect" in feedback delivery  Feedback relates to critical features  Summarises feedback at end of session



# Online Movement Instruction Using Peer Evaluation

## Step 2: Calibration

### Movement Instruction Skills Assessment - Part A Submission

#### Setup phase

Setup phase Current phase ●	Submission phase Switch to the submission phase ○	Calibration phase Switch to the calibration phase ○	Assessment phase Switch to the assessment phase ○	Grading evaluation phase Switch to the evaluation phase ○	Closed Close Workshop (UNSW) ○
<ul style="list-style-type: none"><li>✓ Set the Workshop (UNSW) description</li><li>✓ Provide instructions for submission</li><li>✓ Edit assessment form</li><li>✓ Prepare example submissions</li><li>✗ Switch to the next phase</li></ul>	<ul style="list-style-type: none"><li>✓ Provide instructions for assessment</li><li>✗ Allocate submissions expected: 109 submitted: 110 to allocate: 1</li><li>ⓘ Open for submissions from Monday, 6 July 2020, 9:00 AM (135 days ago)</li><li>ⓘ Submissions deadline: Monday, 20 July 2020, 9:00 AM (121 days ago)</li><li>ⓘ Late submissions are allowed</li><li>ⓘ Time restrictions do not apply to you</li></ul>	<ul style="list-style-type: none"><li>✗ Calculate calibration scores</li><li>ⓘ 109 / 109 users have completed example assessments.</li></ul>	<ul style="list-style-type: none"><li>✓ Assess peers total: 22 pending: 0</li><li>ⓘ Open for assessment from Monday, 27 July 2020, 9:01 AM (114 days ago)</li><li>ⓘ Assessment deadline: Friday, 31 July 2020, 5:00 PM (110 days ago)</li><li>ⓘ Time restrictions do not apply to you</li></ul>	<ul style="list-style-type: none"><li>✗ Calculate submission grades expected: 109 calculated: 108</li><li>✓ Calculate assessment grades expected: 109 calculated: 111</li><li>✗ Provide a conclusion of the activity</li></ul>	

#### Description ▼

Students will be required to submit a short video of themselves instructing one (1) exercise to a friend/housemate/partner/family member etc. Students will then assess two (2) peer video submissions, using a marking rubric and calibration tool.

#### Learning Outcomes

- Perform qualitative analysis of movement by identifying appropriate critical features, goals, skills, and abilities associated with a particular movement.
- Identify and describe anatomical, functional and biomechanical information about an exercise, and the critical features required for effective movement instruction.
- Effectively communicate information to clients and patients in training and rehabilitation programs.
- Demonstrate appropriate and effective teaching, feedback and motivational strategies for the movement instruction.

#### Example submissions ▼

What does this mean? ?







# Online Movement Instruction Using Peer Evaluation

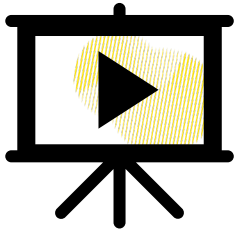
Movement Instruction Skills Assessment - Part A Submission

Grading evaluation phase

Setup phase <a href="#">Switch to the setup phase</a>	Submission phase <a href="#">Switch to the submission phase</a>	Calibration phase <a href="#">Switch to the calibration phase</a>	Assessment phase <a href="#">Switch to the assessment phase</a>	Grading evaluation phase Current phase ●	Closed <a href="#">Close Workshop (UNSW)</a>
<ul style="list-style-type: none"> <li>✓ Set the Workshop (UNSW) description</li> <li>✓ Provide instructions for submission</li> <li>✓ Edit assessment form</li> <li>✓ Prepare example submissions</li> </ul>	<ul style="list-style-type: none"> <li>✓ Provide instructions for assessment</li> <li>✗ Allocate submissions expected: 109 submitted: 110 to allocate: 1</li> <li>ⓘ Open for submissions from Monday, 6 July 2020, 9:00 AM (135 days ago)</li> <li>ⓘ Submissions deadline: Monday, 20 July 2020, 9:00 AM (121 days ago)</li> <li>ⓘ Late submissions are allowed</li> <li>ⓘ Time restrictions do not apply to you</li> </ul>	<ul style="list-style-type: none"> <li>✗ Calculate calibration scores</li> <li>ⓘ 109 / 109 users have completed example assessments.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Assess peers total: 22 pending: 0</li> <li>ⓘ Open for assessment from Monday, 27 July 2020, 9:01 AM (114 days ago)</li> <li>ⓘ Assessment deadline: Friday, 31 July 2020, 5:00 PM (110 days ago)</li> <li>ⓘ Time restrictions do not apply to you</li> </ul>	<ul style="list-style-type: none"> <li>✗ Calculate submission grades expected: 109 calculated: 108</li> <li>✓ Calculate assessment grades expected: 109 calculated: 111</li> <li>✗ Provide a conclusion of the activity</li> <li>✗ Switch to the next phase</li> </ul>	

Julian 66.1%	Julian Caillon z5022877 Video modified on Sunday, 19 July 2020, 7:13 PM	36.7 (0.0) <  Jessica Bellamy	<del>46.9</del> 46.0	44.0 (20.1) >  Hannah Ansell	20.1	
		51.3 (19.9) <  Thi Ngoc Quyen Dang				
		36.7 (28.3) <  Brishna Shah				51.3 (20.1) >  Dana Sutherland
		58.7 (17.0) <  Anne Louise Wells				

Katarina Markovic 83.5%	Movement Instruction Skills Video -z5207643 modified on Sunday, 19 July 2020, 10:19 PM	51.3 (24.3) <  Maria Chalhoub	59.2	44.0 (24.3) >  Ricky Luangrath	24.3
		66.0 (28.3) <  Thomas Fergusson			



# Online Movement Instruction Using Peer Evaluation

## Step 3: Provision of peer feedback

iESC2452-5206\_00690 > Assessments > ... Instruction Skills Assessment - Part A Submission

### Movement Instruction Skills Assessment - Part A Submission

#### Assessment phase

Setup phase Switch to the setup phase	Submission phase Switch to the submission phase	Calibration phase Switch to the calibration phase	<b>Assessment phase</b> Current phase	Grading evaluation phase Switch to the evaluation phase	Closed Close Workshop (UNSW)
<ul style="list-style-type: none"> <li>✓ Set the Workshop (UNSW) description</li> <li>✓ Provide instructions for submission</li> <li>✓ Edit assessment form</li> <li>✓ Prepare example submissions</li> </ul>	<ul style="list-style-type: none"> <li>✓ Provide instructions for assessment</li> <li>✗ Allocate submissions expected: 109 submitted: 110 to allocate: 1</li> <li>ⓘ Open for submissions from Monday, 6 July 2020, 9:00 AM (135 days ago)</li> <li>ⓘ Submissions deadline: Monday, 20 July 2020, 9:00 AM (121 days ago)</li> <li>ⓘ Late submissions are allowed</li> <li>ⓘ Time restrictions do not apply to you</li> </ul>	<ul style="list-style-type: none"> <li>✓ Calculate calibration scores</li> <li>ⓘ 109 / 109 users have completed example assessments.</li> </ul>	<ul style="list-style-type: none"> <li>✓ Assess peers total: 22 pending: 0</li> <li>ⓘ Open for assessment from Monday, 27 July 2020, 9:01 AM (114 days ago)</li> <li>ⓘ Assessment deadline: Friday, 31 July 2020, 5:00 PM (110 days ago)</li> <li>ⓘ Time restrictions do not apply to you</li> <li>✓ Switch to the next phase</li> </ul>	<ul style="list-style-type: none"> <li>✓ Calculate submission grades expected: 109 calculated: 108</li> <li>✓ Calculate assessment grades expected: 109 calculated: 111</li> <li>✓ Provide a conclusion of the activity</li> </ul>	

Submit on behalf of others

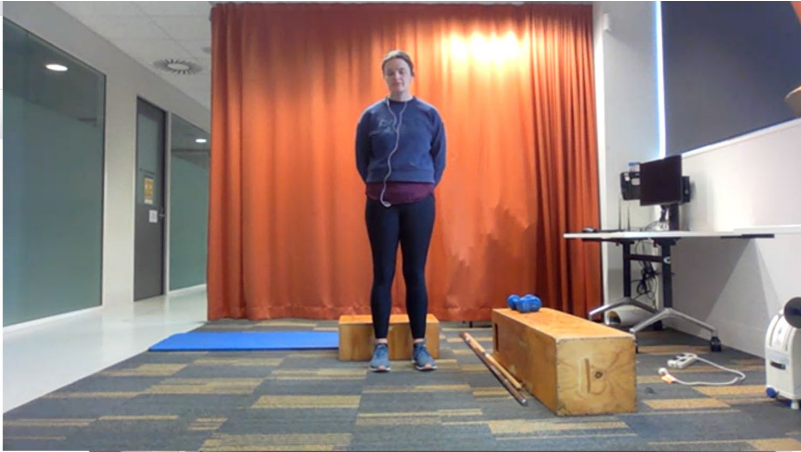
Choose...

#### Workshop (UNSW) grades report

First name / Surname	Submission / Last modified	Grades received	Grades given
Christopher Aguirre	PART A: Instructional video modified on Sunday, 19 July 2020, 9:57 PM	58.7 (21.5) < Alyssa Montauti 51.3 (19.9) < Caitlin Pham	66.0 (24.3) > Kevin Duong 51.3 (24.3) > Vaishnavi Pasupati
Hannah Ansell	Chest Press - Movement Instruction Skills Assessment modified on Sunday, 19 July 2020, 2:18 PM	44.0 (20.1) < Julian Caillon 44.0 (28.3) < Emily Wu	51.3 (28.3) > Mathew Khalil 58.7 (28.3) > Anurag Pandit
Esther Attia	Bulgarian split squat modified on Saturday, 18 July 2020, 9:51 PM	36.7 (0.0) < Jessica Bellamy 29.3 (19.9) < Isabelle Ly 51.3 (21.5) < Christhanta Michael	36.7 (21.5) > Jacinta Fletcher 36.7 (21.5) > Dominic Hedley
Anindita Auishee	Anindita Auishee (5214807) modified on Sunday, 19 July 2020, 10:24 PM	51.3 (13.2) < Raiyan Islam 51.3 (20.1) < Mary-Rebecca Megalaa	58.7 (24.3) > Sasha Neitman 36.7 (24.3) > Vaishnavi Pasupati
Kai Baxter	Kai Baxter Video Submission - 5165831 modified on Sunday, 19 July 2020, 10:32 PM	22.0 (0.0) < Jessica Bellamy 58.7 (21.5) < Patrick Congiusta 22.0 (28.3) < Brishna Shah	66.0 (19.9) > Maria Chalhoub 51.3 (19.9) > Rachel Whittet
Kennedy Boadi	Part A modified on Sunday, 19 July 2020, 9:54 PM	36.7 (0.0) < Jessica Bellamy 26.7 (21.5) < William Tuong	36.7 (19.9) > Lisa Cai



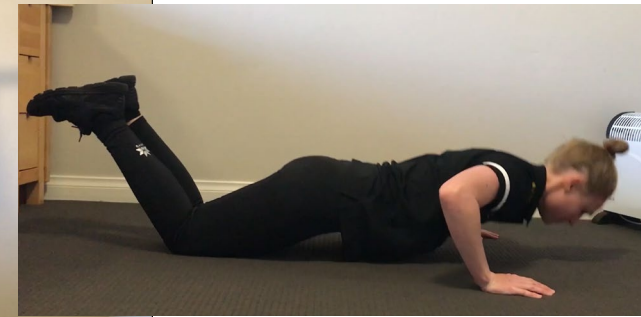
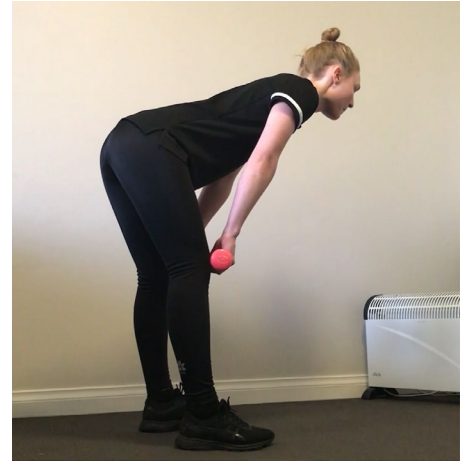
# Live Movement Instruction



Video call interface showing two participants:

- Top: Circular profile of Jessica Bellamy, a woman with blonde hair wearing a blue shirt.
- Bottom: Circular profile of Meg Letton, a woman with dark hair wearing a grey patterned top.

Play button and video controls are visible at the bottom of the interface.



Julian: Part A: 66.1% - Part B: 92.5%  
Katarina: Part A: 83.5% - Part B: 92.5%



# Student Feedback





# Student Feedback

- ***“Peers are not qualified or experienced with marking other student's submissions which affect our WAM”.***
- ***“It was **unfair** for students to receive their mark for Part A of the movement instruction assessment from other students who did not follow the marking criteria and marked others down.***
- ***“Peer's marks could potentially be biased (as they knew exactly who was in the video) going towards our grade”.***
- ***“A lot of us lost quite a few marks for our movement analysis video which **wouldn't have been deducted** provided the tutors had marked it”***
- ***“Peer marking is a great experience, however, perhaps the **tutors with the knowledge, qualifications and experience could provide more accurate feedback** and marks that go towards our grade book for an assignment”.***



# Student Feedback

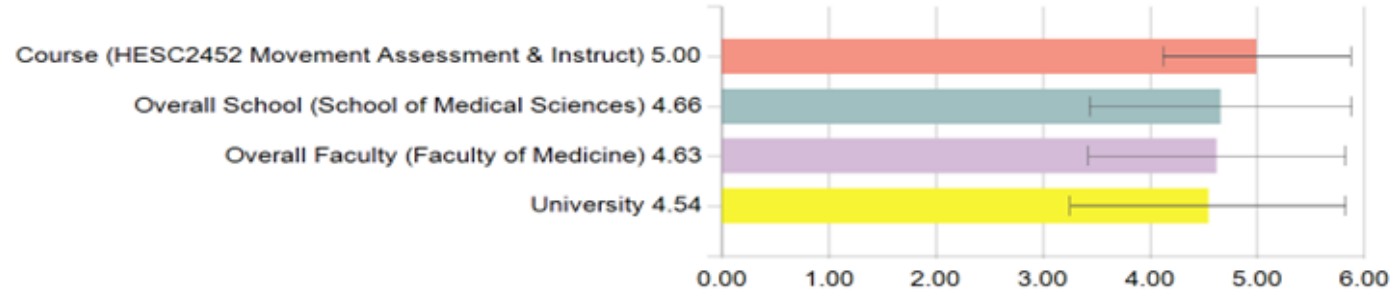
- *“The movement instruction video really **allowed for creativity** and application of scientific/clinical knowledge in a practical setting which will help a lot when we complete placement and graduate as Exercise Physiologists”.*
- *“I think the course **adapted well to being online.**”*
- *“Being online is very hard doing practical subjects – but **for this specific unit it wasn't the worst**”.*



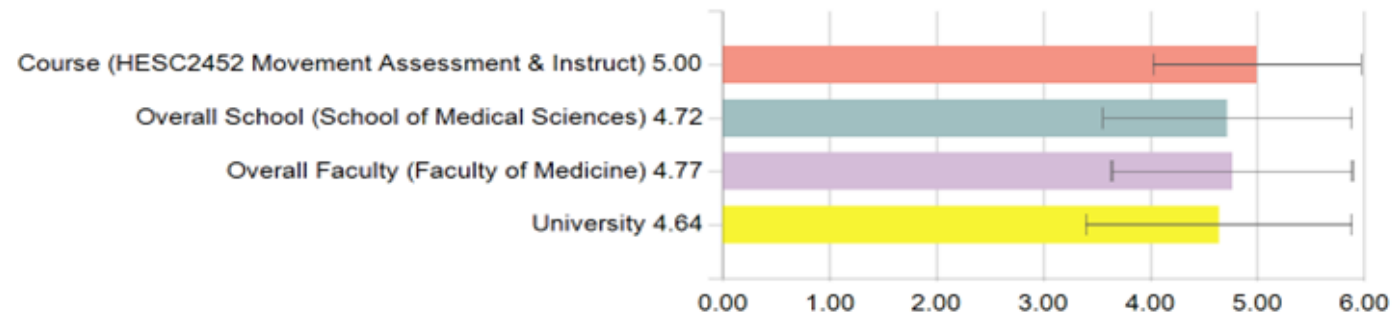


# Student Feedback

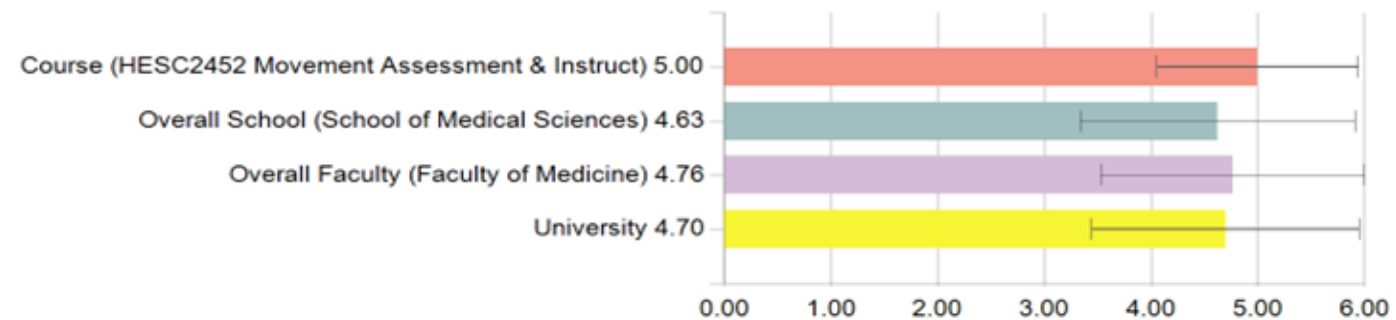
## 2. I developed my ability to work effectively with others online



## 3. I felt part of an online learning community



## 4. The feedback helped me learn

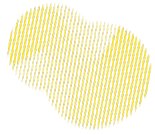




# Conclusion

- This online assessment design allowed us to **address student desire for increased movement instruction** practice while maintaining a COVID-safe environment.
- The Moodle Workshop tool **allowed for near automation of assessment marking**
- Despite student concern about peer marks contributing to the final grade, student myExperience data indicated that **78.2% of students agreed or strongly agreed that the “feedback helped them learn”**
- The assessment design allowed students to engage more deeply with the motor learning process, with **performance in the final live movement instruction improving from previous years.**
  - 2018 mean = 64.7%;    2019 mean = 66.1%;    2020 mean = 69.0%.
- Future delivery would be improved by **more effective communication to students** that the specific purpose of the calibration phase is to mitigate the effects of any biased or inaccurate peer marking, this would **alleviate student concern.**





# Thank you

- HESC2452 students
  - Julian Caillon
  - Katarina Markovic

## Questions?

