

**Online workshops  
improve student  
engagement.**

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*British Educational Research Journal*

*Vol. ●●, No. ●●, ●● 2013, pp. ●●–●●*

DOI: 10.1002/berj.3121

# Theorising student engagement in higher education

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Student engagement has become problematic following the rise of mass and universal forms of higher education. Significant attention has been devoted to identifying factors that are associated with higher levels of engagement, but it remains the case that the underlying reasons for student engagement and, indeed, the notion itself of ‘student engagement’ remain weakly theorised. In this article, we seek to develop the theoretical basis for student engagement in a way that highlights the student’s own contribution. We explore how learning involves students taking responsi-





# 4014SPOSCI Psychological Foundations

1) Measuring  
Motor Behaviour

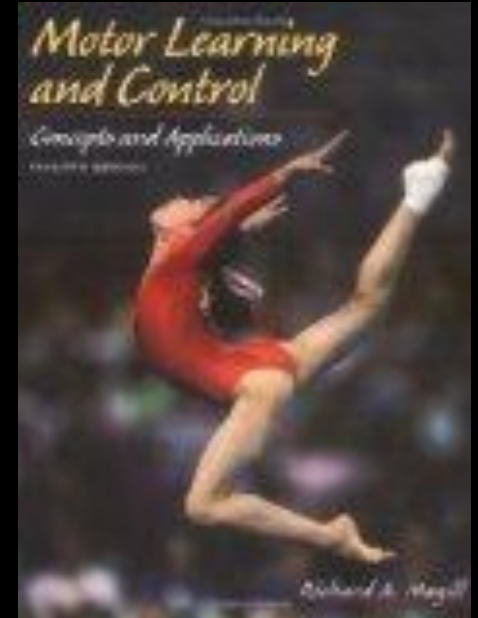
2) Motor Learning  
Assessment

3) Augmented  
Feedback

4) Practice  
Variability

5) Observational  
Learning

6) Perceptual  
Cognitive Skill



Programme	Number of Students
Sport Science	260
Applied Sport Psychology	40
Science and Football	40
<b>Total</b>	<b>340</b>

## Lecture Slides



### 4014Wk5LearningAssessment

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### 4014MotorLearningAssessmentWorkshop2

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### 4014MotorLearningAssessmentWorkbook2

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### 4014MotorLearningAssessmentExperiment2

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# 4014sposci Psychological Foundations

## Augmented Feedback Chapter 15 (Magill)

### Knowledge of results (KR)

- External = outcome (quantification)
  - Golf Putting
    - miss
    - >+5 cm from hole (constant error)
  - Knee extension in a transplant patient or injured athlete (+3 degrees) (e.g., Graph, Figure)
  - Quantify outcome?
- Not sensory feedback about the task goal
- \*we can distinguish between KR and sensory\*
- KR = information (not a reward)
  - Cognitive processing

- B. Augmented feedback can enhance skill acquisition
  - Complex skills – acquisition of a specific coordination pattern
    - KP facilitates the process of learning (enhances learning) – why?

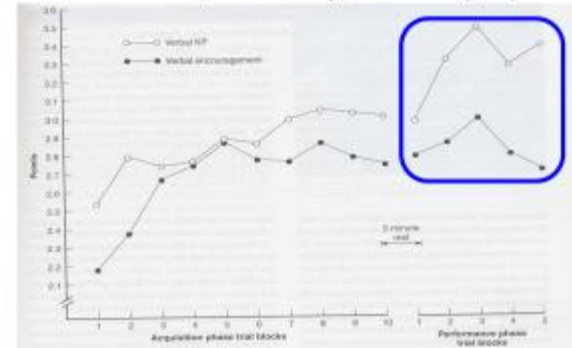
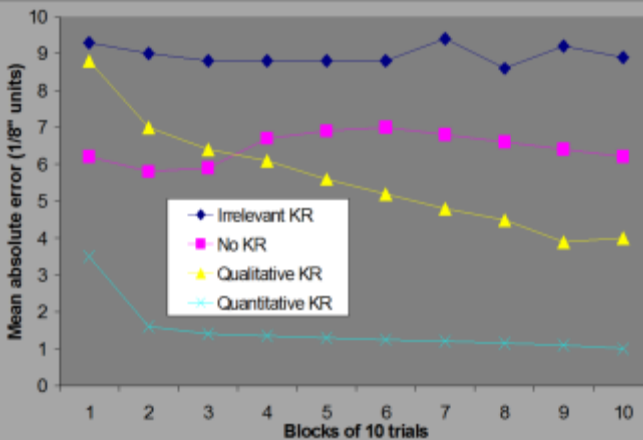


FIGURE 15.2 Error rates of the expert bowler for Verbal KP and Verbal encouragement for learning a skillful skill. (Magill, 1991, Psychological Foundations of Sport and Exercise, 2nd ed., pp. 200-201. Copyright © 1991 by the American College of Health, Physical Education, Recreation and Dance, 1900 Association Drive, Reston, VA 20191.)

### Quantitative v Qualitative KR: Trowbridge and Cason (1932)



### Theory and (erroneous) KR

- Is KR used in early learning?
- Experiment by Magill et al. (1991)
  - Coincidence-anticipation timing task
  - No KR and KR
  - Press a switch (simulate a racket) to coincide with red light hitting yellow target... 'anticipate/prediction'

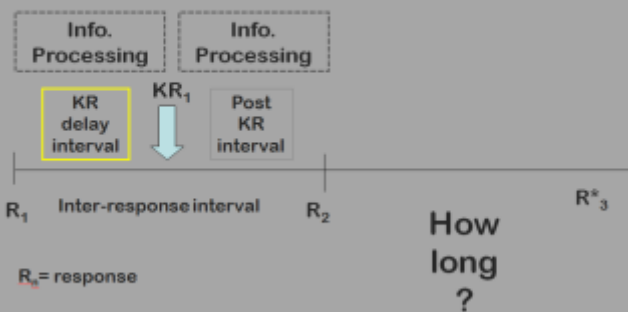


### Timing issues related to Augmented feedback



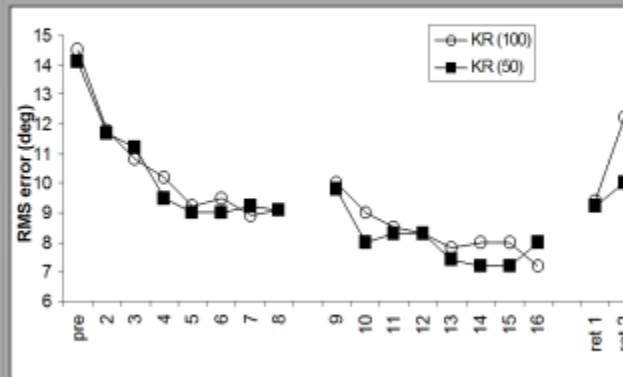
- Feedback given (concurrently)
- Or, after (terminal) the ball was hit
- Or, at both time points?
- If after, when?
- After every trial?

### The temporal provision of KR: KR delay interval



(Gallagher & Thomas, 1980 - age related effects)

### Winstein and Schmidt (1990)



### Reading Unit 5, Part 15







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**Workshop**



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# Augmented Feedback

Equipment: Pen, Pencil, Ruler, Calculator and Workbook.

## Introduction to feedback.

When learning a new skill, feedback in relation to your performance can play an important role.

For example if you are learning to putt a ball 3 metres in golf, if you see the ball has gone past the hole you know you have to not hit the ball as hard in your following attempts.

## What is augmented feedback?

Feedback provides information the person's sensory system can't readily detect on it's own.

e.g. a coach telling a golfer where his or her hands are positioned at the top of the swing

## Two types.

**Knowledge of Performance:** Information about the movement characteristics that led to a performance outcome.

**Knowledge of Results:** Information about the outcome of performing a skill or about achieving the goal of the performance.

1

2

3

4

# THE EXPERIMENT

## Introduction.

- Knowledge of results facilitates motor learning (Trowbridge & Cason, 1932)
- Although knowledge of results enhances performance, it is degrading to learning if given too frequently (Salmoni, Schmidt and Walter, 1984)
- The aim of this experiment is therefore to investigate the effects of different amounts of KR on motor learning.

## Method.

- Golf putting task (3 metres).
- 3 conditions:
  1. 100% KR - participants will receive KR after every trial in practice.
  2. 50% KR - participants will receive KR after every other trial in practice.
  3. Control - participants will receive no KR during practice.
- PRE = 5 trials
- Practice = 30 trials
- POST = 5 trials
- Retention = 5 trials

In order to control for other types of feedback, participants will wear goggles that block out once contact is made with the ball.

## Task 1

Answer questions in your workbook. (Page 2)

## Task 2

Watch the video of the experiment on blackboard and record the participant's scores in *Column B* of the corresponding table. (Pages 3-4)

5

6

7

8

## 100% KR Condition

Please watch the video of the experiment on black board.

## 50% KR Condition

The 50% KR condition completed the same test structure as the 100% KR condition. However, in practice they only received feedback on every other trial, as this video shows.

Please watch the video on black board

## 0% KR Condition

The 0% KR condition completed the same test structure as the 100% KR and 50% KR conditions. However, in practice they received no feedback, as this video shows.

Please watch the video on black board

## Task 3

Using the tables in your workbook, calculate the absolute error scores for the 100% KR condition. (Page 4)

## Task 4

Plot the results for the 100% KR condition on the graph. (Page 5)

## Task 5

Answer questions in your workbook. (Page 6)

9

10

11

12



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**Workbook**



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## 4014sposci Psychological Foundations:

### Augmented Feedback workshop

#### Session Aims

By the end of this workshop you should be able to:

1. Understand the role of Augmented Feedback in motor learning.
2. Formulate hypotheses based on empirical literature.
3. Calculate the absolute error (AE) for each condition.
4. Be able to compare your hypotheses with the actual results.
5. Complete tasks 1 (page 2), tasks 2 & 3 (pages 3-4), task 4 (page 5) and task 6 (page 6)

**Task 1 – In all empirical research hypotheses are made based on the previous literature in the area. The following questions are designed to help you formulate two hypotheses for the experiment.**

**Question 1 –** According to Trowbridge and Cason (1932) receiving knowledge of results in practice facilitates motor learning. If this is the case which of the three conditions should have the largest absolute error score in the post test?

**Task 2 & 3:** Input the trial scores for the 100% KR participant in Column B of table 1. Once you have watched the entire experiment please calculate the absolute error for each phase using the table provided. For a reminder on absolute error see workshop 1.

**Table 1: 100% KR**

A TRIAL	B Distance from T	C T	D $x_i$	E $ x_i - T $
<b>PRE TEST</b>				
1		300		
2		300		
3		300		
4		300		
5		300		
Sum			-	
Mean			-	

**Task 4 – Based on your findings from task 1, please plot the error scores for 100% KR on the graph below.**

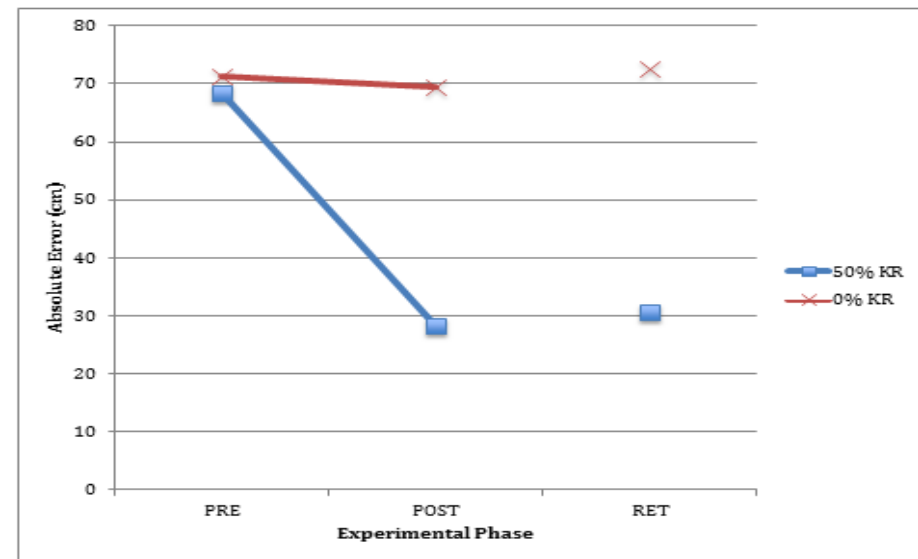


Figure 1: Absolute Error for 100% KR, 50% KR and 0% KR across experimental phases in a golf putting task.



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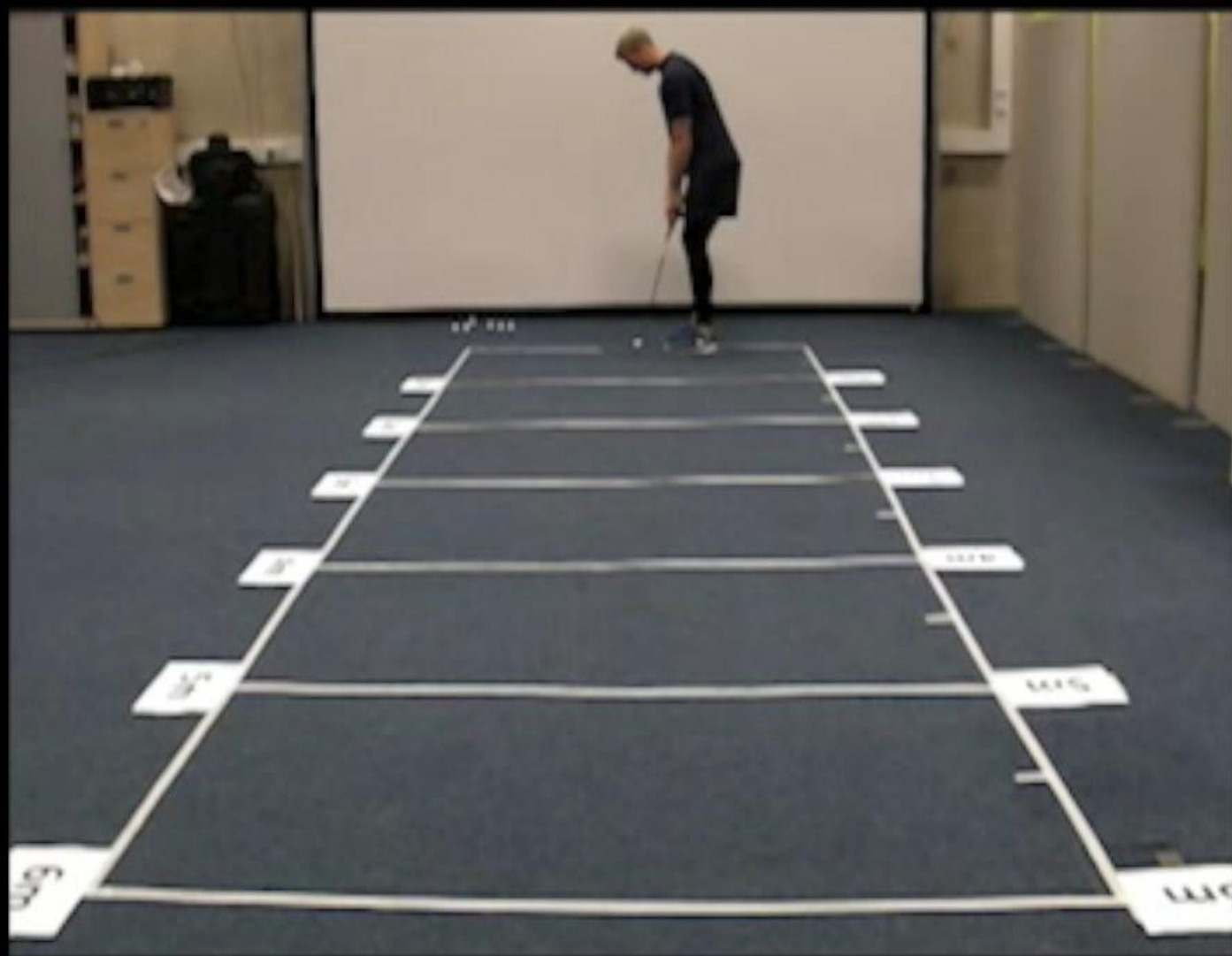
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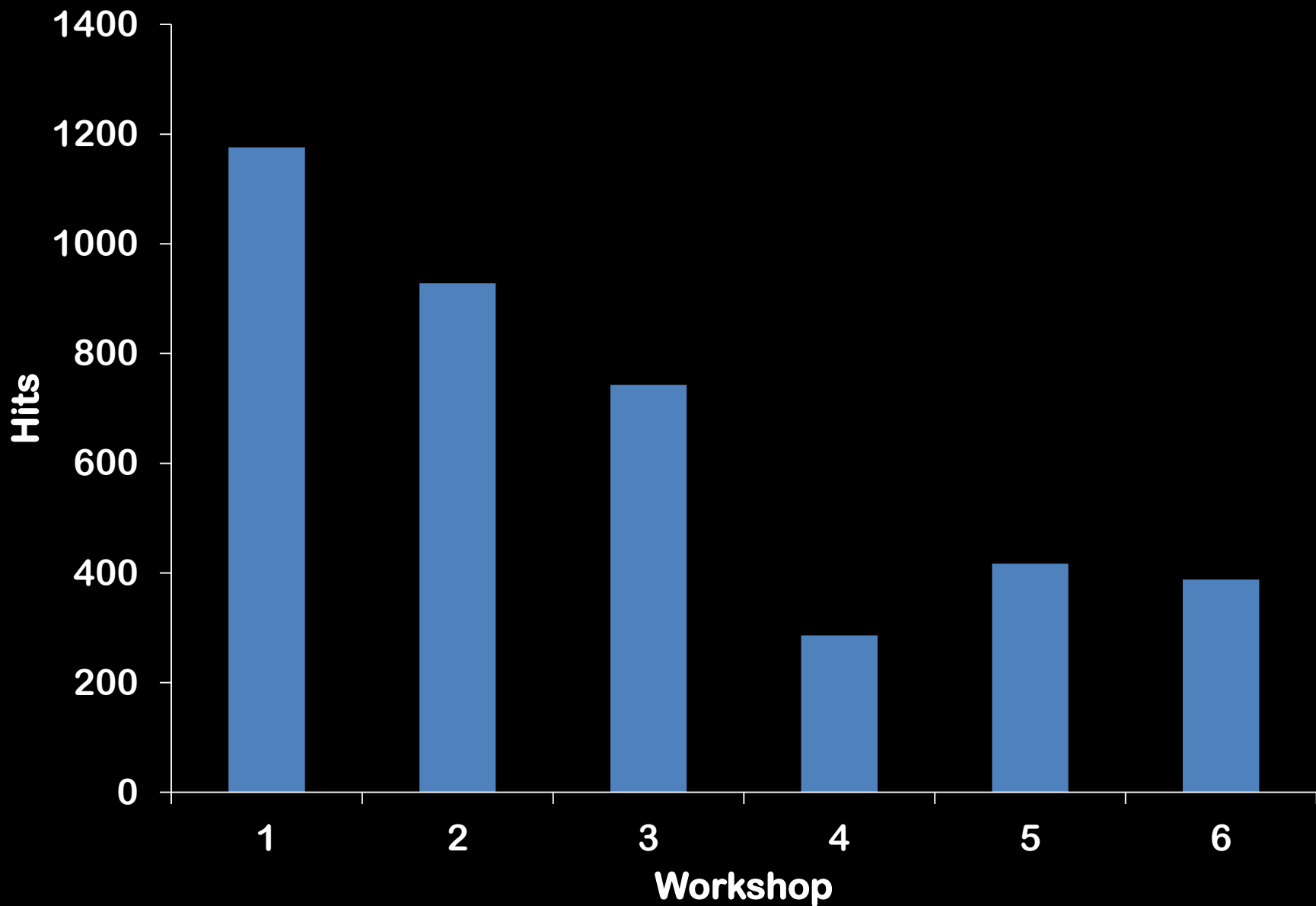
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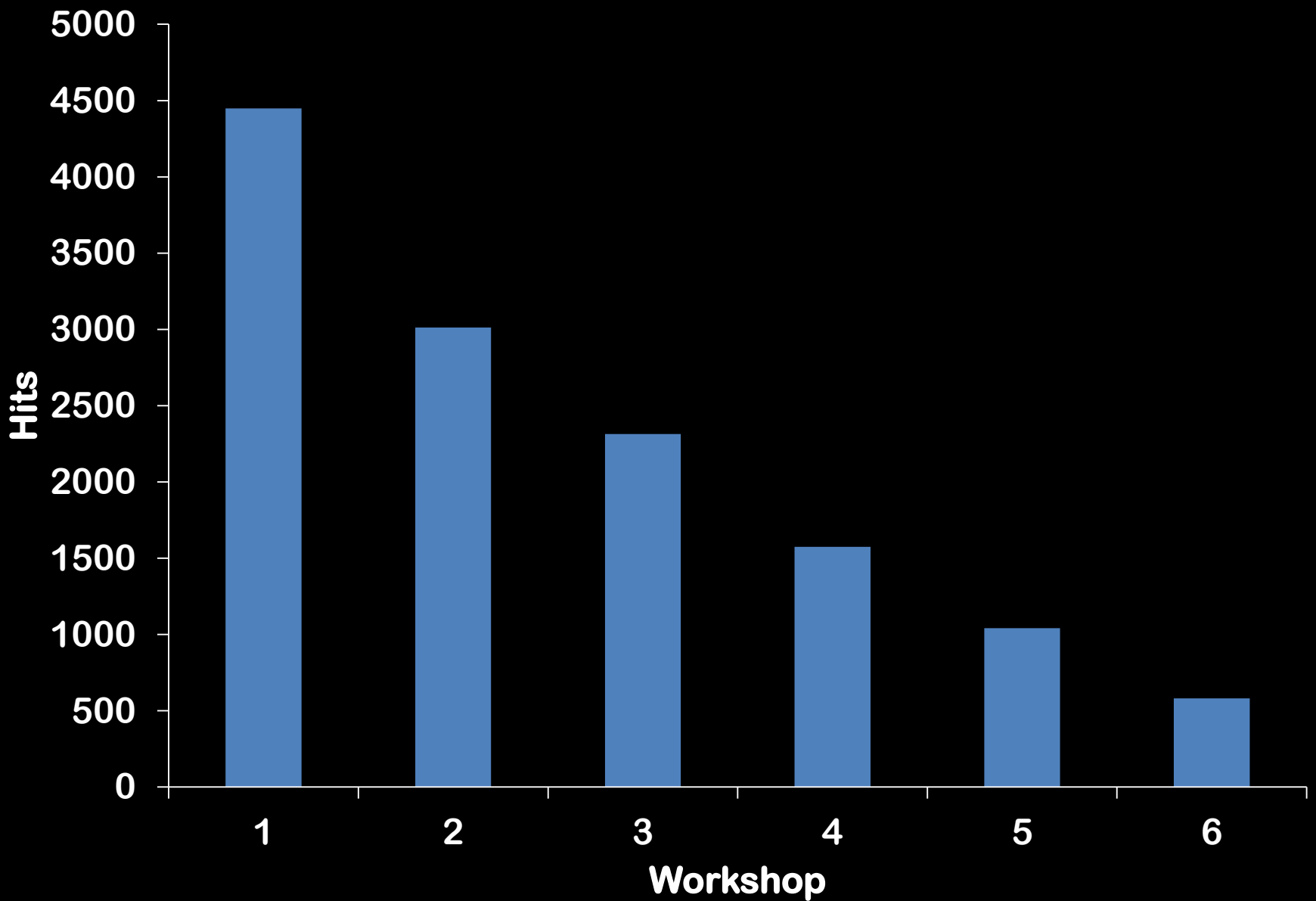
Experimental Video

- Download video file: [4014MotorLearningAssessmentExperiment2.mp4](#)





**Figure 1: Total hits on blackboard for each workshop in the first seven days that they were available.**



**Figure 2: Total hits on blackboard for each workshop from when they were available to the end of semester 1.**



# Future intentions...

5014sposci and 6018sposci modules.

Coordinate with other modules.

Feedback from students.

**“It was really good to see how you could actually measure things in a lab, rather than just reading methods in papers.”**

**“I could do them on the train on my way home from uni. That was really good.”**

**“Being able to go back and re-do the workshops made revision much more interesting.”**

**“They broke down, what seemed to be really complicated in the lecture, into something simple I could understand.”**

**“If I didn’t understand something, there wasn’t really an opportunity to get any help until the next lecture.”**

**Thank you for listening.**