

## HOW SCIENCE WORKS 5:

### Experiments Cue Dependency

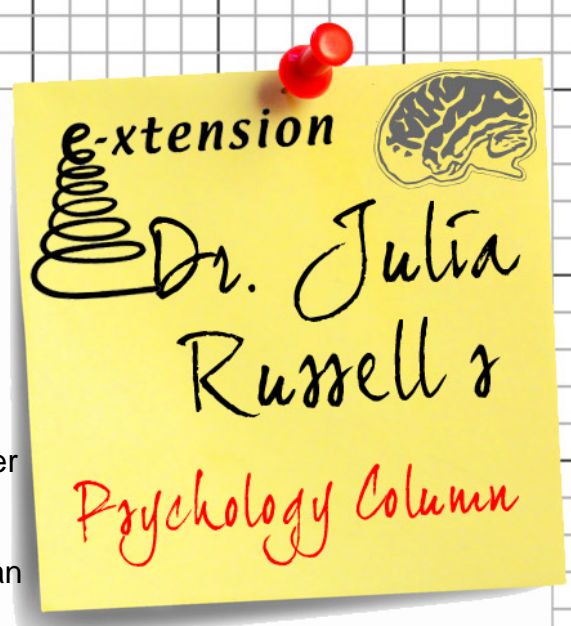
#### Exam Cues

**Cue dependency** is the idea that when we learn a to-be-remembered item we also happen to encode some aspects of our internal or external environment. This extra information can help us to recall the important items at a later date if those same extra pieces of information are present again. This is because they act as cues to help us to locate the learned information in long-term memory. These cues can be internal (state) cues or external (context) cues.

A psychology teacher is responsible for setting a mock exam to several classes and intends to give them all the same paper. To stop them telling each other what the questions are she decides to hold all the exam classes at the same time. This means that two classes will do the test in their normal classrooms and two will take the test in the school hall.

- This study is an experiment. What type of experiment is it? [1]
  - Identify and operationalise the levels of the independent variable in this experiment. [2]
- Define the term 'dependent variable' [1]
  - Describe the dependent variable in this experiment. [1]
  - Do you think this is a good measure of the dependent variable in this study? Justify your answer. [2]
- Describe **one** control which should be used in this experiment. [1]
  - Explain why this control would be important. [1]
- Using your knowledge of cue dependency, write an appropriate directional (one-tailed) alternative hypotheses for this experiment. [2]
  - Write a null hypotheses for this experiment. [1]

[Total 12 marks]



**Figure 1** What other information are you encoding as you learn?

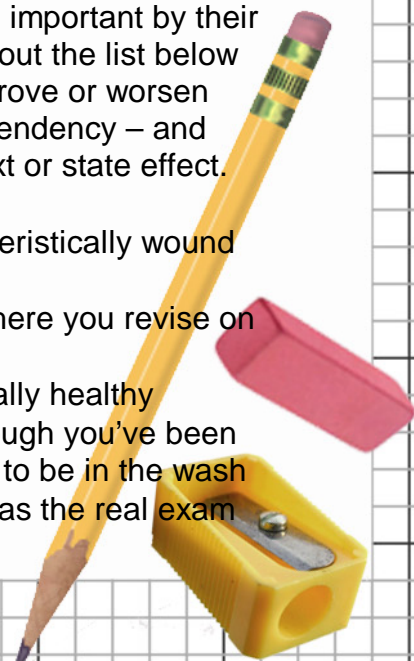


**Figure 2** How well do students remember when they sit tests in an unfamiliar place?

#### Extension Exercise

There are many other cues that could be important by their presence or absence in exams. Read about the list below and decide whether each one would improve or worsen exam performance according to cue dependency – and think about whether each one is a context or state effect.

- forgetting your favourite pen
- missing the bus and arriving uncharacteristically wound up at the start of the exam
- having a mascot from your bedroom where you revise on the exam desk with you
- feeling unwell when you are usually really healthy
- wearing your favourite jumper even though you've been wearing it for weeks and it really ought to be in the wash
- sitting a mock exam in the same place as the real exam will be taken



# HOW SCIENCE WORKS 5

## Suggested answers

1. a) This study is an experiment. What type of experiment is it? [1]

field experiment

b) Identify and operationalise the levels of the independent variable in this experiment. [2]

IV: exam in the same context as learning took place and exam in a different context than learning took place;

operationalised: 'same context' was classroom, 'different context' was hall  
[NB classroom / hall is not the IV]

2. a) Define the term 'dependent variable' [1]

the factor which the experimenter measures in an experiment (and which varies according to changes in the independent variable);

b) Describe the dependent variable in this experiment. [1]

The students' test results;

c) Do you think this is a good measure of the dependent variable in this study? Justify your answer. [2]

Yes, because students expect to do tests;

so it will have mundane realism; [accept ecological validity]

3. a) Describe **one** control which should be used in this experiment. [1]

eg:

i) all the students should have the same length of time to do the test;

ii) all the environments should be equally noisy;

iii) all the groups should have an unfamiliar invigilator;

b) Explain why this control would be important. [1]

eg:

i) time allowed matters because having longer to do the test might make the students results better (which would confound the effect of the IV on the DV);

ii) noise level matters because if one group was disturbed they wouldn't do as well (which would confound the effect of the IV on the DV);

iii) if the students in their normal room had their normal teacher as their invigilator this, rather than the location, might be responsible for any differences between groups (so confounding the effect of the IV on the DV);

4. a) Using your knowledge of cue dependency, write an appropriate directional (one-tailed) alternative hypotheses for this experiment. [2]

Students sitting in their normal classroom will have better scores on the test than those in the hall; [2 marks]

Students sitting the exam in the same context as learning took place will have better scores on the test than those sitting the exam in a different context from where learning took place; [2 marks]

NB: 1 mark for appropriate hypothesis, 2 if it is directional.

b) Write a null hypotheses for this experiment. [1]

There will be no difference in test scores between students sitting in their normal classroom and those in the hall;

Any difference in test scores between students sitting in their normal classroom and those in the hall is due to chance.

