

Research Methods I
Week 3: Research Design

Study 1:

A researcher wants to explore whether there is a difference in student performance depending upon the method of teaching they experience; physical face-to-face taught sessions or online taught sessions.

a) What is the IV?	Method of teaching
b) How many levels are there to the IV and what are they?	Two – Physical face-to-face or taught online
c) What is the DV?	Student performance
d) What is the most appropriate design for this study?	Between-subjects <i>Experimental – random allocation of participants if appropriate. Quasi-experimental – use of participants already allocate to face to face or online teaching.</i>

Study 2:

A researcher wants to study the effect of different types of music on concentration levels. Participants are randomly assigned to listen to classical music, pop music, or no music while completing a concentration task.

a) What is the IV?	Type of music
b) How many levels are there to the IV and what are they?	3 – classical, pop, or no music
c) What is the DV?	Concentration levels
d) What is the most appropriate design for this study?	Between-subjects Experimental – random allocation of participants in lab setting

Study 3:

A cognitive psychologist wants to investigate the effect of different types of distractions on reading comprehension. Participants read passages under three conditions: no distraction, background noise, and visual distractions, and their comprehension is tested after each condition.

a) What is the IV?	Type of distraction
b) How many levels are there to the IV and what are they?	3 – no distraction, visual distraction, background noise
c) What is the DV?	Reading comprehension
d) What is the most appropriate design for this study?	Within-subjects – all participants complete a reading comprehension task under each condition
e) What is an important thing that the researcher must consider in relation to the order of completion of the conditions?	Counterbalancing of the order of conditions

Study 4:

A company is testing the effectiveness of two different training programs on employee productivity. Employees are randomly assigned to one of the two training programs (either Training programme A where they are provided with an individual mentor, or Training programme B where they are allocated a mentor in groups of 6). Their productivity is measured before the training programme begins and again at the end of the training programme.

a) What are the IVs?	1. Training programme 2. Time of productivity measurement
b) How many levels are there to each IV and what are they?	IV1: two levels – programme A (individual mentoring) or programme B (group mentoring) IV2: two levels – before and after training programme
c) What is the DV?	Productivity levels
d) What is the most appropriate design for this study?	2 x 2 mixed design – between-subjects variable = programme, within-subjects variable = time of measurement of productivity

Study 5:

A researcher is investigating the effect of caffeine on reaction time. Participants are given either a caffeinated drink or a non-caffeinated drink and then tested on a reaction time task.

e) What is the IV?	Caffeine level
f) How many levels are there to the IV and what are they?	Two – caffeinated drink or non-caffeinated drink
g) What is the DV?	Reaction time
h) What is the most appropriate design for this study?	Between-subjects Random allocation of conditions (Experimental)

Study 6:

A clinical psychologist is testing the effectiveness of two different therapy approaches on reducing anxiety levels. Participants are randomly assigned to either Cognitive Behavioural Therapy (CBT) or Mindfulness-Based Stress Reduction (MBSR) and their anxiety levels are measured before, during, and after the therapy sessions.

a) What are the IVs?	1. Therapeutic approach 2. Timing of anxiety assessment
b) How many levels are there to each IV and what are they?	IV1: two levels – CBT or MBSR IV2: three levels – before, during and after therapy sessions.
c) What is the DV?	Anxiety levels
d) What is the most appropriate design for this study?	2 x 3 mixed design Between subjects variable = therapeutic approach Within-subjects variable = time of anxiety assessment