MKTG2113 Final Exam Notes

Sampling Design & Size

Experimental Research

- Quantitative – survey research (descriptive) or experimental research (causal)
- Aims to understand relationships between market factors & behaviours

The Nature of Experiments:

- Controlled conditions – independent variable (IV) can be manipulated to test hypothesis about dependent variable (DV)
- IV is manipulated, its effect on DV is measured, all other variables eliminated/controlled
- Controlled setting (lab) vs. Natural setting (field)
- Controlled store sets: hybrid between lab & natural – test products sold in stores to actual customers
- 3 criteria indicating causality:
  1. Temporal sequence – effect follows closely to hypothesised cause
  2. Concomitant variation – two phenomena (cause-effect) vary together (ie. if price decreases, sales should increase)
  3. Nonspurious association – an absence of alternative plausible/persuasive explanations

X	=	Exposure of a group to an experimental treatment
O	=	Observation/measurement of the dependent variable
[R]	=	Random assignment of test subjects to different treatment groups
EG	=	Experimental group of test subjects
CG	=	Control group of test subjects
→	=	Represents a movement through time

Steps in Experimental Design:

1. **Choose field or lab setting**
2. **Identify/select what will be varied & measured**
   - Hypothesised that IV and DV/s will have a causal/functional relationship
   - Experimental treatments: alternative manipulations of IV eg. Use of different colours in advertising

- Control group: subjects not exposed to experimental treatment, compared with experimental group to determine causal effect

3. **Select & assign test units**
   - Test unit: subjects whose responses to experimental treatments are observed/measured
   - Can occur through randomization (random assignment) or matching (assignment based on characteristics)
   - Possible errors:
     - Sample selection error – not relevant sample to your study
     - Self-selection bias – not selected randomly, unable to generalise, people with positive experiences more likely to take experience survey
     - Random sampling error – when experimental treatment is repeated favouring a certain condition eg. Repeated on different days at the same time
4. **Address validity issues**
   - Conditions must be held constant, treatment must be manipulated consistently
   - Priming – may elicit certain conditions/attitudes
   - Blinding – control subjects' knowledge of whether or not an experimental treatment has been administered
   - Constant experimental error – extraneous variables (eg. time, weather) influence DV each time experiment is repeated → systematic bias
   - External validity:
     - Externally valid if situation is not artificial, true conditions bringing about investigated behaviour are replicated
     - Factors affecting external validity: students as sample, extraneous variables
   - Internal validity:
     - Whether an experiment was the sole cause of observed changes in the DV
     - Threats to internal validity:
       - History effect – events in the external environment occurring in between measurements
       - Selection effect – sample bias, improper sampling design/execution
       - Maturation effect – subjects changing in a way that will affect experimental results
       - Testing effect – pre-testing effect, initial measurement alerts them to nature of experiment → acting differently
       - Instrument effect – change in methods of measuring DV

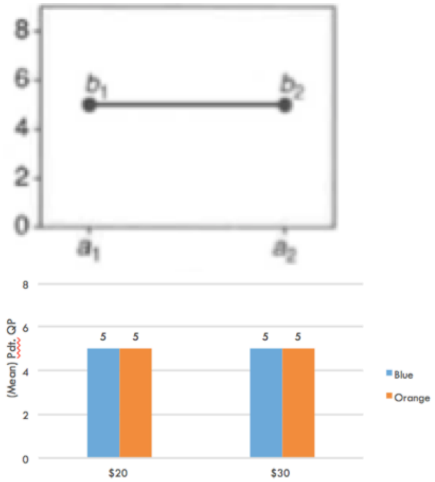
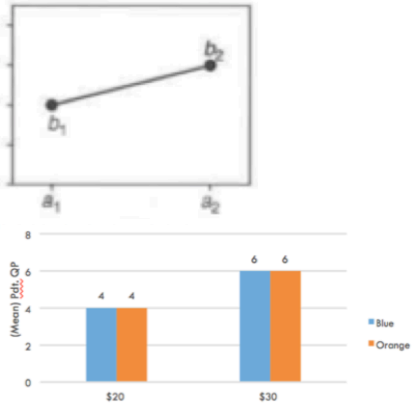
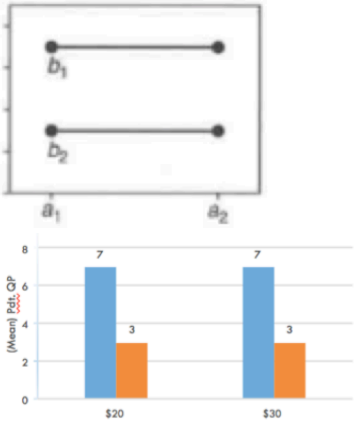
- Guinea pig effect – subjects change usual behaviour to cooperate with experiment
- Hawthorne effect – subjects aware of participation in experiment
- Mortality effect – when subjects drop out before experiment is completed
- Demand characteristics – experimental design procedures that unintentionally provide hints about researcher's hypothesis

5. **Choose which experimental design to use**
   - Basic experimental design – single IV manipulated to observe effect on DV (eg. Impact of price on sales)
   - Factorial designs – investigation of interaction of 2+ DVs (eg. Impact of price and advertising message on sales)
   - Repeated measures within subjects – same subjects exposed to different treatments to eliminate problems due to subject differences
     - Repeated measured between subjects – subjects are only exposed to one treatment
   - Quasi-experimental designs:
     - These lack adequate control of extraneous variables
     - One-shot design - 1 measure recorded after treatment administered (X O_1)
     - One-group pretest-posttest design – experimental group measured before/after treatment, no control group (O_1 X O_2)
     - Static group design – experimental group measured after exposure, control group measured without exposure (Group 1 EG: X → O_1, Group 2 CG: O_2)

   - True experimental design (first step randomization):
     - Pretest-posttest control group design – exp. & control groups measured before/after treatments
     - Posttest-only control group design – exp. & control groups measured after treatments
     - Solomon four-group design: group 1) pre-test, treatment, post-test, 2) pre, no treatment, post, 3) treatment, post, 4) no treatment, post
   - Time series design – experiments conducted over long periods of time to distinguish between temporary/permanent changes in DVs
   - Complex experimental designs:
     - Isolate effects of extraneous variables, allow for manipulation of more than one IV

- 3 types:
  - Completely randomized (random subject assignment, 1 IV)
  - Randomised block (single extraneous variable blocked)
  - Factorial (investigates interaction of 2+ IVs on single DV)

8 Possible IV/DV Relationships:

1. No main effects, no interaction effect 	**2. Main effect of price, no main effect of packaging, no interaction effect** 
3. Main effect of package, no effect of price, no interaction 	**4. Main effect of price, main effect of package, no interaction**