THE USE OF COMPLEX EXPERIMENTS IN SOCIAL PSYCHOLOGY

Students are taught about the experiment in social psychology based around a single independent variable (IV) and a single dependent variable (DV). In reality, research involves more complex experiments with multiple IVs at the same time, or many parts or stages to the experiment.

Complex experiments have their own strengths and weaknesses in relation to simple, single IV experiments (table 12).

ADVANTAGES	DISADVANTAGES
1. General advantages of the experiment - control of variables - establishing causality - replication	1. General disadvantages of the experiment - artificial situation - demand characteristics - experimenter effects
2. Allows study of complex behaviour beyond single variables	2. Assumptions made about each IV when more than one IV involved
3. In reality, a number of factors influence behaviour and having more than one IV can reflect this	3. Concerns about validity of measures
4. Performing one experiment with two IVs saves time and needs less participants than two experiments with one IV each	4. Loss of precise control as complexity increases
5. Complex experiments with many parts can hide the real purpose from participants and thereby reduce demand characteristics	5. Many parts to the experiment may produce problems, like fatigue or drop-outs, particularly if the experiment takes a long time

Table 12 - Advantages and disadvantages of using complex experiments in social psychology.

TWO EXAMPLES FROM THE RESEARCH INTO ATTITUDES AND
DECISION-MAKING

1. Sanbonmatsu and Fazio (quoted in Fazio 1990)

This research is based around the accessibility of
attitudes and how they influence decision-making and
behaviour.

Fazio (1990) developed the idea of automatic
accessibility of attitudes in his MODE model (motivation,
opportunity and determinants). Motivation and opportunity
determine whether spontaneous or deliberate processing
occurs. In other words, whether there is consideration of
the link between attitudes and behaviour depends on
motivation (eg cost of inconsistency) and opportunity (eg
immediate decision required).

Sanbonmatsu and Fazio designed a complex lab
experiment to test this theory. Participants were told
about two department stores, Smith's and Brown's. Most
of the information about Smith's was positive, and most
about Brown's was negative. But then participants were
told about the camera department in each store using the
opposite criteria (ie mostly negative about Smith's and
positive about Brown's). The task was to buy a camera.
Under spontaneous processing, the participants would
choose Smith's because the general information was
positive, and the individual does not think about their
behaviour in detail here. But under deliberate
processing, Brown's would be the choice because the
individual is thinking about their behaviour more (table
13).

	BROWN'S	SMITH'S
General information	negative	positive
Camera department	positive	negative
Type of processing in choice	deliberate	spontaneous

Table 13 - Deliberate and spontaneous processing.

But the experiment also varied the motivation (had
to explain decision to group or not) and opportunity
(make immediate decision or time for reflection). Only in
the condition which allowed deliberate processing did
participants choose Brown's store to buy their camera
(table 14).

CONDITION 1   CONDITION 2

	high	low
Motivation	high	low
Opportunity	reflection	immediate decision
Type of processing	deliberate	spontaneous
Decision	Brown's	Smith's

High motivation = explain decision to group; low = no explanation for decision

Table 14 - Different conditions in the experiment by Sanbonmatsu and Fazio.

Evaluation

i) The IVs were:
- Nature of information: positive general information and negative camera department, negative general information and positive camera department, and two controls (positive/positive and negative/negative);
- High and low motivation;
- Opportunity for reflection or not.

ii) Assumptions are made about the cognitive processes involved based on the decision taken. Individuals may have arrived at certain decisions but for different reasons to those suggested by the researchers.

iii) Use of artificial scenarios. Individuals may behave differently in a real-life situation of buying a camera. Furthermore, attitudes to particular stores may not be simply positive or negative, but a combination based on other factors as well. In other words, attitudes are on a dimension rather than being a dichotomy.

iv) The more complex the experiment becomes, there is a greater chance of participants realising what is happening and demand characteristics occurring.

v) Statistical analysis in complex experiments usually involves analysis of variance (ANOVA) rather than two-condition tests of difference like the Mann-Whitney U test.

2. Perugini (2005)

Recent research into attitudes has distinguished between explicit and implicit attitudes (Wilson et al 2000). Explicit attitudes are those that an individual expresses and is aware of, while implicit attitudes are automatic (and often outside of conscious awareness).

One commonly used way of measuring the latter is the Implicit Association Test (IAT) (Greenwald et al 1998).
This is a computer-based test using response times to pressing certain keys when words appear on the screen. Pairs of words (which contrast like dog and spider) are presented on the screen, and the task is to press a right side key for dog or pleasant words and a left side key for spider or unpleasant words. The keys are then changed, so that right is for dog or unpleasant and left for spider and pleasant, and the same words are presented again.
If the participant is slower in their reaction time in the second version (ie spider/pleasant and dog/unpleasant) compared to the first version, this is taken as evidence of an implicit positive attitude towards dogs relative to spiders.

Perugini (2005) performed two separate experiments to test implicit and explicit attitudes and behaviour [7].
This involved measuring implicit and explicit attitudes towards smoking among twenty-five smokers and twenty-three non-smokers at the University of Essex. Explicit attitudes towards smoking and exercise were measured by a semantic differential scale containing eleven pairs of adjectives (eg bad-good, calming-stressful, glamorous-ugly).
Implicit attitudes were measured by the IAT (using five steps - three being practice ones). In the first experimental step, the left key was used for words related to smoking (eg ashtray, lighter) or pleasant (eg rainbow, smile), and the right key for exercise (run, swim) or unpleasant (eg pain, vomit) related words (figure 1).
In the final step, the right and left keys were switched. The IAT was calculated by taking the difference in reaction times between the two experimental steps, and the score showed an implicit positive attitude towards smoking compared to exercise.

Smokers had both more positive implicit and explicit attitudes towards smoking than non-smokers. But only explicit attitudes predicted whether the individual was a smoker or not (behaviour). This was especially true for

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[7] Only experiment 1 is described here.

non-smokers.

SMOKING RELATED WORDS press "q"	EXERCISE RELATED WORDS press "p"
PLEASANT ASSOCIATED WORDS press "z"	UNPLEASANT ASSOCIATED WORDS press "m"

Figure 1 - How computer screen looked in Perugini (2005) experiment.

Evaluation

i) This experiment is complex not because of the number of IVs, but because of the complexity of the procedure for measuring implicit attitudes. Participants spent time learning how to respond on the computer and their mean reaction times were measured. Having five steps in the IAT allows the possibility of order effects.
        This is where performance on the first part of an experiment influences performance on the second part through fatigue or boredom (slowing down performance) or practice (improving performance).

ii) Concerns over the validity of the IAT. This is whether the test is measuring what it claims to measure ie hidden attitudes. The assumption is made that slower reaction time is evidence of implicit attitudes.

iii) Measuring implicit attitudes also has two other problems (MacDonald et al 2005):
        a) The scales used have low reliability compared to explicit attitude scales;
        b) The context in which the attitude object is perceived can influence the implicit attitude in tests like the IAT.

iv) The use of a computer programme in the experiment gives the researcher accurate reaction time measurements which could not be made by hand. It also allows the collection of a large amount of data, and analysis for the difference in reaction times.

v) Because participants were recruited openly as smokers

and non-smokers, it gives the possibility that they could have realised the purpose of the experiment and changed their behaviour. However, it is claimed that the IAT overcomes deliberate manipulation of behaviour by participants.

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