



Introduction to Research Methods

Study 2 The Stroop Effect

Introduction

- Study of attention
 - Focused attention
 - The ability to focus on one particular aspect of a sensory input
 - Divided attention
 - The ability to concentrate on two tasks at once
 - Present study related to the area of focused attention

Introduction

- Can we choose to focus on one aspect of a stimulus and completely ignore others?
 - Broadbent (1958): we have a filter that allows us to select the information we wish to attend to (usually on basis of physical characteristics)
 - However research shows that often the information we are not attending to or trying to ignore is often processed as well
 - The 'cocktail' party phenomenon (Cherry, 1953)

Introduction

- Shiffrin and Schneider (1977)
 - Distinction between controlled and automatic processes
 - Controlled processes
 - Skills that are new and not highly practised
 - Require serial processing
 - Require conscious effort and focussed attention
 - Automatic processes
 - Highly practised skills
 - Can operate in parallel
 - Can operate unconsciously and automatically

The Stroop Effect

- Stroop (1935)
 - Colour naming task
 - Identify print colour of word, ignore what the word says
 - Difficult if word meaning and print colour are in conflict e.g. BLUE
- Explanation
 - Intrusion of meaning from unattended channel
 - Attended channel: the colour in which the word is presented
 - Unattended channel: what the word is

The Stroop Effect

- Why does meaning intrude from unattended channel
 - Normally when we see a word, we are required to read it
 - Reading can be considered an automatic process (Shiffrin and Schneider, 1977)
 - Therefore it is beyond conscious control
 - In Stroop task, participant is effectively told *not* to read a word
 - Suppress an automatic process

The Stroop Effect

- Doesn't really matter in congruent condition (words and their colours match)
- Incongruent condition
 - Conflict between information about colour
 - The task at hand – name the print colour
 - The automatically read colour word
 - Hence longer colour naming times in incongruent condition.

AUTOMATICITY MODEL

- The difficulty of removing the interference effect of the Stroop task has led some researchers to claim that the brain is wired to recognize words without effort.
- This explanation is called the "automatic word recognition hypothesis" (or automaticity hypothesis). According to this theory, reading is an automatic process, which cannot be turned off.
- In other words, people see the meaning of words without much effort or consciousness. On the other hand, naming colours is not automatic. It requires more effort than reading, thus creating interference in the Stroop task.

A SPEED OF PROCESSING MODEL

- This theory suggests that word processing is much faster than colour processing. Thus, in a situation of incongruency between words and colours, when the task is to report the colour, the word information arrives at the decision process stage earlier than the colour information and results in processing confusion. On the other hand, when the task is to report the word, because the colour information lags behind the word information, a decision can be made before the conflicting colour information arrives.



Current study

- We will now review the design of the current experiment

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- You will be presented with two lists of words. Your task for this experiment is to state the colour of ink in which each word is presented regardless of the word. You will need to start naming the colours (not reading the words) starting at the top of the list, and ending at the bottom. Your performance on each list will be timed. Please remember that if at any time during the proceedings of this experiment you wish to withdraw, you have the right to do so. No personal information will be taken from you. If you have any questions, please ask them now. I will give you the first list now. Please turn it over when I instruct you to.

The research hypothesis...

1. There will be a significant difference between colour naming times in the two conditions
2. Colour naming times will be significantly longer in the incongruent condition



The design of the study was...

1. Correlational
2. Related
3. Unrelated

The independent variable was...

1. The colours in which the words were presented
2. Time taken to name the colours (msecs)
3. The congruency of the words and their colours

The dependent variable was...

1. The colours in which the words were presented
2. Time taken to name the colours
3. The congruency of the words and their colours

Data Analysis

- Related design
- Two conditions
 - Congruent and incongruent
 - Within each condition there were ? *trials*
- We will analyse the data using the related t test for related designs
 - looks at the difference between each participant's pair of scores
 - works out the mean difference for the group
 - investigates if this difference is significantly different from zero (what we would expect if no difference between the conditions)

Your task		Title: To test the existence of the stroop effect	Report 1: (1500 words)
(1) Abstract (approx. 100-150 words). Summary of report. Include the following details: - Background to your study - Method -a brief statement of design and sample - Results -the main findings in words (Not the actual statistics.) - Conclusion and implications of your findings-in one line if possible.	(3) Methodology (approx. 200 words) Design Participants Materials Procedure (in appendix – not part of word count)		(6) References (not part of word count) Before appendices APA format – alphabetical
	(4) Results (approx. 100 words) <i>M</i> and <i>SD</i> Table t-test		(7) Appendices (not part of word count) Stroop task (both conditions) Standardised instructions Information sheet and informed consent form Debrief sheet Ethics form Raw data (scores) SPSS printouts
	(5) Discussion and conclusion (approx. 400 words) Aim and Restate your findings Relate findings to hypothesis and previous results in the literature (in your intro). You may need to tentatively advance explanations for unexpected results. Evaluate your own study critically - limitations Implications of your findings Future research suggestions A few lines concluding the importance of what you have found.		
(2) Introduction (approx. 700 words) Theory/ Introductory information Literature Rationale Aim and Hypothesis			