Stroop Test In The Study Of Colour Interference

Abstract

Interference involves vision and takes place when one is trying to remember information and something similar inhibits it. Various studies have been done on the speed and ability of processing retaining information as well as resolving interference in working memory. The current study sought to test the theory of interference and word speed processing. For the study, 138 James Cook University students at JCU Townsville in semester 2, 2019, taking a psychology class participated during their normal tutorial class.

It was hypothesized that interference and speed of processing was affected by inconsistent words and colors which as timed by the participants. There were two main findings. First, the word task produced faster naming responses than the colored block. Secondly, the coloured-blocks produced faster naming responses than the Stroop Task. In summary, the findings supported the hypotheses suggesting that inconsistencies in both words and color affected both the speed of processing and interference.

Introduction

Visual skills are present at birth and progress at a fast rate throughout early childhood. An infant's selective attention development includes alertness, object fixation and three-dimensional orientation among other features. Sight is one of the five senses (sight, hearing, smell, taste and touch) and forms part of developmental stages that are used to measure milestones in infants as they quickly learn cope in their new environment (Colombo, 2001). Growth continues throughout early childhood in school, learning how to group letters and form words, attaching meaning to them as well as different colors and how they differ from each other. In early childhood, any delay in forming words or inability indicates some underlaying developmental or neurological issues that need further testing or assistance (Vendrell, et al., 1995).

The Stroop test is based on the Stroop Task, a procedure discovered and named after Stroop in 1935 which was originally for studying verbal processing, speed and response inhibition (Stroop test, 2009). Its popularity has grown over the years largely due to the need to find the connection between cognition and attention (MacLeod, 1991). Though he based it on a series of words and color names, its importance has risen leading to having a variety of procedures that help evaluate neuropsychological disorders including schizophrenia and attention deficit disorder among others (Stroop test, 2009).

Study Information

Hypothesis 1. Participants will complete the word task significantly faster than the colored block task (speed of processing).

Hypothesis 2. Participants will complete the colored-blocks task significantly faster than the

Stroop Task (interference).

Method

Subjects

There were 138 participants in the study (98 women, 40 men; mean age = 24.19 years, SD = 9.54 years). The subjects were psychology students attending a PY1102 class at JCU Townsville in semester 2, 2019. The test was conducted during the student's normal tutorial hour. There were no incentives offered for conducting the test to the students (i.e., no payment or class credits offered). There was no prior preparation for the test before the tutorial. Following the tests, the students were advised not to share details of the test with the rest of the class as there were multiple tutorials and sharing would impair the results from subsequent classes.

Materials

The class was split into 3 students per group. Each group was handed a stimulus card and each student was given a response card. They were also required to have a timing mechanism either a watch, a timer or a phone that could give an estimate on time spent to complete each task. They started recoding the time at the beginning of and stopped at the end of each task.

Each stimulus card had three sections to be completed by each participant. The first section was a word task and comprised a list of names of colors, written in black. The second section was a color-block task that had color blocks in four different colors, red, green, yellow and blue. The last section was a Stroop Task which had different color names all written in varying colors (e.g. the word "blue" written in yellow color).

Procedure

The participants were required to read out the words in the first section as fast as they could from right to left and from the top to bottom, while being marked for accuracy and speed of reading. In the second section, the participants were required to name each color patches from right to left and top to bottom as first as they could. In the last section, the participants were to name the color of the ink instead of reading the word. As each student read or named the color in the first, second and third section, the second started the timer from start to the end of each section and recoded each time on the response card, and the third student checked and marked the words being read or color being named, checking for accuracy. The students took turns as one student kept the time using a timer, a watch or a mobile phone depending on what each group had, another one marked the performance with a pen while the third student read the task. At the end of the test, the materials for each participant including the stimulus cards were handed back and the participants were informed the results would be made available at the next tutorial the following week.