Daniel Wybrow

Scientific Paper Format Report

Abstract

The theory that colour names interfere with recognising ink colour is investigated and proven using experimental techniques. Measurements are recorded and tabulated. Suggestions for possible investigations to further understand this phenomenon are also raised.

Introduction

During this experiment subjects will have to catch a ball after first identifying the colour of ink on a piece of paper.

This experiment will investigate the validity, that distinguishing between the names of colours and colours themselves, will result in different reaction times to non-colour words (e.g. cat). The experiment will also show whether this process impairs catching ability.

Research suggests that while looking at a colour word (e.g. blue) that is written in red ink you see both its colour and its meaning; this is known as interference or the Stroop Effect [Journal of Experimental Psychology-General, 2002, Vol. 131, No. 2]. When these two are in contradiction the subject must make a choice how to interpret it. As the day-to-day experience of the subjects is more likely to have put an emphasis on the meaning of a word, rather than the colour of the ink, interference occurs only when the subject pays attention to the latter.

Therefore, the results of the experiment should show a clear trend that ink colour of colour words take longer to recognise than non-colour words. And that subject will also make more errors when trying to distinguish between them.

Method

At the start of the experiment the 22 subjects were split into 2 groups, groups 1 and 2, each of 11 subjects.

Group 1 was instructed to write a colour name in each coloured ink on the pieces of card supplied (e.g. write red in yellow ink), making sure to have an equal number of each colour, and then putting them into random order. Then Group 2 was instructed to write a non-colour name in each coloured ink on the pieces of card supplied (e.g. write cat in blue ink), making sure to have an equal number of each colour, and then putting them into random order.

The two groups then switched cards, Group 1 now having the non-colour words and Group 2 having the colour words. Next, the throwing area was then marked out using two pieces of tape placed on the floor approximately 3 or 4 metres away from each other.

Each subject within their respective group then took turns to stand on one of the pieces of the tape. From the other piece of tape a display person held up one of the cards and shouted “throw”. On that command, a timer started a stop watch and a thrower threw a ball to the subject. If the subject caught the ball and called out the correct colour ink, then the timer

stopped the watch and the time was recorded. If the subject failed to catch the ball or called out the incorrect colour then this information was also recorded. This process was repeated 20 times for each subject

Results

Table 1: Group 1 mean times and errors (non-colour words)

Name	MeanTime (seconds)	Errors (Colour)	Errors (Ball)
Vicky	1.35	0	0
Tom	1.59	0	0
Dan	1.75	0	0
Luke	1.10	0	0
Sunny	1.28	0	0
Siobhan	1.27	2	0
Helen	1.59	0	0
Dave	1.20	0	0
Ally	1.41	0	0
Sarah	1.28	0	0
Ant	1.24	0	0

Table 2: Group 2 mean times and errors (colour words)

Name	Mean Time (seconds)	Errors (Colour)	Errors (Ball)
Will	2.05	0	0
Dan W	2.25	0	0
Neil	2.71	1	0
Rob	2.25	0	0
Chris	2.29	2	1
Ant	1.87	1	0
Sean	2.23	0	1
Adam	2.34	0	0
Adam H	2.44	0	0
Dan	2.24	0	0
Matt	2.14	0	0

Discussion

When comparing the means of the two groups, as suggested in the hypothesis, a clear trend can be observed. That is the subjects viewing the non-colour words (Group 1) all have lower mean reaction times than that of the subjects viewing the colour words (Group 2).

More errors occurred in both determining the colour of ink and in catching the ball in group 2. Although this does fit in with the anticipated results, these errors weren't consistent with all members of the group. Siobhan from Group 1 (Table 1), for example, had equal to or more errors than those from Group 2. Having said that, this is probably an isolated case caused by subject condition (e.g. tiredness or lack of concentration).

The results also show that, on the whole, slower identification of ink colour from the colour word group led to more errors in both catching the ball and in colour recognition.

One possible aspect that needs to be investigated further is the reaction of colour identification form younger children, who may not be so influenced by the experience of distinguishing the colour of the word from the meaning of it.

Overall the hypothesis was largely satisfied with only minor inaccuracies occurring in one of the subjects.

References

Journal of Experimental Psychology-General, 2002, Vol. 131, No. 2