



The Stroop effect: lesson plan

Human Computer Interaction (HCI)



Lesson: The Stroop effect

Ages: 8 to 14

Learning outcomes

Students will be able to:

- Use the Stroop effect to gain an appreciation for how contradictions can slow down users
- See how psychology concepts can apply in software design

Lesson activity: the Stroop effect

The Stroop effect is a famous experiment from psychology named after John Ridley Stroop. In its common form, it uses a list of colour words like the one in the image to the right. The idea is to say the colour of the printed text rather than reading the colour word, such as saying “red” for this word: **blue**. This is an example of a contradiction, which makes the list incongruent. For a congruent list, the colour word is printed in the corresponding colour, for example *blue*. The Stroop test measures the amount of time it takes to say the name of the print colours in an incongruent list and compares this time to saying the name of the print colour in a congruent list.

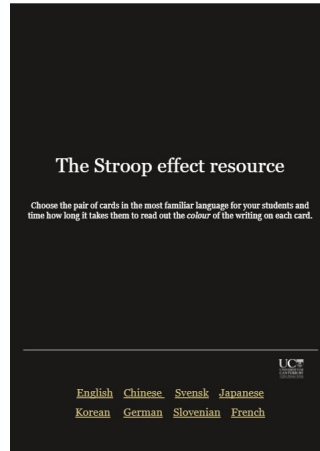


Lesson activity: the Stroop effect



1. Prepare resources

- Have available printed copies of the Stroop effect resource, enough for one between two students. *(The resource links are the images below)*
- Be prepared to run a timer or make arrangements for students to work in pairs with one being the timer.



Click/hover over images to find resource links

Lesson activity: the Stroop effect



2. Incongruent test

- Give students the incongruent list placed facedown so that they can not read the page.
- Explain how to do the activity.
 - They are to say aloud the name of the colour that the colour word is printed in, for example, they say 'orange' when they see the word **green**.
 - Their goal is to read aloud the entire list as fast as they can, without making a mistake!
 - The person timing will say when to start and at that time
 - the timer is started
 - the reader turns over the page and begins saying the colours
 - the timer is stopped when the reader finishes the list
 - The time is recorded to be compared with the time the same person takes to read the congruent test

Lesson activity: the Stroop effect



3. Congruent test

- Give students the congruent list placed facedown so that they can not read the page.
- Explain how to do the activity.
 - Do the same as before, that is, saying aloud the name of the colour, the colour word is printed in, for example they say 'orange' when they see the word **orange**.
 - Their goal is to read aloud the entire list as fast as they can, without making a mistake!
 - The person timing will say when to start and at that time
 - the timer is started
 - the reader turns over the page and begins saying the colours
 - the timer is stopped when the reader finishes the list
 - The time is recorded to be compared with the incongruent test for the same person

Lesson activity: the Stroop effect



4. Time comparison

- Compare the incongruent time with the congruent time
 - How long did it take in total for everyone to complete the incongruent and congruent tasks?
 - write the incongruent time in one column and the congruent times in a second column on the board or paper for all students to see
 - Add each column.
 - *Option: work out the averages of each column if the students know how to do that*
 - Facilitate a discussion of what was learnt
 - Which test took longer? How much longer was it? (*In Stroop's original experiments it took about 3 times longer to complete the incongruent list compared to the congruent one.*)
 - How did the person being tested feel in each case?
 - Discuss if you've felt like this using a computer system, and the interface is confusing to use. Has a bad interface ever slowed you down or made you feel frustrated?

5. Have the students swap roles and run the activity again.

Lesson activity: the Stroop effect variations



Variations of the Stroop test can be found at [Neuroscience for kids](#)

- [Numerical](#) - size of numeric/number text compared to number values
- [Directional](#) - directional words and position of the word
- [Animal](#) - animal image verses the text label of the animal