

COGNITIVE PSYCHOLOGY WITH DR JONATHAN GRAINGER

TALKING POINTS

KNOWLEDGE

1. What is meant by language comprehension and decoding?
2. What are the word-superiority and sentence-superiority effects?

COMPREHENSION

3. Why can it be difficult to design robust psychological experiments?
4. What evidence suggests that we process multiple letters or words at once when reading?

APPLICATION

5. How do you think Jonathan's research could benefit society, in addition to the examples given in the article?
6. How do you think findings from cognitive neuroscience could complement Jonathan's work?

ANALYSIS

7. What challenges do you think arise in undertaking psychological research involving young children?

SYNTHESIS

8. How would you design a psychological experiment to assess the decoding aptitude of participants of different ages?
9. How do you think the decoding process might differ for people reading sentences in their first or second language?

EVALUATION

10. A lot of psychological research uses university students as participants and often takes place mostly in Western countries. What caveats do you think this brings for the conclusions drawn from this research?
11. The article says that, "the human brain processes information like a very complex computer". To what extent do you think this analogy is true?

ACTIVITIES YOU CAN DO AT HOME OR IN THE CLASSROOM

Design an experiment to test either the word-superiority effect or the sentence-superiority effect. This will involve:

- Writing a hypothesis – specifying exactly what you want to test and why.
- Designing a methodology to test the chosen effect. For instance, Jonathan's methods for testing the word-superiority effect have involved timing how quickly participants can identify a letter within real and nonsense words.
- Designing a worksheet to give to participants when they take part in the trial. If you have coding skills, this could even take the form of a simple computer program.
- Making sure that there are no extraneous variables – there are no factors that will affect your participants' response other than the ones you are intentionally including and measuring.
- Carrying out the experiment, with your classmates or family members as participants. Remember that a larger sample size will give you more reliable results.
- Recording the results and analysing them. This could involve calculating the average time taken for people to identify a letter or word in each category, or you could use the internet to find more sophisticated statistical tests.
- Thinking about what your results mean and presenting your conclusions to the class. Feel free to draw on other research that you find online to support your conclusions.

Did other groups in your class reach different conclusions? Why might this be? How could you design further research tasks to reach more robust conclusions?

MORE RESOURCES

- This article presents an accessible overview of how we learn to read: <https://theconversation.com/how-do-we-learn-to-read-76283>
- This short video from HowStuffWorks explains the research behind the transposed-letter effect in more detail, including a critical look at some misleading conclusions: <https://www.youtube.com/watch?v=cEckTqpvJmQ>
- This website has a demo of a lexical decision task that you can use to test yourself or others: <https://www.psychtoolkit.org/experiment-library/ldt.html>