

Smartphones find niche in human behavior tests

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Researchers are using innovative tools to perform psychological experiments a lot faster than they used to. Experts believe the number of smartphone users worldwide will top the 1 billion mark by 2013. Now an international team of scientists has taken advantage of smartphone technology to examine the mental processes involved in how humans remember, think, speak and solve problems. Presented in the journal *PLoS ONE*, the findings demonstrate how these tiny tools can dramatically change cognitive science research.

Conventional laboratory experiments on human cognitive faculties including language, attention and memory usually involve small groups of volunteers that travel to the research facility and take part in behavioural experiments under a controlled environment. Efforts to bring the laboratory to the people have not always been fruitful. It should be noted that Internet-based research is likewise not a solid choice, because these experiments require precision, particularly in the measurement of stimulus duration and [behavioral responses](#).

Researchers in Belgium, France, the Netherlands, Singapore, Spain and the United Kingdom targeted the launch of an [iPhone/iPad](#) application that people can download for free in seven languages as part of a bigger global experiment. As part of this latest study, the team used an original laboratory-based experiment and adapted it for use on an iPhone.

"We wanted to find out if we could harness the precision of these mini computers to conduct experiments on a global scale that involve

unprecedented numbers of participants," explains one of the authors of the paper, Professor Kathy Rastle from the Department of Psychology at Royal Holloway, the University of London in the United Kingdom.

"Results collected so far are strikingly similar to those obtained in laboratory conditions, demonstrating the potential for capitalising on this technology in the future."

She goes on to say that this study could help change how human social and psychological research is carried out. "It allows us to access vast numbers of individuals from a range of demographics relatively inexpensively," Professor Rastle says. "We managed to test almost 5 000 participants in a period of 3 months, which would have taken years in a lab and incurred very substantial costs."

The application, called the 'Science XL: Test your word power', tests the participants word power by asking them to determine whether each word presented is a real word or a non-word. According to the team, the application measures accuracy and the time taken to reach the decision, i.e. the reaction time.

The researchers say this task has shed new light on the cognitive processes involved in skilled reading as well as in reading impairments, including dyslexia.

More information: Dufau, S. et al. (2011) 'Smart Phone, Smart Science: How the Use of Smartphones Can Revolutionize Research in Cognitive Science'. *PLoS ONE*, 2011; 6 (9): e24974.

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