

Special Issue: Internet-Based Psychological Experimenting

Ulf-Dietrich Reips¹ and Jochen Musch²

¹University of Zurich, Switzerland and ²University of Mannheim, Germany

In the past few years, the Internet has been discovered as a new means to conduct psychological research. In particular, the World Wide Web (WWW) has increasingly been used as a promising setting for Internet-based experimenting (Musch & Reips, 2000). Psychological experiments via the Internet can be conducted in almost all fields of psychology. Moreover, Web experiments are highly versatile: the same experiment procedures and materials may be used online, but also (often in parallel) in more traditional laboratory settings or in distributed collaborative experiments with several investigators and samples at different locations. Some researchers have therefore started to implement experiments as Web experiments whenever possible.

However, Web experiments differ in fundamental aspects from traditional laboratory and field experiments. They bring the experiment to the participant instead of the opposite and thus offer access to a demographically and culturally much more diverse population of participants than is typical of almost all laboratory research. They also allow for unusually high statistical power by enabling access to large or even very large samples; and they help to save costs in terms of lab space, person-hours, equipment, and administration (Reips, 2000). The investigation of several critical aspects of Web experimentation such as the methodological difficulties associated with the new method and the internal and external validity of the findings obtained in Internet research has only begun, however. What are the consequences of the lack of direct control over the participants' environments? How, if at all, is it possible to conduct meaningful psychological research over the Web? How should a researcher deal with the dropout that has shown to be much more prevalent in Internet-based

experimenting? What about the issues of multiple participation, technical variance, quality of data, recruitment of participants, and confidentiality of data? A thorough knowledge of the often unfamiliar interaction of procedural, technological, and psychological influences on the new methodological territory is necessary to profit from the many benefits of properly conducted Web experiments.

The present special issue of "Experimental Psychology" on Internet-based psychological experimenting provides a forum for the new methodological trends in current psychological research. It focuses on empirical examples of and methodological approaches to Web experimentation. One goal of the special issue is to discuss the methodologically sound use of the Internet for conducting fundamental and applied psychological experiments. At the same time, the special issue is intended as a guideline for psychologists who are interested in learning from the experiences of those who have already been engaged in Internet-based experimenting. Readers will learn about foundation-level knowledge concerning Web experiment methodology, technical approaches to data collection, and the quality and limitations of data collected online. This is done in contributions discussing and demonstrating a number of basic and advanced techniques aimed at improving the internal validity of Web experimentation.

In an introductory theoretical review, **Reips** summarizes the experience gleaned from the first few years of Internet-based experimental research. He presents recommendations on how a study on the Internet should best be conducted and what should be reported, what precautions are necessary in Web experimental design, and which techniques have proven useful in online experimenting. Reips also explains

some of the most frequent errors and misconceptions that have to be avoided, and discusses procedures and solutions for typical challenges in Web experimenting. He thus lays the methodological foundation for the subsequent empirical contributions.

The use of online data collection in the investigation of cognitive processes is demonstrated by **Bohner, Danner, Siebler, and Samson**. Processing strategies in risk assessment were studied in an Internet-based experiment aimed at shedding light on women's processing strategies in assessing their risk of being sexually assaulted. Bohner et al. show how time pressure manipulations well known from laboratory experiments can successfully be employed online. Based on the large sample they were able to collect on the Web, Bohner et al. reveal how individual differences in rape myth acceptance moderate the effects of ease of recall on the subjective assessment of the risk of becoming a victim of sexual assault.

Using the Internet makes an experiment available to people from many parts of the world. **Pohl, Bender, and Lachmann** take advantage of this new opportunity in experimental methodology by conducting a cross-cultural examination of hindsight bias, a cognitive illusion referring to the tendency to overestimate in hindsight what one has known in foresight. In a demonstration of what is arguably one of the greatest virtues of the new methodology, namely, the possibility to easily reach culturally diverse samples, Pohl et al. find no differences in the magnitude of the bias between participants from four different continents. This finding suggests that basic cognitive processes, possibly resulting from the evolutionary evolved capacity of adaptive learning rather than cultural peculiarities, form the basis of the effect. Pohl et al. thus demonstrate how the external validity of findings usually obtained in only a small handful of Western countries can be increased considerably by comparing their results with those found in more culturally diverse populations.

In two Internet studies, **Eichstaedt** presents and investigates the content category superiority effect (CCSE) as a possible basis on which new measures of implicit memory can be founded. He shows that word recognition is faster for words related to participants' use of computer operating systems, and for

words that belong to an expected category of emotional valence (positive versus negative). In conducting these studies, Eichstaedt demonstrates how reaction-time based experiments can successfully be conducted over the Web. He also discusses some of the precautions that have to be taken when collecting reaction time data online.

The Internet provides both the topic and the method of the final contribution, an experimental investigation reported by **Nückles and Bromme**. Internet-expert's perspective-taking capabilities in planning explanations for laypersons are examined in an online study showing that while their planning decisions are mainly guided by conceptual constraints, Internet experts were also able to take information about an addressee's intention and prior knowledge into account when explaining important concepts of the Internet to novice learners.

Taken together, the present contributions provide several illuminating examples of the emerging new methodology of Web experimenting. It is our hope that the present examples will serve to advance and improve the quality of online research methodology. As the results convincingly show, the advantages of conducting research on the Internet seem to outweigh the disadvantages in many areas of experimental psychology. Accordingly, we would not be surprised if, within the next few years, a considerable proportion of psychological experiments will be conducted on the Web. It will be interesting to see how the experiences of the early researchers – partly documented in the present issue of "Experimental Psychology" – will shape this promising new direction in psychological research.

References

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