



Time of participation effect and grade-orientation

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Received 13 July 2006; received in revised form 8 March 2007; accepted 16 March 2007

Available online 27 April 2007

Abstract

The motivation and academic performance of research participants depends on the time of the semester in which the research is conducted. Therefore, data collected only once during an academic term may not adequately sample the participant pool. Sixty-eight undergraduates enrolled in various sections of an introductory psychology course participated in this research. Approximately every 2 weeks for 13 weeks, a different group of 5–16 participants completed two motivation orientation questionnaires. Participation was voluntary and participants received extra credit for participating. Participants during the last 6 weeks of data collection were more grade-oriented and had lower academic performance than participants during the first 6 weeks. Participants in the thirteenth week of the semester were more grade-oriented than those in the fifth or eleventh weeks. This time of participation effect poses a threat to the external and internal validity of research. Recommended approaches to reducing this threat include collecting data throughout an academic term and randomly assigning participants to the research dates.

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Keywords: Research participation; Motivation; External validity

1. Time of participation effect and grade-orientation

In many universities, the participants in psychological research are undergraduate volunteers from introductory level courses. Ethical guidelines state that students in such courses have a

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choice between participation and some other educationally valuable experience. Thus, the research data reflect only the psychology of students who are willing to participate in research. If the characteristics of volunteers are significantly different from those of nonvolunteers, the external validity of the research is suspect.

Differences between volunteers and nonvolunteers are well documented. Researchers found volunteers to differ from nonvolunteers in educational level, social standing, intelligence, need for social approval, sociability, arousal-seeking, conventionality, conformity, and self-disclosure (Rosenthal & Rosnow, 1975, 1991), conservativeness (Joe, Jones, & Ryder, 1977), attitudes about experimentation (Dixon, 1978), change-seeking (Russell & Garlington, 1985), and various personality characteristics (Cowles & Davis, 1987; Waite, Claffey, & Hillbrand, 1998). Volunteers also differ in verbal SAT scores (Hocevar, 1979), memory (Kreiner, Alvarado, & Shockley, 1997), and various measures of course performance (Padilla-Walker, Zamboanga, Thompson, & Schmersal, 2005).

Jaffe (2005) suggested several means of alleviating the generalizability problem. One method suggested in most research methodology textbooks is replication across different studies, with different populations. If the same methodology is applied to a different population and results in the same outcome, then the external validity is strengthened. Jaffe also suggested generalizability may be improved by including Web-based data collection with more traditional methods. Finally, Jaffe recommended using a randomization procedure in which volunteers are randomly assigned to two separate studies, presumably of identical design. This, in effect, provides a built-in check for replication, albeit using participants from the same original pool.

2. Time of participation effects

The purpose of this article is to focus attention on a related, but less studied threat to research validity, namely the time of participation effect (TP) (Hom, 1987). A TP effect occurs when research participants who volunteer at separate times during the academic term have significantly different motivational or cognitive characteristics. These differences may affect the outcome of the research. For example, Hom (1987) found that the detrimental effect of extrinsic reward on intrinsic motivation only could be produced with early-term participants, but not with late-term participants.

TP effects weaken the validity of research results. External validity is weakened because data collected only at one point in a semester fails to adequately represent the target population. The prevalence of the assessed characteristic could be either over-estimated or under-estimated. Using Hom (1987) as the basis for an example, if one researcher collected data early in the semester and a second researcher used the same procedures to collect data late in the semester, the first researcher would be much more likely to find a detrimental reward effect. The first researcher might claim that the detrimental reward effect is a robust effect that is easy to demonstrate, while the second one might claim that it rarely occurs.

TP effects also can threaten the internal validity of research, if researchers administer different manipulations at different points in the semester (Aviv, Zelenski, Rallo, & Larsen, 2002; Zelenski, Rusting, & Larsen, 2003). Confounding the manipulation of the independent variable with time of participation makes it impossible to interpret the results.

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