



Archival research: Expanding the methodological toolkit in social psychology



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ABSTRACT

Laboratory experiments have many benefits and serve as a powerful tool for social psychology research. However, relying too heavily on laboratory experiments leaves the entire discipline of social psychology vulnerable to the inherent limitations of laboratory research. We discuss the benefits of integrating archival research into the portfolio of tools for conducting social psychological research. Using four published examples, we discuss the benefits and limitations of conducting archival research. We also provide suggestions on how social psychological researchers can take advantage of the benefits while overcoming the weaknesses of archival research. Finally, we provide useful resources and directions for utilizing archival data. We encourage social psychologists to increase the robustness of this scientific literature by supplementing laboratory experiments with archival research.

Social psychology has a long and respected tradition of conducting laboratory experiments. There are clear benefits to conducting such experiments. Most notably, laboratory experiments include the elements of contextual control and random assignment to treatment and control groups that when utilized properly allow researchers to draw causal inferences (Cook & Campbell, 1979). Delineation of causality allows for the generation and refinement of psychological theories, and aids in the understanding of how to influence psychological phenomena. Laboratory experiments are tailor made to facilitate these inferences, making them an extremely powerful and useful tool for conducting social psychological research (Falk & Heckman, 2009).

Despite their many strengths, laboratory experiments have important limitations. Artificial settings may miss important elements of real world contexts (Kerlinger, 1986), and demand characteristics in such artificial settings can distort construct relationships (Klein et al., 2012). Laboratory experiments are often conducted with relatively small samples, which may lead to unstable parameter estimates and invalid inferences (Hollenbeck, DeRue, & Mannor, 2006), and undermine the reliability of replications (Fraleigh & Vazire, 2014; Open Science Collaboration, 2015). Some of these limitations contribute to what some are calling a “crisis of confidence” in psychology (Baumeister,

2016; Hales, 2016; Pashler & Wagenmakers, 2012). Also, impracticality of random assignment of some characteristics potentially narrows the range of topics that can be studied in laboratory experiments (Doss, Rhoades, Stanley, & Markman, 2009; Sbarra, Emery, Beam, & Ocker, 2014).

Archival research has the potential to address many of these limitations and is therefore a promising complementary research approach to the traditional laboratory experiments. Archival research entails analyzing data that were stored other than for academic research purposes¹. This research approach has frequently been utilized in other fields (e.g., economics, sociology, and developmental psychology; Cherlin, 1991; Shultz, Hoffman, & Reiter-Palmon, 2005), but remains severely underutilized in social psychology. A search of the published articles in three top social-psychology journals (Journal of Personality and Social Psychology, Psychological Science, and Journal of Experimental Social Psychology) in 1996, 2006, and 2016 reveals that archival studies were used in < 1% of the published studies across three decades, meaning that only a small subset of the social psychology literature uses archival research. This underrepresentation of archival research is evident in spite of the high-impact archival studies that have been done in the field, such as Cohn, Mehl, and Pennebaker's (2004)

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¹ Although meta-analyses can be categorized as archival (e.g., Scandura & Williams, 2000), we consider this to be a different type of research that is already well utilized by social psychologists. We also exclude from our definition large-scale pre-existing datasets that were collected for academic purposes (e.g., American Time Use Survey, Studies from the GLOBE project, World Values Survey) even though these datasets are archival in nature and may offer triangulating value to researchers.

Table 1
Summary of archival research case example characteristics.

Archival research case example	Research design	Archival data sample size	Type of measures	Archival data availability	Combined studies
The Facebook A/B Study	True experiment	> 3 million Facebook posts	Facebook posts	Not publicly accessible	No
The Sleep and Cyberloafing Study	Natural experiment	3492 searches	Google trends daily search volume	Publicly accessible	Yes – observational lab study
The Divorce Education Program Study	Quasi-experiment	434 families	Divorce decrees and parenting plans	Publicly accessible	No
The Anticipatory Consumption Study	Correlational study	149 newspaper articles	Newspaper archives	Publicly accessible	Yes – survey, experience sampling study, and experiment

study on linguistic markers of psychological change after the September 11 attacks, Alter and Oppenheimer's research (2008) on the effects of fluency, and Sales' (1973) investigation of threat as a cause of authoritarianism.

Considering that the digital universe will more than double every two years from 2013 to 2020—from 4.4 trillion to 44 trillion gigabytes (International Data Corporation, 2014), archival research can be a fruitful and robust methodology for social psychologists to investigate social phenomena. Yet despite the vast amount of data available, only half of 1% of newly created digital data have been analyzed (MIT Technology Review, 2013). In recent years, tools for the assembly of relevant datasets have become widely available to researchers, including notable examples such as Google Trends, Twitter tags, and online marketplace bidding logs. Clearly, the “Big Data” revolution is beginning to alter the research landscape by turning archival research into a promising methodological option for research.

Archival research can take many forms, including true experiments, natural experiments, quasi-experiments, and correlational studies. Such data tend to occur in natural social settings, which offer social psychologists the opportunity to directly examine real-world phenomena that, by comparison, are often artificially simulated in laboratory settings. The massive and diverse samples typical of archival studies also yield several benefits, such as increased statistical power and generalizability. However, features of archival data have drawbacks that could result in researchers drawing misleading conclusions based upon null-hypothesis significance tests attached to small effect sizes, and the introduction of other forms of biases. Also, it is worth noting that even archival approaches to research call for a consideration of unsound research practices pertaining to data collection, measurement validity, and ethical concerns. As such, archival research has the potential to increase the robustness of social psychology research, but researchers need to be mindful of the potential limitations that accompany such an approach.

In this paper, we contrast the pros and cons of archival research by its key features (nature of data, sample characteristics, and type of measures) to assess its added value to archival social psychological researchers. We draw from four archival research case examples that respectively adopt a true experiment, natural experiment, quasi-experiment, and correlational research design to illustrate these strengths and weaknesses. We also suggest potential solutions to these weaknesses. These include additional recommendations to deal with open practices concerns specific to archival research and steps that researchers can take to reduce data reliability and validity concerns. Finally, we provide researchers with starting points and directions to conducting archival research (e.g., available resources for data acquisition/processing, useful statistical techniques, and novel archival research approaches).

1. Four archival research case examples

We discuss the strengths and weaknesses of the various features of archival research with respect to four recent papers that utilized an

archival research approach, which we refer to as *The Facebook A/B Study* (Kramer, Guillory, & Hancock, 2014), *The Sleep and Cyberloafing Study* (Wagner, Barnes, Lim, & Ferris, 2012), *The Divorce Education Program Study* (deLusé & Braver, 2015), and *The Anticipatory Consumption Study* (Kumar, Killingsworth, & Gilovich, 2014). We supplement these four examples with additional archival studies. The four studies were specifically chosen to highlight the range of research designs in archival research. Whereas most researchers are familiar with true experiments and correlational studies, the terms “natural experiment” and “quasi-experiment” are often used interchangeably and loosely in the literature. To be precise, in natural experiments, the treatment is a result of a naturally occurring or unplanned event that was not intended to influence the outcome of interest. On the other hand, in quasi-experiments, the treatment is planned and resembles a randomized experiment but lacks a full random assignment (Remler & Ryzin, 2015). Correlational studies are the most predominant research method in archival studies. In the domain of published archival research, there are only very few true experiments, natural experiments, and quasi-experiments². Plausible explanations for the lack of such archival experimental designs include the rarity of opportunities to introduce a manipulation into the real world, the rarity of a serendipitous occurrence of an unplanned event that is relevant to the social psychologist's research, and the rarity of planned treatments that are retrospective (it is more common for prospective data to be collected when treatments are intentionally introduced).

Yet despite rare evidence of such studies in the literature, the opening discussion of this paper highlights the ubiquity and generation of seemingly infinite amounts of data. In the midst of such munificence, substantial insight can be gained by researchers who are willing to broaden their conception of what constitutes social psychological research. To this end, this paper makes a case for archival research as a propellant for our field, and to a certain extent, as a remedy for some of the maladies that ail the field. We summarize the four archival research case examples below and in Table 1.

1.1. The Facebook A/B study (true experiment)³

Kramer et al. (2014) demonstrated in a study on Facebook users that when positive content on Facebook feeds was reduced, people produced

² There is a particularly low likelihood of archival true experiments and quasi-experiments as researchers who artificially create procedures to manipulate conditions would likely use them for prospective research. However, we still include these types of research in order to provide a complete range of archival research options.

³ As pointed out by an anonymous reviewer, the prospective nature of introducing a manipulation in the Facebook A/B Study may seem misaligned with the definition of archival research. However, given that the authors indicated in their journal submission that the “experiment was conducted by Facebook, Inc. for internal purposes” (Verma, 2014, p. 10779), suggesting that publishing the data for academic purposes was ancillary to the original commercial aim of the experimentally generated data, the Facebook A/B Study fits the definition of an archival research study. If the data had instead been collected by the research team with the primary purpose of generating publishable research, then the study would be considered a true experiment or a field experiment, but not be considered archival research.

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