Chapter 7

Internet-Enabled Experience Sampling: Innovations in Signaling and Data Sources

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ABSTRACT

Experience sampling method (ESM) and ecological momentary assessment (EMA) refer to a longitudinal research approach in which investigators collect self-reports and/or observational data at recurring intervals about study participants’ everyday activities, affect, physical, and psychological states. Advances in Internet-enabled technology, along with the ubiquity of smartphone use among college populations, have vastly increased the feasibility of ESM/EMA research for higher education researchers. The chapter uses examples from higher education research to describe how existing and emerging technological affordances, including automated sensing, can be used to signal participant experience reports and to collect new forms of digital, written, visual, oral, and physiological data. The authors discuss problems and controversies in ESM/EMA research, present potential solutions to these issues, and consider the future of this evolving family of methods for higher education researchers.

INTRODUCTION

Experience sampling methodology (ESM), also referred to as ecological momentary assessment (EMA) or ambulatory assessment, first emerged in the 1980s among psychologists seeking intensive, longitudinal data about ongoing activities and meaning-making in people’s everyday lives (Hormuth, 1986; Larson & Csikszentmihalyi, 1983). In ESM, study participants are prompted at designated intervals by signaling devices to document their thoughts, feelings, experiences, or physical states. When they

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receive a signal, study members produce a response that documents their experience or reaction at, or close to, the time it occurs.

Experience sampling is ideal for investigations of the interplay among individuals’ experiences, perceptions, and environmental contexts. It is particularly applicable for understanding students’ experiences within educational settings. Its strong ecological validity derives from the combination of in-the-moment capturing of experiences and the physical absence of the researcher during data collection (Freeman, Larson, & Csikszentmihalyi, 1980; Hormuth, 1986). Although these strengths characterize ESM across its history, the procedures for signaling participants and collecting responses have been transformed since the widespread adoption of email (Amabile, Barsade, Mueller, & Staw, 2005) and smartphones (Raento, Oulasvirta, & Eagle, 2009). In the pre-Internet era, researchers supplied ESM study participants with beepers (i.e., pagers or wristwatch alarms). When the beeper sounded, participants recorded their activity or mental state by filling out a short survey or writing a journal entry (Hormuth, 1986; Larson & Csikszentmihalyi, 1983). Internet-enabled technological tools, such as smartphones and mobile physiological monitors (such as Fitbit activity monitors or vital sign monitors), have reduced the expense and simplified the logistics of experience sampling. The ability of participants to produce and transmit audio recordings or visual images using networked devices has enabled new types of digitally-produced experience data. In 2016, the U.S. Census Bureau included questions specifically measuring smartphone ownership and reported that for “households with householders aged 15 to 35, 93 percent had a smartphone” (Ryan, 2018, p. 6). In 2018, 94% of Americans ages 18-29 owned a smartphone (Pew, 2018). These national statistics indicate that traditionally-aged college students are ideally positioned to participate in technology-enhanced ESM. Largely because of these technological affordances, the use of ESM appears to be on the rise (Van Berkel, Ferreira, & Kostakos, 2018). However, the method is still underutilized in education (Zirkel, Garcia & Murphy, 2015) and especially in higher education (Hektner, Schmidt, & Csikszentmihalyi, 2007).

There are notable advantages to remote sampling of experiences in education. Participants in experience sampling studies record their experiences and perceptions at or in close proximity to their occurrence. This allows for more accurate recall than retrospective accounts (Zirkel et al., 2015), which is particularly important given adolescents’ tendencies toward present-bias (Savitz-Romer & Bouffard, 2012). Multiple self-reports enable longitudinal investigation of changing experiences and perceptions in a period of transition, such as the first semester of college. There is greater likelihood of spontaneity and candor when the researcher is not present during the recording of participants’ reports, disrupting the power relations of face-to-face data collection methods with adult researchers and students (Korol-Ljungberg, Bussing, Williamson, & M’Cormack-Hale, 2008). Technologically-based ESM allows for lower costs, larger sample sizes, and greater geographic dispersions of samples for qualitative researchers and enhanced statistical power for quantitative researchers (Zirkel et al., 2015).

Along with new ways of effective signaling for data collection, Internet-enabled technology permits research participants to use new modes of representing their experience. This chapter will introduce Internet-enabled experience sampling methodology and make the case for its advantages in higher education research. The balance of the chapter will describe how Internet technologies can be used to signal participants and to collect digital written, visual, and oral data that are unmediated by researchers. To assist practitioners, the authors will ground the chapter with examples from higher education studies.