

Experience Sampling: Promises and Pitfalls, Strengths and Weaknesses

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Abstract The experience-sampling (ESM) technique is a method in which recording of feelings and activities is done on-line at the moment, either at randomly selected moments or at predetermined times. This method has the advantage of being able to not only assess people's general feelings, but to link feelings with situations, times of day, and other circumstances. Thus, ESM provides a powerful way of moving beyond simple questions about who is "happy" and who is not, to more intricate questions about when and why people experience positive and negative feelings. Compared to retrospective reports of feelings, ESM is less influenced by memory biases. ESM also allows researchers to analyze the patterning and relationships of feelings as they unfold over time. Despite the strengths and promise of this method, there are also limitations. For example, the heavy demand placed on research participants means that the sample might be biased toward highly conscientious individuals, and repeatedly reporting one's moods might itself influence feelings. How to analyze ESM data is discussed, including the issue of how to aggregate momentary feelings into global measures of the average subjective well-being of individuals.

Since its inception in the late 1970s, experience sampling methodology (ESM) has enjoyed an explosion of popularity in psychological research. A literature search for ESM and related terms, such as ecological momentary assessment, on PsychINFO yielded 343 articles and dissertations, most of which have been undertaken in the past dozen years. Much of its popularity can be attributed to its ability to delve beyond single-time self-report measurement to answer complex questions about lives, such as the role of situations in individual functioning, as well as its ability to provide solutions to nagging methodological problems, such as memory biases.

Investigators have long recognized the need for an assessment tool that is more true to life experiences than laboratory assessments, global questionnaires, or observer ratings. Brunswik (1949) and Cattell (1957) addressed the importance of understanding how various psychological variables manifest themselves in different situations in order to understand the full constellation of behaviors and conditions

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that elicit them. Later, the call for studies of on-line experience was again taken up by Fiske (1971), who wrote that the assessment of on-line experiences should be one of the essential tools in assessing personality. More recently, Funder (2001) brought attention to the necessity of studying personality in a wide variety of settings, and the utility of ESM in meeting that need.

What is ESM? A Brief History

ESM refers to a method of data collection in which participants respond to repeated assessments at moments over the course of time while functioning within their natural settings. Although no single person or research program can be credited with inventing ESM *per se*, the precursor to today's ESM can be seen as early as Flügel's (1925) 30-day study of mood. However, the methodology that most resembles its current form is usually credited to Csikszentmihalyi, Larson, and Prescott (1977) investigation of adolescents in their natural environments or Brandstaetter's (1983) study of mood across situations. ESM was also used extensively by Diener and his colleagues in the early 1980s for measuring mood across situations (e.g., Diener & Larsen, 1984; Diener & Emmons, 1985). What distinguishes these current forms from their earlier precursors is the introduction of random signaling and attempts to study intrapsychic phenomena.

The use of random sampling of behaviors used in the past by industrial researchers and behavior therapists (e.g., Ayllon & Haughton, 1964; Case Institute of Technology, 1958) were usually observer reports, and hence limited to the study of overt behaviors in institutional settings. The use of self-reports allowed for the sampling of a greater range of situations and investigation of more intra-psychic phenomena; however, participants were often required to keep track of the sampling times themselves, by either keeping a schedule of the times when one would be required to record one's behavior, or else setting alarm watches for the next assessment period (e.g., Barnes, 1956; Brandstaetter, 1983; Diener & Larsen, 1984; Heiland & Richardson, 1957; Hinricks, 1964; Case Institute of Technology, 1958). The disadvantage to this approach is that participants might anticipate alarms (although Diener and Larsen noted that most participants said they usually forgot about the alarms after they programmed the watch).

Fortunately for today's ESM researcher, technological advances have made many former problems moot. The tools of ESM have evolved to allow greater ease of data collection for the researchers as well as the participant. At its nascence, participants carried pagers or alarm watches, along with a stack of paper on which they recorded their responses when signaled. While the paging devices were usually small enough to be carried around comfortably, investigators still had to call the paging device. Other researchers telephoned the participants at home at random times. This approach, too, had its limitations; the participants could only be studied at certain times and while at home (see Stone, Kessler, & Haythornwaite, 1991 for a discussion of the advantages). Alternatives included pre-programmed alarm devices (Hormuth, 1986) that were relatively large.