

## Chapter 2

# The Experience Sampling Method

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The Experience Sampling Method (ESM) is a research procedure for studying what people do, feel, and think during their daily lives. It consists in asking individuals to provide systematic self-reports at random occasions during the waking hours of a normal week. Sets of these self-reports from a sample of individuals create an archival file of daily experience. Using this file, it becomes possible to address such questions as these: How do people spend their time? What do they usually feel like when engaged in various activities? How do men and women, adolescents and adults, disturbed and normal samples differ in their daily psychological states? This chapter describes the Experience Sampling Method and illustrates its use for studying a broad range of issues.

The origins of interest in daily experience and the origins of the method can be traced to numerous sources within the field of psychology. One of the earliest spokespersons for the scientific study of everyday life was Kurt Lewin (1935, 1936), who advocated investigation of the “topology” of daily activity. He believed that, by examining the psychological life space, it would be possible to understand the forces that structure daily thought and behavior. Regrettably, Lewin did not have a method for studying daily experience, and his American followers (for example, Roger Barker, Herbert Wright, P. V. Gump) turned to a behavioral

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approach that had laudable scientific rigor but neglected Lewin's concern for the intrapsychic aspects of existence. The observational methods that these followers developed had the additional drawback of being useful only for studying public behavior. Observers could not follow adults into the private segments of life without disrupting the phenomena to be observed.

Diary techniques proved a reliable means for investigating people's lives across all parts of the day, public and private. Early diary studies by Bevans (1913) and Altschuller (1923) and more sophisticated recent diary studies (Szalai et al. 1975; Robinson 1977) have provided valuable information about the environments and activities in which people spend their waking hours. For example, a cross-national study revealed that American and European adults spent far less time relaxing than adults elsewhere in the world do (Szalai et al. 1975). Again, however, the focus was on behavior; there was little attention to how people think or feel in the different parts of their lives.

Procedures for measuring intrapsychic variables have emerged from other areas of psychology and sociology. Personality research has fostered development of psychometric procedures that use paper-and-pencil questionnaires to investigate thoughts and feelings. Such research has resulted in rigorous techniques for the scaling and analysis of people's self-assessments, although, as we will note shortly, there are questions about the initial value of these assessments, at least about the assessments obtained in the past.

Most psychometric research has attempted to measure stable traits rather than daily experience. However, in recent years interest in evaluating quality of life has increased; internal experience is viewed not merely as an intervening variable but as an end in itself (Campbell 1976). In an early study, Bradburn and Caplovitz (1965) attempted to measure the effect of the Cuban missile crisis on people's daily well-being. (They found little effect.) Current research attempts to investigate various segments of normal existence (Andrews and Withey 1976; Campbell et al. 1976). Throughout the history of psychology, there has been a movement away from the study of stable traits toward a focus on how situations and contexts affect people's subjective experience.

Methodological problems, however, have stood in the way of this conceptual shift. Questionnaire and interview measures have proven fallible for the assessment of stable personality traits. Researchers have challenged the ecological validity of interview and questionnaire data obtained outside the context to which they refer (Willems 1969). Evidence suggests that people are not good at reconstructing their experience after the fact (Yarmey 1979) and that they cannot provide reliable assessments of complex dimensions of their own personality or of their experiences (Fiske 1971; Mischel 1968). Onetime assessments appear to reflect response sets and cultural stereotypes as much as they do anything else (D'Andrade 1973; Shweder 1975). Hence, there is a question as to how useful such assessments can be for attempts to learn about daily states and activities.

In sum, there is a convergence of interest on the study of daily life, but there is also a methodological stalemate. The Experience Sampling Method is not a panacea; it has problems and limitations of its own. But, it appears to overcome

some of the constraints of previous methods by combining the ecological validity of diary approaches with the rigorous measurement techniques of psychometric research. That is, it obtains information about the private as well as the public parts of people's lives, it secures data about both behavioral and intrapsychic aspects of daily activity, and it obtains reports about people's experience as it occurs, thereby minimizing the effects of reliance on memory and reconstruction.

## Description of the Method

*The Procedure.* The objective of the Experience Sampling Method is to obtain self-reports for a representative sample of moments in people's lives. To accomplish this objective, participants carry electronic pagers (the kind that doctors sometimes carry), which signal them according to a random schedule. The signal is a cue to complete a self-report questionnaire that asks about their experience at that moment in time. Participants might be driving a car, eating supper, or watching television. When the pager signals, they are to complete a report if it is at all possible. Typically, the schedule specifies one signal at a random moment within every 2-hour block of time between 8.00 a.m. and 10.00 p.m. for 1 week. Variations have included extending the schedule on weekend evenings and sending fewer signals per day over a longer period of time (see, for example, Savin-Williams and Demo 1983). It is essential only for the set of signals to be representative and for the signals to occur without forewarning to the person who receives them.

Upon receipt of each random signal, participants respond to questions about their objective situation and their subjective state at that moment. In the authors' research, questions about the objective situation have included items dealing with where participants were, what they were doing, and who they were with. Responses to such items have been obtained in an open-ended format and coded into mutually exclusive categories (with inter-rater reliabilities ranging between 0.70 and 0.90). Questions about participants' subjective state have included items dealing with the content of their thoughts; their cognitive, emotional, and motivational states; and their perceptions of their current social situation. These questions have typically been structured into semantic differential or Likert-type scales. Figure 2.1 shows the ESM self-report form used in one of our studies, Savin-Williams and Demo (1983) provide another, very different example.

Obviously, a great deal of latitude is possible in the items that can be included. The authors' concern has been to obtain a comprehensive snapshot at each random moment. The intent is to secure a data base that is representative of people's lives during a typical week. Data from many individuals provide an archive of information about daily experience—how people spend their time, with whom they spend it, and how they feel in different contexts—that allows numerous questions to be addressed.



to take part, and 75 (54 %) met the criteria for inclusion in the final sample (Larson 1979).

These seventy-five adolescents provided self-reports for two thirds (69 %) of the signals sent to them. The most common reasons for missed self-reports were pager malfunction and going to bed. (The schedule of signals extended until 1.30 a.m. on Friday and Saturday night.) These reasons do not bias sampling accuracy. Other reasons might, such as leaving the pager at home, traveling outside the 50-mile transmission radius of the signals, and seeking privacy from the pager. Despite the potential for bias, however, the reports included occasions of drug use, fights with parents, and sexual intercourse. While it is likely that some segments of adolescent experience were underrepresented, the sampling appeared to cover the great majority of these teenagers' lives.

A similar conclusion could be reached for the second major sample that we have studied. It was composed of adults (Csikszentmihalyi and Graef 1980; Graef 1979). Because this sample was not randomly selected, there are no meaningful estimates of participation rates for this age group. These 107 adults, volunteers from five Chicago-area businesses responded to 81 % of the signals by filling out self-reports. In response to a question after the study was over, 90 % said that the sampling was representative of their usual lives (Graef 1979). A comparison of activity frequencies for these adults with activity frequencies obtained through diary methods showed an extremely high correspondence in time use, which further confirms that ESM responses accurately reflect what people do in everyday life (Csikszentmihalyi and Graef 1980). As in the study of adolescents, the self-reports of these adults seemed to cover the great majority of their experience.

*An Idiographic Study: Lorraine's Week.* The best way to understand the method is to see how it works for one individual; What kind of information does it obtain, and how convincingly does it document a person's experiences? Lorraine (a pseudonym) provides a good example. Lorraine happened to have a personal trauma during the week of ESM self-reports. Her reports illustrate how the method works. They also demonstrate how it can be used for an exercise that psychologists often talk about but rarely carry out—an idiographic study of a single individual's life (Allport 1962; Lamiell 1981).

Lorraine, a high school senior, had been making plans through an exchange program to spend her first year of college in Spain. During the week of ESM reports, she learned that regulations would prevent her from going. To make matters worse, she had cancelled a weekend trip with friends to attend an exchange program meeting. Not only could she now not participate in the program; it was too late to rejoin her friends. In the sequence of self-reports excerpted in Fig. 2.2, one can observe how these events affected her experience.

The beginning of the week, before she learned about the collapse of her plans, was fairly positive for Lorraine. She indicated feeling happy and friendly when talking with friends, attending class, watching Miss America on television, and speaking with her aunt on the telephone. She received the bad news on Wednesday at about 1.00 p.m. The change in her state was dramatic. In the 75-min interval between 12.15 p.m. and 1.30 p.m., she went from feeling very happy and quite

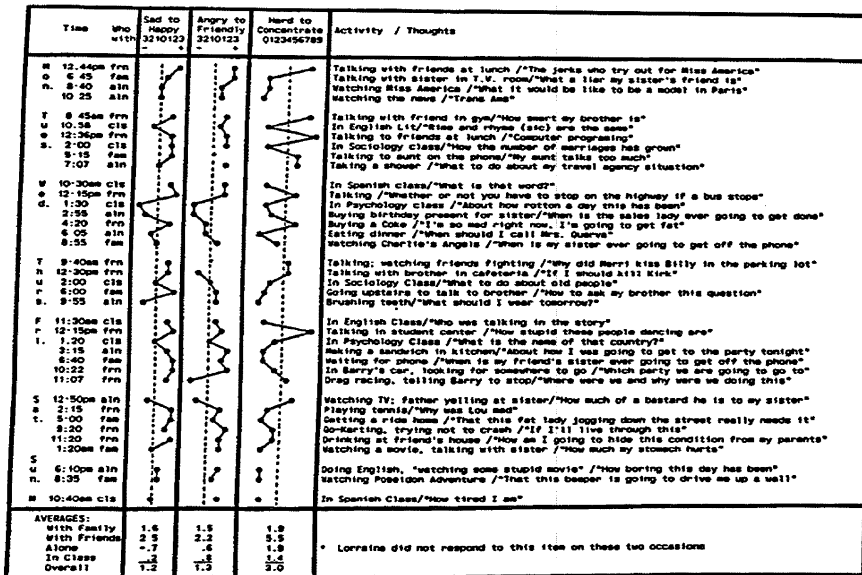


Fig. 2.2 Lorraine's ratings for the week

friendly to very sad and very angry, and for the rest of the day her moods remained substantially lower than usual. The only time she reported feeling happy was when she was thinking about gorging on food at 4.20 p.m.

For the remainder of the week, Lorraine reported positive states whenever she was with others, but when she was by herself or in the story, her moods were low. Each time she was alone, she was very lonely or quite lonely; although she said that she usually enjoyed school, she rated her state as very bored or quite bored each time that she reported in class. In the interview afterwards, she explained, "When I was with people, it was better. When I was alone, I'd just think about it [her collapsed plans]." The mere presence of others, however, seemed to distance her from the trauma and to lift her mood. On Thursday at 9.40, watching two friends fighting (Penny was infuriated because Merri kissed Danny), her negative state changed temporarily. Her friends' troubles appeared to take her mind off her own. On Friday and Saturday night, she went out with friends and reported having a good time, caught up in go-karting, partying, and drinking alcohol. These events raised her mood, but they also left her feeling hung over on Sunday, when she felt so poor that she turned off the pager for part of the day; she was irritated when it signalled at 8.35 p.m.

In the follow-up interview, Lorraine said that the pager seemed like a nuisance only at the end. She felt that participation in the research had had no effect on her life: her thoughts, feelings, or activities. She also indicated that the thirty-eight self-reports represented a good sampling of her week, except that they missed the running she did early in the morning.

Taking the week as a sample of this person's life, one can see the regularities in her experience. First, the data provide an indication of how she spent her time. For example, in the 38 self-reports, she reported watching television seven times (18 %) and studying only once (3 %). Second, the data provide a sampling of her thought content, which reflects the type of person she was. Both before and after the collapse of her plans, she reported thoughts that involved caustic evaluations of others. Third, we can observe her emotional patterns, Lorraine consistently reported feeling best with friends and worst alone, a pattern evident both before and after the bad news. Fourth, the data suggest regularities in her cognitive states. Repeatedly, she reported that it was hard to concentrate when she was with friends but not at other times, which may suggest why she sought solitude in spite of its painfulness. As a whole, the ESM self-reports show a dynamic alternation between people and solitude, between enjoyment of social interactions (sarcastic and caustic as this enjoyment might be), and depression and loneliness when alone. Clinically, the method has the potential to become a powerful tool for understanding an individual's life (Larson 1981).

However, this picture of one person becomes scientifically useful only if it generalizes to others in some way. The reason why psychologists avoid case investigations is because a sample of one does not, in technical terms, provide the degrees of freedom to make generalizations (Campbell 1975; Dukes 1965). But, because much of the information about Lorraine is in statistical form, we can progress to a next stage of analysis in which we evaluate how consistencies within her life hold true across many individuals. Might her response to disappointment, her good moods with friends, and the sequence of events in her life on Friday and Saturday night be common to other teenagers? At a more complex level, might her television watching, her caustic evaluations of others, or some pattern in her states differentiate her as part of a subclass of adolescents who share similar life styles and psychological characteristics? In advocating the idiographic study of individuals, Lamiell (1981) suggests beginning with investigation of single persons over time and then progressing to what he calls "idiothetic" research, in which patterns discovered within an individual are evaluated for a sample of people. It is at this aggregate level that the Experience Sampling Method is most powerful.

In the next section of this chapter, we will present findings that demonstrate use of the method with group data: first for the study of situations, then for the study of persons, last for the study of interactions between situations and persons.

## Findings Obtained with the Method

*Investigating a Situation: Solitude.* The situation that the Experience Sampling Method has been used to investigate most thoroughly is solitude, the roughly 25 % of people's lives when they are alone. Poets and philosophers, such as Thoreau, Rilke, and Pascal, suggest that solitude can be an experience either of transcendent bliss or of frightening loneliness. But, what the experience is usually like in

people's daily lives has not been studied. For Lorraine, solitude was associated with lower moods. Does this pattern hold for other adolescents? Does it hold for adults? Does it hold for diligent scholars who spend their lives working alone or for closet alcoholics who seek privacy for their drinking? Reviewing the ESM findings for solitude both delineates people's experience in this context and suggests how the method can be used to investigate other common situations in everyday life.

ESM studies have shown that solitude is associated with a combination of liabilities and potential benefits. The liabilities are evident in the immediate affective state that people report when they are alone. For all samples studied, average moods in solitude have been significantly lower. Loneliness, irritability, boredom, and passivity are reported more frequently when people are alone than when they are with others (Larson and Csikszentmihalyi 1978, 1980; Larson et al. 1982; Constantian 1981). Sequential analyses suggest that the drop in mood occurs conjointly with leaving the company of others and that the drop is reversed after returning to the presence of others (Larson 1979). In other words, the context itself appears to be associated with the experience of less positive affective states. Among the groups considered, this association appears to be strongest among adolescents (Larson et al. 1982).

Solitude also has potential benefits, which often extend beyond immediate experiential states. For self-reports following times alone, both adult and adolescent respondents have reported levels of alertness, cheerfulness, and subjective strength significantly above average (Larson et al. 1982). Being alone seemed to have a positive aftereffect: Enduring the lowered moods of solitude appears to have a renewing and invigorating influence on moods—or at least, in contrast to their moods in solitude, respondents felt better than usual in the company of others.

Just as the liabilities of solitude appear to be greatest for adolescents, the potential benefits also seem to be greatest for this age group. Findings of three different studies of high school and college students indicate cognitive dimensions to be significantly more favorable (Larson and Csikszentmihalyi 1978; Larson 1979; Constantian 1981). Despite lower affective moods, young respondents reported better and easier concentration, a sense of peacefulness, and diminished self-consciousness when alone. Further, in two samples of adolescents, there have been indications that spending time alone is related to better psychological adjustment. Teenagers who reported intermediate and high rates of being alone showed lower alienation, higher average mood, and better school performance than teenagers who reported low rates (Larson and Csikszentmihalyi 1978, 1980; Larson 1979). Spending at least some time in the emotionally depressed context of solitude appears to be related to better overall adjustment. Although the two studies were not wholly consistent in the exact relationships found, they provide another indication of possible benefits related to this experiential context.

Analyses of subsituations, item intercorrelations within situations, sequential relations, and differences between people are also possible. For solitude, a major mystery now is how liabilities and benefits are interrelated: Do they reflect separate occasions, or are they inseparable dimensions of the same experiences? Could it be



that the pain of solitude is somehow intrinsic to its renewing effects? Curiously, individuals who did not report feeling worse when they were alone showed lower overall average moods (Larson et al. 1982). It is as though these individuals never escaped from the negative side of the experience. Similarly, for Lorraine, spending time alone and facing her disappointment may have helped her to get over it.

Parallel analyses are possible for any situation that is a common part of people's lives. In addition to the investigations of solitude just reported, investigations have been carried out on school classrooms (Mayers 1978), work experiences (Rubinstein et al. 1980), television watching (Csikszentmihalyi and Kubey 1981), and adolescent drug use (Larson et al. 1983). By synthesizing reports from many individuals, it is possible to see the experiential regularities associated with each situation. Putting together portraits for the major life contexts (Csikszentmihalyi and Larson 1983) begins to suggest features of what Lewin called the "life space."

*Studying Individual Differences: Bulimia.* Data obtained with the ESM method can also be used to examine differences between people. Bulimia is an eating disorder that seems to be reaching epidemic proportions among young women (Hawkins and Clement 1980; Johnson et al. 1981). It is characterized by episodes of rapid consumption of food ("binges") followed by the use of vomiting, laxatives, or other means to eliminate the food ("purges"). These episodes can occur several times a day. Evidence suggests that they can be precipitated by events and emotions occurring in a person's ongoing life (Pyle et al. 1981). Because the disorder is so clearly tied to daily experience, investigation using the ESM procedure seemed particularly appropriate. What thoughts, activities, and feelings distinguish the lives of these women?

Before discussing this research, we need to comment on the reliability of ESM assessments of individual differences. The test of reliability that we have used involves comparisons of respondents' self-reports from the first half of the study week with self-reports from the last half of the study week. Correlation coefficients computed between the average moods for these two periods range between 0.55 and 0.85 for adolescents and between 0.62 and 0.93 for adults. Of course, one would not expect perfect correlations—people's experiences change over a week—but it is apparent that individual responses are relatively stable. High correlations among average moods have also been obtained over a 2-year period for a sample of twenty-seven adolescents, ranging between  $r = 0.4$  and  $r = 0.7$  (Freeman 1982). Across the hour-to-hour changes in state demonstrated by Lorraine and the situational variegations glimpsed during our discussion of solitude, there are stable patterns in how people experience their lives.

It was striking, therefore, to find that a sample of fifteen bulimic women differed significantly from a comparison sample in what they recorded on ESM self-reports. For the 40–50 random occasions when they responded to the pager, they reported significantly lower average moods than did women in a sample approximately matched for age, education, and marital status (Johnson and Larson 1982). They also reported significantly higher standard deviations. Members of the comparison sample reported positive moods for the great majority of self-report times. They had what might be called a margin of happiness in their lives.

The bulimics, however, reported equal numbers of times when they felt sad and happy. Compared to the normal controls, there were far more times when these women felt sad. This pattern of dysphoric and fluctuating moods has suggested that bulimia should be considered an affective disorder (Johnson and Larson 1982).

Additional analyses have revealed other characteristics of bulimics' daily experience that intimate the nature of the problem. It is hardly surprising that these women spent more time thinking about, preparing, and eating food (38 %) than did members of the comparison sample (14 %). What may be more significant is the volume of time that they spent in solitude (49 % versus 32 % for the comparison sample) and the nature of their experience in that situation. In current analyses, we are finding that the mood of bulimics when alone at home (the context in which binges and purges usually occur) is extremely dysphoric. However, being alone at work appears to be one of the most positive parts of their lives. Curiously, the two-sided context of solitude discussed in the last section appears to represent both the worst and the best of their experience.

This portrait of bulimic women—their pattern of disturbed affect and their unique relationship to solitude—illustrates how successfully the ESM captures the daily experience of people. Whereas traditional paper-and-pencil techniques have oriented individual differences research towards abstract latent traits, this new method directs attention towards thoughts, feelings, and actions manifest in everyday life. It does so by making use of psychometric techniques, but it uses these techniques within the ecologically valid context of people's lives. For bulimia, this kind of information is likely to be more useful in understanding and treating the disorder.

The Experience Sampling Method has also been used for comparisons between the daily experience of men and women (Graef 1979), adolescents and adults (Larson et al. 1980, 1982), and African and American graduate students (Malik 1981). Studies have investigated the daily lives of young adolescents going through puberty (Savin-Williams and Jaquish 1981; Jaquish and Savin-Williams 1981) and of mothers of infants (Wells 1982). Correlates of self-reported delinquency (Csikszentmihalyi et al. 1977), energy consumption (Graef et al. 1981), school performance (Mayers 1978), and work satisfaction (Rubinstein et al. 1980) have also been examined. Any group whose members are willing and able to carry pagers and provide self-reports during their daily lives can be studied with this method.

*Examining Interactions Between Situations and Persons.* In a sense, all ESM data represent the interaction of situations and persons. Experience, by definition, includes both. The self-reports reflect how people's selves are enacted in their daily lives (Csikszentmihalyi 1982). In the preceding two sections, we discussed investigations in which patterns relating either to situations or to persons were examined. Ultimately, however, the objective is to understand the interplay between the two. Lorraine's week, for example, illustrates how an event and a person mutually affect each other. The collapse of Lorraine's plans was followed by a sequence of responses and redefinitions of the situation. With a sample of individuals' experiences during smaller events, one could begin to analyze the dynamic process whereby this kind of trauma is resolved. Likewise, one could undertake to obtain a detailed understanding of bulimics' daily encounter with solitude.

One promising approach is through sequential analysis of ESM data. Such analysis has already been mentioned in the section on solitude: The drop in mood related to solitude was found to occur concurrently with leaving the presence of people. Returning to the presence of people was related to elevation of alertness, cheerfulness, and subjective strength to levels higher than average. In an analysis of self-reports made before, during, and after bulimics' binges and purges, we were able to reconstruct the emotional-cognitive sequence related to this unusual behavior: low antecedent moods, followed by a disassociative state during the binge, followed by a return of control and a concomitant rise in guilt and shame with the purge (Johnson and Larson 1982).

Perhaps the most intriguing opportunity for sequential analysis involves ESM research in which related individuals carry pagers and fill out self-reports simultaneously. Paired data obtained from such research would allow longitudinal analysis of people's reciprocal effects on each other. In a small pilot study with heterosexual couples, Donner et al. (1981) found asymmetric patterns in the influences of women and men on each other's states. Men appeared to stabilize (and lower) their female partners' moods, while women seemed to have the opposite influence on men. Parallel studies of people in families, schools, and work settings seem to be possible, although reactive methodological effects in such studies need to be watched closely.

As researchers move into more complex designs and analytic strategies, the potential for methodological error and misinterpretation of findings increases (Chalip 1982). The authors have already seen numerous instances of the psychologist's equivalent of the ecological fallacy: failure to differentiate state and trait relationships. One can use individual ESM self-reports as the unit of analysis to study states. One can also use scores aggregated within persons to study traits. But, the two should not be confused. Just because a pattern is found at one level does not mean that it will be found at the other. For example, we discovered that teenagers' average control with friends is negatively correlated with their overall average moods. Always feeling in control with friends appears to be maladaptive. From this finding, it might be tempting to conclude that, at any given moment, feeling in control with friends is related to a lower mood, yet exactly the opposite is true. As states, control and mood are positively correlated (Csikszentmihalyi and Larson 1983). What appears to be maladaptive at one level is not necessarily maladaptive at the other.

A more subtle analytic danger involves overlooking possible sources of variance. As with much ecological data, it is rarely possible to control for all sources of variance or to meet the rigorous assumptions of Bayesian statistics. Therefore, it seems appropriate to suggest that analyses should be done several different ways before they are taken seriously. These different ways could include use of standardized and unstandardized values, trying alternate definitions of the situations in question, and comparison of findings for significant subsamples (for example, men and women). As Wimsatt (1981) suggests, when many different approaches to a problem yield the same answer, one has a solid and defensible finding.

## Limitations and Prospects of the Method

It would be premature to pass judgment on the Experience Sampling Method. The jury is still out on its potential worth for a broad range of psychological and social psychological issues. However, it appears to surmount methodological limitations of other research procedures. Unlike traditional paper-and-pencil or interview methods, it does not depend on recollection and reconstruction by research subjects but rather obtains immediate reports on the ongoing conditions of their lives. Like paper-and-pencil and interview methods, the ESM procedure makes use of developed psychometric know-how, but, unlike those procedures, it uses such know-how within the ecologically valid contexts of people's daily experience. Further, unlike most traditional self-report methods, it does not rely on single assessments but obtains repeated measurements across many occasions.

However, at least four significant methodological questions need to be addressed. First, what types of people are willing to participate in this kind of research? Are there self-selection biases that exclude significant groups of individuals (for example, antisocial personalities, people under stress)? Second, what parts of people's experience are missed by the sampling procedure? Do participants underreport or hide significant parts of their lives (for example, sex, illicit drug use)? Third, what influences does the procedure have on the phenomena being measured? Are there substantial reactive effects on people's experience? Fourth, how consistent are ESM findings with findings obtained by other research methods? Do ESM findings correlate with findings obtainable from observational techniques, physical trace data, and portable physiological monitors?

These are all empirical questions upon which data can be brought to bear. Most likely methodological research will not provide a definitive thumbs-up or thumbs-down for the method. It may be, for example, that the validity of self-reports varies across types of items, situations, and people. According to Cronbach and Meehl (1955), validity is a characteristic of inferences, not of measures; hence, it has to be reconsidered for every new analysis. With time, it seems likely that a definition of boundaries delineating where the Experience Sampling Method is useful will emerge. In the meantime, findings encourage continued research with the method. It appears to reveal stable intersubjective regularities in people's experience and to open many new questions for systematic investigation.

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