

WHY TIME-SAMPLING STUDIES CAN ENRICH WORK-LEISURE RESEARCH

The distinction between work and leisure is central to psychological, sociological, and economic time-use theory. According to microeconomic theorists such as Becker (1965), work has to be compensated materially because the time allocated to it entails a proportional loss of leisure time. This material compensation is the observable trace of these activities – deemed to represent their value – and forms the core of national accounting of contributions to societal production. Unpaid work such as voluntary activities or household and family work cannot be observed in this fashion and these activities are not, therefore, included in national statistics. The resultant age and gender bias in national statistics has been highlighted repeatedly by time-use researchers (Herzog et al., 1989; Kahn, 1991). Similarly, most industrial psychologists and sociologists focus on male, middle-aged paid workers in their empirical investigations. In contrast to economists, they investigate specific working conditions they consider to be risk factors for physical and mental illness (e.g., Karasek and Theorell, 1991; Siegrist, 1986).

Both of these traditions can be complemented by a conceptualization that distinguishes between regeneration, paid and unpaid production, and leisure, and describes these activity types by reference to the same attributes – a desideratum pointed out, for instance, by Kabanoff (1980). Regenerative activities are those that *have* to be carried out by physiological necessity. The remaining activities can be selected more or less at will in accordance with the individual's preferences, and within the constraints of his or her personal, social, and material resources. Some of these activities contribute to the goods and services other individuals use and value, i.e., they are productive (Kahn, 1991). According to the third-party criterion (Reid, 1934), an activity is productive if it is performed predominantly for its outcomes and can, therefore, be delegated to



a third party without losing its benefits. In contrast, if an activity is performed primarily for its own sake and cannot, therefore, be delegated to a third party without loss of benefit, then it is consumptive. This conception allows the impact of the total workload (Frankenhäuser, 1994) on well-being to be examined, as well as the dynamics between demands stemming from different domains of life or social roles. Even for researchers interested in specific conditions of paid work, it may be fruitful to consider unpaid work, leisure, and regeneration because (a) some of the effects they are interested in seem to be most salient in the evening and at night (Frankenhäuser et al., 1989), and (b) the other activity types can have a moderating influence on recovery processes (Sonnentag, 2001). Furthermore, this conception makes it possible to include social groups such as students, young parents, and retired or unemployed individuals, which deviate in many ways from the standard of male, middle-aged, paid workers. To a certain extent, the economic perspective, with its conception of productive activities as a disutility is still inherent in the third-party criterion. Therefore, the conception we suggest here broadens the investigative horizon to encompass both negative and positive effects of activities, and their deferred as well as immediate consequences. Furthermore, in addition to the external characteristics of an activity (e.g., its temporal and spatial location), we would like to stress the importance of its subjective evaluation (e.g., the meaning and value that individuals or social groups attribute to it).

Focusing on the subjective experience of activities rather than on their external determinants, Csikszentmihalyi (e.g., Csikszentmihalyi and LeFevre, 1989) found remarkable similarities between work and leisure. Many activities – be they consumptive or productive – are not only performed because they are instrumental in reaching desired objectives, i.e., because of the expected utility of their outcomes, but also for their own sake – because they are rewarding in themselves. Juster (1985; see also Gershuny and Halpin, 1996) introduced the term “process benefits” to describe this direct unity. Productive activities seem to afford more of these benefits than consumptive activities (e.g., Juster and Stafford, 1991) because a certain level of competence is often necessary for an

activity to be enjoyed, and more skills are acquired for production purposes than for leisure pursuits (cf. Scitovsky, 1976).

Subjective interpretations and evaluations of activities may differ as a function of person and context factors such as age, gender, or personality (e.g., Clark, Harvey and Shaw, 1991; Lawton, Moss and Fulcomer, 1986–1987). The concrete opportunities and constraints, “the important constellation of factors in a situation and their relationships” (Blossfeld, 1996: 184) help to explain the choice of activities as well as the meaning and value they are accorded.

MEASUREMENT ISSUES

Time-use information can be collected in a number of ways, ranging from direct observation to retrospective recall over periods lasting up to a lifetime. From the research economic perspective, diaries and interviews reconstructing the same or the previous day’s activities lie between these extremes, and validation studies have shown them to be superior to less expensive substitutes (Juster, 1986; Robinson, 1985; Scheuch, 1972). However, like the other retrospective reports, 24-hour recall requires the respondents to (a) select the correct time interval, (b) recall the relevant events, and (c) aggregate the retrieved information into the appropriate format (Wheeler and Reis, 1991). This explains Engle and Lumpkin’s (1992) finding that, without cognitive enhancement, college students fail to report 54% of the activities that observers saw them perform during a two-hour period on the previous day. Although the accuracy of recall can be enhanced by minimizing selection, memory, and aggregation requirements the relative efficiency of assessment may still entail an increased risk of cognitive and motivational factors that compromise the validity of the answers.

Recent research in laboratory and in natural settings has shown that – even with short time lags between the event and its recording – the reliability of retrospective self-reports depends on properties of the acts, on base rates, desirability, gender and other factors (e.g., Gosling et al., 1998; Fahrenberg et al., 1999). Press and Tonsley (1998) compared retrospective self-report data on time use with self-monitoring data. Both husbands and wives over-report their contribution to the housework in retrospective reports, but wives

are more accurate in their reports. The fact that the relative over-report was 149% for husbands and 68% for wives casts doubt on the assumption that contemporary husbands do more housework than their predecessors. The findings confirm that the reporting gap found in housework surveys is influenced not only by memory problems, but also by social desirability, in particular by social expectations about gender roles. It seems that researchers should choose between methods of data collection that assess a person's subjective opinion of his or her time use and methods that assess the person's actual time use, depending on the specific research question.

For some research questions, intensive time-sampling methods are preferable to traditional questionnaires and interviews (Csikszentmihalyi and Larson, 1992). These methods open up a new array of assessment possibilities. They involve the time- or event-related recording of an actor's activities, cognitions, and emotions in the natural context of daily life. Memory problems can be controlled by reducing the time lag between event and recording to a minimum. In a study conducted by Perrez et al. (2000), more than 60% of recordings were made within five minutes of the signal being given. About 90% of recordings were completed within a 60-minute time limit.

Different formats of diary methods have been developed over the last two decades. These include booklet-based variants (supported by electronic pagers) and computer-aided methods. Bolger et al. (2003) expect improved mobile communication to afford new opportunities for online, duplex (i.e., interactive) contact with participants. The first time-sampling studies in the field of time-use research were conducted in the late 1980s (Warner, 1986) and early 1990s (e.g., Bittman, 1991). Bolger et al. (2003) point out that the earlier studies – which were conducted without the aid of pagers – involved problems of forgetfulness, retrospection errors, and uncertain compliance. Newer methods control the accuracy with respect to the sampling schedule and assure signal-contingency by automatic storage of the recording time (e.g., Perrez et al., 2000).

This special issue is dedicated to studies based on intensive time-sampling methods. This approach allows new questions to be addressed and answers that could not be provided by the traditional methods to be elaborated. The contributors to this issue all bring

vital expertise to the study of work and leisure activities. Some look at the momentary experiences associated with different types of activities or contexts. Others focus on objective working conditions and their interrelation with daily stressors in the explanation of well-being.

Philippe Delespaul and Marten Devries, Maastricht University, The Netherlands, have applied the experience-sampling method primarily in clinical contexts while the focus of *Harry Reis'* research program is on understanding the effects of naturally occurring social exchanges. Their study explores the contextual and subjective determinants of optimal experience (flow) during periods of study and compares them to those observed during active and passive leisure. Forty-three undergraduate students evaluated their social context, activities, and mood states at 10 randomly selected moments per day for one week. The signals were emitted by pre-programmed digital watches and the sampling forms consisted of 7-point Likert scales. The authors found flow-related patterns in activation and emotions. In challenging moments, overall activation was increased. Above and beyond the effect of levels of challenge and skill, concurrent emotions were related to activation. Additionally, reliable context effects were found for all activity types.

Antonella Delle Fave and Fausto Massimini, University of Milan, Italy, have applied experience samples to a variety of societal groups ranging from mountain farmers to metropolitan intellectuals. Their study investigates continuity and change in the daily lives of new parents. The time budgets and quality of experience of five working couples were assessed on the basis of eight time-sampling periods – four before the birth of their first child (10th, 20th, 30th and 35th week of pregnancy) and four after the birth (3rd and 7th week, 3rd and 6th month). During each 7–12 day sampling period, the couples were sent six synchronized signals by electronic pagers. The observation categories included activities, location, social context, and content of thought. The self-report form contained both open questions and Likert scales. The longitudinal design is a major strength of this study and allowed change in activities to be modeled. Parallel to an increase in the time devoted to the child, reductions in media usage were observed for both parents, and in work activities, social interactions and regenerative activities for mothers only. The (low)

level of leisure activities remained stable. The experience samples provide unique and fascinating insights into subjective aspects of the transition to parenthood. Parenting activities were associated with the highest values of positive affect, perceived challenge, and subjective involvement.

Simone Grebner and her colleagues from Berne University, Switzerland, are work and organizational psychologists whose research programs focus on the relationship between working conditions and well-being. Their study analyzes the frequency and content of stressful situations experienced by job newcomers in different settings of daily life, focusing on work and private life and the interface between the two. A second focus is placed on the relationship between characteristics of stressful situations, coping responses, and well-being. The authors seek evidence of specific coping patterns associated with adaptive coping. Furthermore, they accentuate the relationship between chronic stressors and stressful events and the implications for well-being.

The 80 participants in this study were apprentices undergoing training in different occupations. Following an event-sampling plan, they recorded stressful events over a seven-day period. Characteristics of these events, coping responses, and the effects of coping were recorded in diary format. Chronic job stressors and other variables were assessed by questionnaires.

This process-oriented observation of stress experience in work and private life allows the relative weight of different types of stressors (chronic versus episodic) in different types of situations (work versus private life) to be described and gauged, and their interplay and relative impact on well-being to be investigated. The results confirm the buffering effect of job control and provide a deeper insight into the processes of stress experience.

Petra Klumb, Berlin University of Technology, Germany, is an economic and health psychologist. The focus of her latest research is on time use and its antecedents and consequences over the life course. In a sample of retired individuals, she investigated the reasons for performing everyday activities and the differential effects of regenerative, productive, and consumptive activities on mood. She collected signal-contingent self-reports on activities, the reasons for performing them, their context, and the concurrent

affect, from 33 women and 48 men aged between 72 and 97 according to a random time-sampling plan. The average inter-signal interval was 2.5 hours (SD 20 minutes). The self-report form included open questions as well as Likert scales. The reports on subjective instrumentality replicated the theory-guided categorization of activities into regenerative, productive, and consumptive ones. An activity-related difference in positive affect was found only for affect aggregates across activities – not for momentary affect. This could be traced back to the fact that productive activities were more likely to be performed alone than consumptive ones, and that positive affect was lower in moments spent alone than in those spent in company. Only time-sampling data permit this disentanglement of activity-related and context-related effects.

Renate Rau and Antje Triemer, Dresden University of Technology, Germany, are industrial psychologists and experts in ambulatory monitoring. Their study investigates the affective, physiological, and behavioral effects of overtime. In a sample of 117 women and 126 men, they collected hourly time samples of positive and negative affect by means of a handheld computer, as well as 24-hour blood-pressure readings. Both women and men who worked overtime spent less time on leisure activities, but only men spent less time on household and family work. Moreover, all participants working overtime showed increased negative affect at work and before going to bed, and disturbed recovery (relaxation ability and sleep). Working overtime was only associated with reduced positive affect during leisure and housework for men, however. Finally, for women, but not for men, overtime was associated with higher systolic and diastolic blood pressure at work. Spill-over effects from one domain of life into the others are of interest for many researchers from different disciplines. Only time-sampling methods allow these effects to be assessed in a valid fashion.

Franziska Tschan, Norbert Semmer, and Laurent Inversin, University of Neuchâtel and Berne, Switzerland, are work and organizational psychologists whose work focuses on social relations and social interactions at the workplace. Their paper studies interaction processes at work in more detail. Who initiates interactions at work? Who are the addressees? To what extent do social factors intervene at work and what is their impact on the individual's

well-being and performance? These are core questions of organizational psychology, and most of the available knowledge on these issues has been gleaned from global questionnaire and interview assessments. What are the contents of communication (especially task-related versus private)? Does personality influence interaction, and what are the effects of social interaction at work on job satisfaction and organizational commitment? Research topics such as these require actual experiences to be assessed in the natural setting of work. The authors recruited their 54 subjects (with complete data sets) in different domains of work. They applied a variant of the Rochester Interaction Record self-observation system, and participants described their social interactions over a five-day period using a self-report diary. Other measures were assessed by questionnaires. The findings of these systematic self-observations of concrete daily interactions in the work setting are relevant to many areas of organizational psychology.

Peter Wilhelm and Meinrad Perrez, University of Fribourg, Switzerland, are stress and coping researchers with a particular interest in computer-aided assessment. Their study focuses on the question of how accurately husbands and wives can assess how the absent partner is feeling when he or she is at work or at home. Which factors affect the accuracy of these assessments? Are there gender differences in accuracy, and is it correlated with marital satisfaction? These questions are core issues of accuracy research. However, they have never been discussed in the context of home and work, and the implications of the relative awareness of the absent partner's feelings at work or at home have not yet been empirically analyzed. Do women overestimate their husband's stress at work and vice versa? What is the valence of emotional states when wives are at home and men at work and does it change when both are together? Such questions can be addressed using the computer-assisted intensive time-sampling method that the authors have devised and evaluated over recent years.

Following a random time-sampling schedule, 95 couples recorded the relevant data six times per day over a one-week period. The simultaneous computer-assisted self-monitoring of husbands and wives provides access to the emotional states of both partners,

and to their mutual beliefs about the other's emotional state at the same time.

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