J Happiness Stud (2015) 16:839–856
DOI 10.1007/s10902-014-9536-1

RESEARCH PAPER

Of Happiness and of Despair, Is There a Measure? Time Use and Subjective Well-being

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Published online: 11 June 2014

Abstract Data from the 1975 U.S. time use survey, Canadian time use surveys (GSS) conducted from 1986 to 2010, and experience sampling surveys (ESM) conducted in 1985 and 2003 at the University of Waterloo (Canada) are used to examine well-being effects of time use. Indicators of subjective well-being (SWB) under investigation include: (a) generalised enjoyment ratings of selected daily activities; (b) reporting of the single most enjoyed activity performed on the time diary day; (c) affect ratings of daily activities recorded in ESM surveys at the time of their occurrence; (d) correlations between time use and levels of respondents' perceived happiness and life satisfaction, and (e) relationships between frequency of participation in different groups of daily activities and respondents' cumulative affect ratings during a survey week (ESM 1985, 2003). An argument is made that attempts to delineate indices of SWB as multiples of activity enjoyment ratings and their duration encounter considerable measurement and conceptual difficulties. It is suggested that prolonged exposure to highly enjoyed daily activities does not always foretell higher levels of cumulative subjective well-being, which is associated with balanced use of time rather than increased participation in individual activities.

Keywords Time use · DRM · ESM · Subjective well-being · Measurement

Life is a most unpleasant thing, but to turn it wonderful is not that difficult. For this you need not win 200,000 roubles, be awarded the Order of the White Eagle, to marry a beauty, or to gain respect—all of these boons are perishable and eventually become a habit. To experience happiness without interruption, even in moments of grief and sorrow, one needs to be: (a) content with the present, and (b) rejoice that it "could have been much worse."

A.P. Chekhov, Life is wonderful (1885).

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1 Research Problem

The sense that human happiness and well-being are associated with the way we use our time has been acknowledged since antiquity (Aristotle, Seneca). In the 1930s, 1950s and 1960s, escape from the toil of long working hours and greater access to free time were seen as openings for an improved quality of human life (Lundberg et al. 1934; Anderson 1961; Dumazedier 1967).

In 1972, time use was incorporated as an indicator of well-being into the Gross National Happiness Project of the kingdom of Bhutan (Galay 2007). In 2009, the European Commission and OECD initiated the project *Beyond GDP* that set similar goals. Time use is one of the ten domains chosen by the Canadian Index of Well-being to monitor the quality of life (Brooker and Hyman 2010).

Systematic analyses of the relationships between time use and well-being by economists were initiated by Thomas Juster, who used time diary data to assess levels of subjective well-being (Juster et al. 1981). In Juster's opinion, a summation of enjoyment ratings (*process benefits*) associated with activities performed during a specified period of time provides a more realistic valuation of subjective well-being than general questions about life satisfaction or perceived happiness based on past recollections. Dow and Juster (1985) proposed to calculate process well-being benefits (PWB) as a weighted index of the duration of activities and their level of enjoyment; $PWB = \sum_{i=1}^{n} w_i t_i$, where w_i indicates a measure of satisfaction with an activity i, and t_i the number of hours during a certain accounting period devoted to this activity (p. 405).

In the 2000s, interest in using time use data for the assessment of subjective well-being (SWB) was revived by Kahneman and Krueger (2006). Kahneman and Krueger's day reconstruction method (DRM) used 'experienced utility' valuations of time diary episodes to assess respondents' well-being. It was more process sensitive and accurate than Juster's PWB, but shared with the latter the assumption that subjective well-being can be calculated as a multiple of activities' duration and their enjoyment ratings. DRM generated considerable interest and produced a number of interesting studies examining relationships between time use and subjective well-being at both the national and international levels (Stone et al. 2006; Krueger et al. 2009; Schwarz et al. 2009; Knabe et al. 2009).

Two concerns make, however, PWB and DRM efforts to assess subjective well-being problematic. The first is that enjoyment ratings of key daily activities depend on the formatting of the questions. The second concern is that extended exposure to enjoyable activities does not always translate into higher levels of subjective well-being.

Addressing these concerns, this article attempts to answer three questions:

(a) Do measurement differences alter enjoyment and experiential assessments of daily activities?
(b) Does increased involvement in enjoyable activities correlate with higher levels of subjective well-being?
(c) Does "time balance" approach offer an alternative for the study of the relationship between time use and subjective well-being?

2 Research Context

Of the three issues that are at the centre of this article, the effects of measurement differences on the assessment of well-being attracted attention of researchers the most. Much

of this debate focused on the pros and cons of the '*memory-based*' versus '*real-time*' or '*online*' assessments of activity enjoyment.

According to Schwarz et al. (2009), when asked how they 'usually' feel during a particular activity, people "draw on their general beliefs about the activity" and as a result fail to capture "what people actually experience in situ" (p. 159). Knabe et al. (2009) observed that unemployed may enjoy "a good day" and yet be dissatisfied with life in general.

To Kahneman, memory-based enjoyment ratings of activities are disproportionately influenced by most intense rather than average experiences. The moment-based 'online' assessments of affect provide, according to Kahneman, a more "objective" measurement of subjective well-being (Kahneman 2000; Kahneman et al. 2004a,b).

Robinson and Clore (2002) did not agree with Kahneman and found it useful to distinguish between '*episodic*' and '*semantic*' memories. These two systems interact, but function independently. According to Robinson and Clore, because online reports vary from situation to situation, they reveal little about the individual, and the beliefs about emotions rather than emotions themselves are "more consequential" (p. 954).

To Loewenstein (2009), the main limitation of *online* time accounts is their focus on happiness, "which elevates a particular hedonic feeling to an all-important role at the expense of a wide range of other things that matter, such as meaning, wisdom, and values" (p.104).

The discrepancy between *generalised* and '*real time*' activity enjoyment ratings attracted attention of time use researchers as well. Robinson and Martin (2009) noticed that paid work ranked in the 1975 U.S. time use survey higher when assessed 'in general' than when its rating was tied to a specific diary day, as was done in 1985. Watching TV ranked, on the contrary, lower when it was rated 'in general' than when it was assessed in 'real time'.

Along with the differences between 'memory-based' and 'concurrent' valuations of activity enjoyment, researchers have drawn attention to the disparity between the emotional effects of a *prolonged* as opposed to *instantaneous* exposure to daily activities. Put simply, both memory-based and momentary assessments of daily activities do not take into account that *repeated exposure* to the same activity can alter its *initial* emotional assessment.

One of the first to draw attention to this issue was Robinson (1977), who noticed that "contrary to the positive value placed on free time in our society, greater life satisfaction generally was associated with less rather than more available free time" (p. 168). This observation was corroborated by Argyle (1987), for whom satisfaction with different forms of leisure does not always correspond with the *amount of time* spent in it.

In the 1980s and 1990s, relationship between time use and emotional well-being became a focus of numerous studies using Experience Sampling Method (Csikszentmihalyi and Larson 1984, Csikszentmihalyi and Mai Ha-Wong 1991; Larson and Richards 1994; Csikszentmihalyi and Schneider 2000). These studies documented that instantaneous valuations of daily activities may conflict with the well-being effects of prolonged participation in the same activities. Csikszentmihalyi and Hunter (2003) reported that, contrary to what one might expect, "the amount of time spent in school related activities during the week is positively related to happiness ….even though studying is lower in happiness than most other activities (p.193).

The discrepancy between positive instantaneous valuations of watching TV and its cumulative effects is, according to Robinson and Martin (2009), documented by the consistent finding that "people who are unhappy, watch TV 25 % more than people who

say they are very happy (which holds after controls for education and other correlates" (p. 30).

Surprisingly, the discussion of the experiential outcomes of leisure activities made little use of the economic notion of "*declining marginal utility*," which suggests that utility decreases with additional increases in the consumption of goods.[1] With the exception of Gershuny (2011), discussion of the declining enjoyment of activities beyond a saturation point is missing in the debate about the well-being effects of time use. Gershuny, examining U.S and U.K. time use data from the mid 1980s, observed that beyond a saturation point the marginal utilities of personal needs (sleep) and leisure become negative. A similar observation with regard to teens' free time, sleep and homework was reported by Zuzanek (2009a, b).

For Csikszentmihalyi and Hunter (2003), it is important to notice that "studying, which produces an experience of sadness as it is occurring, helps young people feel happier in the long run. This apparently paradoxical finding is one of the important ways in which the ESM can reveal the fact that relationships that are negative at the state level can at time be positive at the trait level" (p. 193).

Observations that emotional outcomes of prolonged involvement in performed activities may reverse their instantaneous ratings poses before researchers the problem of time balance. According to Gershuny, "only time diaries can reveal the work-leisure or work-life balance for the society as a whole, for subgroups, or for individuals" (2011, p. 27). Unfortunately there is little empirical research covering this issue (see Matuska and Christiansen 2009). One of the reasons for this situation is that time use balance, defined as a configuration of time use which maximizes positive emotional and developmental outcomes, depends on an array of normative, situational, demographic, and psychological factors which defy 'linear' interpretation and complicate traditional statistical analyses (see Zuzanek 2009b).

Researchers agree that measurement strategies used to capture enjoyment attributes of activities "profoundly affect at which conclusions we arrive" (Schwarz et al. 2009, p. 3). Differences between memory-based and online valuations of emotional well-being carry different policy implications. Uses of global versus day-specific valuations of well-being may result, as shown by Knabe et al. (2009), in a different assessment of the implications of unemployment.

According to Gershuny (2011), "Over historical time, national product might increase but process benefits simultaneously decline, perhaps as a result of an increase of work time relative to leisure, if leisure were rated more enjoyable than work" (p. 32). The "IF" in this citation is important.

Summarizing the discussion about the effects of measurement differences on the assessment of the relationship between time use and well-being, Robinson and Martin (2009) concluded that "It would add more to the understanding of how and why time is spent to broaden the focus beyond the quantitative rating of life on a single day and to collect more open-ended data on how people experience activities and fit them into the rest of their lives" (p. 30).

[1] The law of diminishing marginal utility formulated by Alfred Marshall reads: "The additional utility which a person derives from an increase of his stock of a commodity diminishes with every increase in the stock that he or she already has" economics-exposed.com/theory-or-consumer-behaviour-3/.

3 Method

3.1 Data Sources

Data used in this article are taken from the 1975 U.S. time use survey, the 1986, 1998, 2005 and 2010 Canadian general social surveys (GSS), and experience sampling surveys (ESM) of Ontario adults and teens, conducted in 1985 and 2003 by the Research Group on Leisure and Cultural Development at the University of Waterloo.

The 1975 U.S. survey focused primarily on the use of time, but included numerous SWB questions. It sampled 2,406 adults aged 15 or older (1,594 aged 20 to 65), first interviewed in October–November 1975 and re-interviewed three more times in February, May, and September of 1976. Each respondent was interviewed on two weekdays and one day off. Apart from the time diary questions, respondents were asked how satisfied they were with their lives and how much they enjoyed key daily activities, such as paid work, cleaning the house, cooking, child care, watching TV, socialising with friends, and others. The enjoyment ratings of these activities were used by Juster to calculate 'process benefits' of daily life (see Juster et al. 1981).

The sample sizes of Canadian GSS time use surveys were 9,946 in 1986, 10,749 in 1998, 19,597 in 2005, and 15,390 in 2010, and for the population aged 20 to 65, which is at the core of our analyses, 7,776, 8,305, 14,761, and 10,990 respectively. Canadian respondents were interviewed on one day only. In addition to time use questions, they were asked how satisfied they were with life in general and its various domains (work, income, health, time-use, work-family balance) and how happy they felt. In 1998 and 2005, GSS respondents were also asked to rate their enjoyment of a series of activities resembling activities used by Juster, and to identify a *single* activity they enjoyed the most on the time diary day (Tables 1 and 2).

Table 1 Enjoyment ratings of selected daily activities: U.S. 1975, Canadian GSS 1998 and 2005 (Population aged 20–65)

	GSS 1998		GSS 2005		U.S. 1975	
	Mean (1–5)	Rank	Mean (1–5)	Rank	Mean (0–10)	Rank
Child care					8.83	1
Talk with friends and relatives					8.22	2
Have supper at home	4.04	1	4.20	1		
Dining at restaurants	3.99	2	3.99	2		
Paid work	3.77	3	3.79	3	7.96	3
Reading books and magazines					7.38	4
Movies, plays, sports events	3.75	4	3.77	4	6.72	5
Attending social events	3.48	5	3.55	5		
Cooking	3.29	6	3.44	6	5.99	7
Watching TV	3.16	7	3.33	7	6.00	6
Commuting to/from work	2.98	8	3.11	8		
Other than grocery shopping	2.91	9	3.10	9	5.67	8
Repairs and maintenance	2.91	10	3.02	10	5.10	9
Grocery shopping	2.60	11	2.86	11	4.33	10
Cleaning the house	2.39	12	2.54	12	4.26	11

Table 2 Most enjoyed activity performed on the diary day: Canadian GSS 1998 and 2005

	GSS 1998		GSS 2005	
	%	Rank	%	Rank
Attending sports, pop arts, movies	48.8	1	51.5	1
Playing with children	44.6	2	45.6	2
Attending social events	41.8	3	38.9	3
Dining at restaurants	19.8	4	20.8	4
Non-grocery shopping	17.4	5	10.5	6
Watching T.V.	11.9	6	14.0	5
Paid work	9.5	7	8.4	7
Child care	8.5	8	7.8	8
Grocery shopping	3.4	9	4.2	9
Cleaning the house	2.3	10	1.9	12
Cooking	2.1	11	3.1	10
Commuting to/from work	1.7	12	2.1	11

Per cent of participants who reported the activity on the time diary day

The two ESM surveys used a data collection method developed in the 1970s at the University of Chicago by Csikszentmihalyi and associates (Csikszentmihalyi & Larson 1987), The 1985 ESM survey focused on employed adults. It interviewed 167 respondents. In 2003, data were collected from 219 adolescents aged 12 to 18 and one of their parents. The 219 teens of the 2003 ESM survey were part of a larger survey of 2,113 Ontario high school students, who filled in time diaries and answered a number of questions about their behavioural preferences (see Zuzanek 2005).

The respondents of the 1985 and 2003 ESM surveys were signalled randomly by a beeper or pre-programmed wrist watch eight times a day from 7:30 a.m. to 11:00 p.m. over a period of 1 week. At the time of the beep they filled out short reports containing information about what they were doing at the time of the signal, where and who they were with, and their experiential states, such as feeling happy, good, worried, pressed for time, stressed, wishing to do something else, and others.

The 1985 ESM survey produced 5,955 self-reports, and the 2003 survey 10,453 adults' and 9,731 teens' self-reports. Only data for employed parents and teens aged 15–18 were used in the analyses reported in this article (6,743 and 3,811 episodes respectively). The response rate to the signals in the ESM surveys ranged from 74 % in 1985 to 82 % in 2003 (Zuzanek 2005).

3.2 Operationalisation of Time Use

Time use was calculated in the 1975 U.S. and Canadian GSS surveys as a summary duration (in minutes) of activity episodes reported on a diary day that were harmonised and grouped into larger activity categories.

In ESM surveys, time use was calculated as a proportion of *awake time* or a per cent of self-reports allocated to various daily activities during the survey week. These activities were subsequently grouped into larger categories, similar to the ones employed in time use surveys.

Time diary and ESM measurements of time use vary, because ESM data cover only waking hours of the day, while time diaries cover the entire 24-h day. This, however, does

not affect significantly the *proportionate distribution* of *day-time activities* obtained by the two measurements, including activities that are at the centre of the analyses reported in this article such as paid work, domestic work, child care, homework or free time. According to the 2005 GSS, domestic obligations of parents aged 20–64 with children under the age of 18 amounted to 206 min. Conversion of 2003 ESM episode frequencies into time units produced a mean of 202 min. GSS parents allocated 55 min to child care and 48 min to eating at home. The corresponding ESM figures were 48 and 40 min. Teens' ESM self-reports show that they spent on school days 70 min doing homework. The corresponding GSS time diary figure was 64 min.

3.3 Operationalisation of Enjoyment and Experiential Ratings

Enjoyment ratings and well-being connotations of daily activities reported in this article are, essentially, of three types:

1. In the 1975 U.S. time use survey, respondents were asked to rate on a 10-point scale, how much they enjoyed participation in 19 daily activities. Canadian respondents were asked in 1998 and 2005 to rate enjoyment of 14 activities on a 5-point scale. These memory-based assessments were *not* tied to a specific day or situation and were *general* in nature. See Table 1.
2. In the 1986 U.K. and U.S. time use surveys (see Gershuny and Halpin 1996; Robinson and Martin 2009), respondents were asked to assign enjoyment ratings to daily activities not '*in general'* but to the activities performed and reported *on the time diary day*. Such anchoring of enjoyment in '*real time*' provided, according to Robinson and Martin (2009), more reliable information about the 'process benefits' of daily activities than generalised recall ratings of pre-selected activities.

Identifying the *single most enjoyed* activity on the diary day, in the 1998 and 2005 Canadian GSS, also represented an attempt to anchor the enjoyment valuations of daily activities in 'real time' (Table 2). The notion of 'real time' is obviously an approximation, because respondents recorded their enjoyment usually at the end of the diary day rather than at the time when the assessed activities occurred.

3. The truly '*concurrent'* valuation of well-being connotations of daily activities was made possible by ESM surveys, where respondents were asked to record their feelings about what they were doing *at the very moment* when they were signalled by the pager (Table 3). It is, generally, accepted that Experience sampling methods "are the gold standard for assessing people's affective experience. They can capture the experience in situ, while the person has access to current feeling, and hence minimize problems of recall and inference." (Schwarz et al. 2009, p. 6).

The ESM ratings differ from the generalised or day-specific ratings not only by being instantaneous but also by being *experiential* rather than *preferential*. Unlike generalised or day-specific ratings, where respondents are forced, consciously or unconsciously, to compare appraised activities with other daily pursuits, ESM experiential ratings record respondents' feelings or moods rather than preferential assessments of the activities they engage in. If a comparison is made, it is with how respondents felt before the signal or how they ideally would have liked to feel.

A composite measure of affect (a mean of how happy, good, and cheerful respondents felt) was constructed to summarize respondents' positive feelings at the time of

Table 3 Experiential ratings of activity episodes: ESM 1985 and 2003 (employed adult population)

	ESM 1985		ESM 2003	
	Affect (1–7)	Rank	Affect (1–7)	Rank
Active sport	6.34	1	5.93	1
Socialising, attending social events	6.09	2	5.78	2
Dining in a restaurant	6.04	3	5.74	3
Playing with a child	5.94	4	5.73	4
Attending movies, plays, sports	5.84	5	5.61	5
Shopping other than grocery	5.57	6	5.49	6
Reading books	5.55	7	5.22	9
Grocery shopping	5.51	8	5.35	7
Watching TV and video	5.37	9	5.19	10
Paid work	5.29	10	5.11	13
Child care	5.26	11	5.13	12
Commuting to work	5.23	12	5.11	14
Cooking and baking	5.19	13	5.34	8
House upkeep	5.16	14	5.16	11
Mean	5.36		5.13	

the beep. Cronbach Alphas of affect were .83 for the teens and .84 for the adult population.[2]

Experience sampling surveys provide a unique opportunity to examine relationships between *instantaneous* and *long term* well-being effects of activities. Experiential connotations (affect) of daily activities can be measured in ESM surveys at the 'episode' or 'person-based' level. This distinction has important implications for the analyses of subjective well-being. In the 'episode-level' analyses, affect ratings are assigned to the activities when these activities occur. The 'person-based' analyses, as the name suggests, aggregate time use and emotional states for each respondent over the entire survey week. They do not tell us how respondents felt when they were engaged in specific activities, at different times of the day or in different company, but average respondents' feelings across the survey week and correlate these cumulative feelings of subjective well-being with aggregated indices of time use.

3.4 Analyses and Comparability of Data

Multiple linear regressions, controlling for gender, age, education and employment status (adults), and for gender and age (teens) were used to compare instantaneous versus cumulative effects of time use. Standardized betas were chosen to show the magnitude

[2] According to Schmidt (2009), "Many ESM studies involve composite measures in which multiple ESM items are used simultaneously to measure a single latent construct (e.g., intrinsic motivation, positive affect, anxiety). The internal consistency of composite measures, as indicated by Cronbach's alpha coefficient, are consistently within acceptable range (70-90)" Additional information about analyses of ESM data can be found in Csikszentmihalyi & Larson, 1987; Alliger & Williams, 1993; Stone & Shiffman, 1992; Hektner, Csikszentmihalyi & Schmidt, 2002.

(rather than just the slope) of the relationship between time use and the affect. All standardised betas reported in this article are significant at the .005 level.

The question, which regressions are best suited for the analyses of time use data, has been addressed by time-use researchers (Ferrer-i-Carbonell and Frijters 2004; Gershuny and Egerton 2006; Stewart 2009). Multiple linear regression was chosen because it generates least biased estimates (Stewart 2009).

A cautionary comment needs to be made with regard to the strength of the relationships between time use and SWB reported in this article. Correlations between *behaviour* (time use) and *attitudinal dimensions* of well-being, while statistically significant, are often relatively weak ($\beta < .15$). Part of the reason for this is that time use, unlike attitudinal valuations, is guided not only by social norms and personal preferences, but also by numerous situational constraints.

Two comments need to be made with regard to the comparability of the data examined in this article. According to Fleming and Spellerberg (1999): "From the beginning, time use surveys have been used to study trends and changes in populations and to assess life styles and well-being. The general *consistency of methods and analytical categories* introduced within the 12-country study in the 1960s enables comparisons to be made *between time use studies carried out at different times and in different countries*" (p.11). Information about compatibility of time diary and ESM data can be found in Robinson 1985; Csikszentmihalyi and Larson 1987; Schmidt 2009.

4 Findings

4.1 Do Different Measurements Alter Enjoyment and Experiential Assessments of Daily Activities?

4.1.1 Generalised Memory-Based Enjoyment Ratings

According to Table 1, in the 1975 U.S. time use survey child-care and socializing with friends were ranked as the most enjoyed activities. Paid work was awarded a high enjoyment rating of 8.0 on a 10-point scale. Housecleaning and grocery shopping were enjoyed the least. Watching TV occupied the middle ground.

The generalised recall ratings of comparable activities in the 1998 and 2005 Canadian GSS surveys in most instances paralleled U.S. findings. In the 2005 GSS, paid work was attributed, similar to the U.S., the third highest enjoyment rating. House upkeep, shopping and commuting to work ended at the bottom of the enjoyment scale, with cooking and watching TV occupying the middle ground.

4.1.2 'Real time' or Concurrent Enjoyment Ratings

Findings reported in Table 2 show that in the 1998 and 2005 GSS '*real time'* enjoyment ranking of daily activities in most instances paralleled rather closely the *generalised* ranking of the same activities (see Table 1).[3] Attending movies, plays, and sporting events, dining in restaurants and taking part in social events were assigned high rating at both the

[3] Per cent of single most enjoyed activities was calculated for respondents, who reported participation in a given activity on the diary day. For problems associated with the measurement of single most enjoyed activities see Michelson (2010).

generalised and '*real time*' levels. Cleaning the house, commuting to work, and grocery shopping bottomed the list of generalised as well as concurrent ratings of these activities.

There are, however, noticeable differences between the generalised and concurrent ratings of paid work and child care. Paid work that was given high *generalised* ratings in the U.S. and Canadian time use surveys, was chosen in the 2005 GSS as the single most enjoyed activity by only 8 % of respondents, well below the choice of watching TV (14 %). Child care that topped the list of the most enjoyed activities in the 1975 U.S. time use survey was chosen in the 2005 GSS as the single most enjoyed activity by fewer than 8 % of respondents (see Eibach and Mock 2011). In short, paid work and child care lost much of their 'retrospective' glamour when assessed 'in real time', while watching TV and shopping for durables moved from the lower to the upper half of the enjoyment scale.

4.1.3 ESM Affect Ratings

There is considerable similarity between the ESM *affect ratings* and *real time* or *concurrent* enjoyment ratings of the same activities (Tables 2, 3). Participation in sports, dining in restaurants, socialising with friends, or attending cultural and sporting events were accompanied by highly positive feelings of affect in ESM surveys and were enjoyed the most *in real time*. Housekeeping, commuting to work, and cooking were ranked low on the list of most enjoyed activities in the 2005 GSS, as well as assigned low affect ratings in the 2003 ESM survey. Similar to the *day-specific* ratings, but unlike the *generalised* ones, paid work and child care occupied in ESM surveys the lower rather than the upper part of the affect scale.

And yet, there is a conspicuous difference between the ESM *experiential* ratings of daily activities reported in Table 3 and *real-time* or *generalised* enjoyment ratings of the same activities reported in Tables 1 and 2. This difference lays not so much with the rank order of the assessed activities but rather with the *amplitude* of the ratings. The 5.2–5.8 points gap between the affect valuations of *house upkeep* and *socialising* with friends in the 2003 ESM survey was much narrower than the gap between the generalised ratings of 4.3 (*house upkeep*) and 8.2 (*socialising*) in the 1975 U.S. time use survey, or between the choice of *house upkeep* in the 2005 GSS as the single most enjoyed activity by only 2 % of respondents, compared to 46 %, who chose as such activity *socialising* with friends (compare Tables 1, 2, 3).

The main purpose of the above analyses was to show that it is difficult to find a universal yardstick for the measurement of well-being connotations of daily activities. Enjoyment ratings and experiential connotations of activities (affect) undoubtedly correlate with each other, particularly when enjoyment is measured 'in real time', but the three measurements are not identical or interchangeable.

Experiential connotations accompanying typical daily activities are, in the opinion of this author, well suited for capturing the process benefits of daily life. However, even if we were to agree upon this, the question whether greater exposure to emotionally gratifying experiences always carries greater happiness and life satisfaction remains open.

4.2 Does Increased Involvement in Enjoyable Activities Correlate with Higher Levels of Subjective Well-Being? The 'Hangover Effect'

> Excessive sorrow laughs. Excessive joy weeps.
> William Blake (1793).

Table 4 Well-being connotations of instantaneous and cumulative participation in daily activities: the "hangover" effect. ESM 2003 (Per cent and standardised **β**)

	Enjoyed (%)[a]	Affect (episode-based)[b]	Affect (person-based)[c]
Parents			
Domestic work		ns	.17
Free time		.06	−.08
Watching TV	48.5	ns	−.03
Teens aged 15–18			
Classes		−.04	ns
Homework		−.07	ns
Free time		.13	ns
Watching TV and video	64.2	.06	−.05
Surfing the web	49.1	ns	−.21

Standardised **β** were controlled for the adult population for age, gender, employment status, and education and for the teens attending school, for gender and age

All relationships are statistically significant ($p \leq .005$)

[a] Percent of respondents who rated activities 4 and 5 on a 5-point enjoyment scale in a home- or school-based questionnaire

[b] Composite of feeling happy, good and cheerful at the time of the beep ($\alpha = .84$)

[c] Cumulative affect rating accompanying *all activity episodes* reported during the survey week

Findings reported in Table 4 show that at the *instantaneous level* the relationships between affect and free time were positive for both adults and teens. The standardized betas were .06 for the adults and .13 for the teens. Yet, differently from the positive relationship at the *instantaneous* level, weekly *cumulative participation* in free time activities was accompanied, at least in the case of adults, with lower rather than higher weekly affect scores ($\boldsymbol{\beta} = -.08$). Among the teens, greater involvement in free time activities did not carry higher cumulative weekly affect scores.

The seemingly paradoxical discrepancy between *instantaneous* and *cumulative* effects of time use is even more obvious with watching TV and surfing the web. At the episode level, watching TV and videos was assessed by the teens positively, with a mean of 5.4 on a 7-point scale compared with 5.2 for all other activities. Adults assessed watching TV neutrally (5.2 on a 7-point scale). Cumulatively, however, watching TV and videos was associated with lower weekly affect scores for both the adults and the teens ($\boldsymbol{\beta} = -.03$ and $-.05$ respectively). Relationship between teens' surfing the web and 'affect' was statistically insignificant at the instantaneous level, but at the cumulative level it was decidedly negative ($\boldsymbol{\beta} = -.21$).

Greater involvement in domestic work, which certainly does not belong to adults' most enjoyed activities, was associated at the 'cumulative' week-long level (lo and behold!) with positive rather than negative feelings ($\boldsymbol{\beta} = .17$). While heavier house workloads are hardly a prescription for greater happiness, they did not predicate emotional misery either. Respondents who reported greater domestic workloads (employed men and women alike!) felt emotionally reasonably comfortable.

The same observation can be made about teens' class time and homework. Neither of these two activities were associated with positive feelings at the instantaneous level, but more class time or homework during the survey week did not turn teens into an unhappy lot (see Csikszentmihalyi and Hunter 2003).

Table 5 Relationships between participation in selected daily activities and subjective well-being. Canadian GSS 1986–2010, U.S. 1975 (population aged 20–65; standardised **β**)

	Happy person (1–4)			Life satisfaction				
	Canadian GSS			Canadian GSS				U.S.
	1986	1998	2005	1986	1998	2005	2010	1975
Domestic work	.05	.04	.03	.04	.01	.02	.03	ns
Free time	−.05	−.03	−.06	−.06	−.04	.02	ns	−.09
Watching TV and video	−.06	−.05	−.07	−.05	−.05	−.07	−.04	−.08
Physically active leisure	.01	.03	.05	.01	.03	.06	.05	.05
Using Internet/surfing the web		−.03	−.05		−.02	−.04	−.05	

In the 1986 and 1998 GSS life satisfaction was rated 1–4, in 2005 and 2010—1–10, and in the 1975 U.S. time-use survey 1–7. Standardised **β** were controlled for gender, age, and employment status

Observation about the 'hangover' effect of intense involvement in enjoyable activities is corroborated by Canadian and U.S. national time use surveys. Table 5 shows that greater amounts of free time, watching TV and surfing the web correlate, by and large, negatively with feeing happy or being satisfied with life.

4.3 Relationships Between Time Use and Subjective Well-being: The Merits of Balance

ESM findings reported in Table 6 show that adults' and teens' cumulative levels of subjective well-being (affect) in the 2003 ESM survey peaked at *moderate* rather than *elevated* levels of free time involvement. The same applies to adults' watching TV, and teens' surfing the web or socialising with friends. Moderate rather than prolonged involvement in these activities is associated with higher cumulative affect scores.

Similar conclusions are supported by the analyses of *time diary* data collected as part of the 2003 in-school survey of Ontario teens. Table 7 shows that having access to less than 6 h or more than 10 h of free time on Sundays, is associated among teens with lower levels

Table 6 The middle against the two ends? Cumulative affect of low, moderate and intensive involvement in selected activities: ESM 2003 (Means)

	Cumulative weekly affect score (1–7)		
Activity involvement	Low	Moderate	High
Parents			
Free time	5.07	5.21	5.16
Watching television	4.86	5.23	5.20
Teens aged 15–18			
Homework	4.82	5.00	4.95
Free time	4.76	5.06	4.89
Socialising with friends	4.79	5.18	4.93
Surfing the web	5.06	5.12	4.38

Low and high levels of involvement encompass fewer than 20 % or more than 80 % of activity episodes reported during the survey week

Table 7 Relationship between teens' time use and subjective well-being: ESM 2003 (teens aged 15–18)

Daily activities (hours per day)	How happy (1–5)	Emotional problems (2–10)
Free time on schooldays		
Less than 4 h	3.99	4.60
4 to 7 h	4.07	4.18
More than 7 h	4.06	4.41
Free time on Sundays		
Less than 6 h	3.84	4.82
6 to 10 h	4.14	4.28
More than 10 h	3.97	4.35
Watching TV and video on schooldays		
30 min or less	4.02	4.53
31 to 120 min	4.11	4.22
More than 2 h	3.95	4.32
Watching TV and video on Sundays		
Less than 1 h	3.95	4.66
1 to 3 h	4.12	4.25
More than 3 h	3.99	4.35
Socialising with friends on schooldays		
No participation reported	4.05	4.15
120 min or less	4.18	4.02
More than 120 min	4.11	4.05
Socialising with friends on Sundays		
No participation reported	3.82	4.67
5 h or less	4.03	4.24
More than 5 h	3.92	4.33

Emotional problems were computed as a composite of feeling lonely and depressed

of subjective well-being (happiness) and greater likelihood of having emotional problems than having access to an 'in-between' amount of 6–10 h.

Analyses of Canadian and U.S. national time diary data reported in Table 8 provide corresponding evidence. Moderate participation in free time activities, including watching TV and socialising with friends, is associated with higher levels of happiness and life satisfaction, Abstention or superfluous involvement are, on the contrary, associated with lower levels of life satisfaction. In short, too much of a good thing is not always a blessing.

5 Discussion

Findings reported in Tables 1, 2 and 3 suggest that the use of 'distant' or 'close by' perspectives in assessing enjoyment of different activities produces unlike results. Temporal closeness to assessed activities seems to temper social and normative concerns that influence respondents' generalised valuations. As observed by Robinson and Clore (2002), respondents use different frames of reference "when an event is distant versus close at hand" (p. 945).

Table 8 Does moderation pay off? Relationship between time use, happiness and life satisfaction: U.S. 1975 and Canadian 2005 GSS (Means)

	Happy person (1-4)			Life satisfaction (US 1–7; GSS 1–10)		
Activity involvement	Low	Moderate	High	Low	Moderate	High
U.S. adults aged 20–65						
Free time				5.52	5.60	5.20
Watching TV				5.54	5.64	5.44
Visiting friends and relatives				5.57	5.60	5.46
GSS 2005: adults aged 20–65						
Free time	3.37	3.38	3.33	7.60	7.72	7.63
Watching TV & video	3.39	3.38	3.33	7.72	7.70	7.57
GSS 2005: students aged 15–19						
Homework	3.44	3.52	3.38	8.21	8.38	7.92
Free time	3.37	3.50	3.39	8.03	8.25	8.16
Watching TV & video	3.46	3.47	3.40	8.22	8.23	8.10
Socialising with friends	3.44	3.45	3.44	8.10	8.26	8.16
Surfing the web	3.48	3.39	3.37	8.21	8.24	8.07
Computer and video games	3.45	3.55	3.31	8.17	8.52	7.90

Low and high levels of involvement were defined as the lower or upper 15 % of time use in a given activity

Paid work and child care are, *generally*, held in high esteem (who would dare to dislike child care!), but are not necessarily enjoyed when performed (would it not be nice to pass on some of the child care to grandparents!). Schwarz et al. (2009) suggested that global reports about child care are subject to higher social desirability pressures than episodic reports. TV programs, as Robinson and Martin commented, are considered a waste of time 'in general', but may be enjoyed when watched 'last night' (Robinson and Martin 2009, p. 29).

A comparison of the generalised, 'real-time' and instantaneous enjoyment ratings of activities shows that affect ratings are *more compressed* than preferential enjoyment ratings of the same activities. To *smoothen* the emotional texture of daily life, respondents downgrade the valuations of the more enjoyable activities (attending sporting and cultural events, reading books) and upgrade experiential ratings of the lower rated activities, such as shopping. To paraphrase Chekhov, to experience happiness "without interruption" we ought to be content rather than displeased with what we do.

Measurement differences have serious policy implications. Put simply, if *generalised* enjoyment ratings were used to calculate the well-being benefits of retired seniors, who are out of paid work and spend long hours in front of TV, the retirees would fare, according to Juster's calculations, emotionally worse than their employed counterparts. If, however, the more accommodating '*real time'* or instantaneous affect ratings were used (such as ESM or DRM), we would likely arrive at an opposite, more optimistic conclusion (see Krueger et al. 2009).

Experience sampling surveys and time diary evidence show, that, paradoxically, intensive engagement in enjoyable and experientially rewarding activities does not always foretell higher levels of subjective well-being. Prolonged exposure to TV viewing or surfing the web was associated with lower rather than higher levels of emotional well-being. Robinson's observation that greater life satisfaction was associated "with less rather

than more available free time" (1977, p. 162) substantiates the proposition that subjective well-being or emotional well-being can not be measured as a multiple of the enjoyment ratings of activities and their duration.

For some activities, the instantaneous and cumulative emotional effects converge. Greater involvement in sporting activities or socialising with friends are associated with higher levels of affect, but even these relationships need to be qualified—"up to a point." Time use and ESM evidence suggest that moderate rather than excessive involvement in enjoyable activities carries positive emotional outcomes.

These findings appear paradoxical only when eyed from a 'linear' perspective (the more the better!) but fail to explain relationships between correlates that cannot expand infinitely. According to Kant, objective life conditions change exponentially, but an increase of life contentment above a certain threshold level precipitates "death in the face of joy" (Anthropology from a Pragmatic Point of View 1798). The key to the understanding of the relationship between time use and subjective well-being is a *balanced* use of time rather than an exponential growth of the most enjoyed activities.

6 Conclusions

1. Analyses reported in this article show that relationships between time use and subjective well-being are more complex than originally anticipated. Attempts to delineate indices of SWB as multiples of activity enjoyment ratings and their duration encounter considerable measurement and conceptual difficulties. Differently formatted questions often produce conflicting results. Enjoyment ratings of paid work or child care were much higher when rated 'in general' than when rated 'in real time'. Shopping, on the other hand, while being often looked down upon 'in general', is experienced rather comfortably when actually performed.
2. It is the opinion of this author that experiential connotations of daily activities (affect) are better suited for the study of well-being benefits of daily life than preferential enjoyment rating of individual activities. Assessment of how happy, good or cheerful people feel, when they perform different activities, provides a more realistic picture of their subjective well-being than preferential ratings that are often 'tainted' by normative societal expectations. Affect scores involving different activities, engaged at different places and in the company of different persons provide more 'weighed' and 'matter-of-fact' information about subjective well-being than responses based on past recollections, generalised assessments, or reports tied to one particular day.
3. The use of cumulative affect scores for the assessment of subjective well-being compresses emotional ratings of daily activities. For a variety of reasons, people have to engage in activities that are not enjoyable, yet they do not want this to make them feel miserable. To harmonise their daily lives, people lower valuations of the most enjoyed activities and raise assessments of the less enjoyable ones. We try to make the best of life by moderating our preferences. Dramatic downgrading or upgrading of well-being valuations, as a result of recurring turnover of daily activities, would be psychologically unbearable. Kant alluded to this, when he wrote that keeping immediate enjoyment at a distance and under control makes life "richer" (2006, p. 400). In order to keep our spirits up, we better like what we are doing! As suggested by young A. P. Chekhov's in his humorous story "*The life is wonderful*", to experience happiness without interruption "even in moments of grief and sorrow" one

needs to be content with the present, and appreciate the fact that "it could have been much worse" (1946, p. 272).

4. Levelling or "*smoothing*" of the emotional texture of daily life does not, however, settle the dilemma of happiness. Contrary to Chekhov's advice, people tend to compare their present state not with what is much worse, but rather, with what is better. We can emotionally smoothen the vagaries of daily life and put up with some less enjoyable activities, up to a point, but cannot stop striving for better life arrangements. To balance our life emotionally we also need to balance and optimise it behaviourally. This, however, can not be achieved by simply raising participation in enjoyable or experientially rewarding activities, but rather by balancing one's use of time. The maxim of 'linear' thinking—"the more the better"—does not apply to time use. Too much of a good thing is not always a blessing. "Happiness that is not tempered overwhelms us" (Seneca, Ep.74).
5. This, of course, raises the question about what constitutes a "balanced time use". There is no simple answer to this question. To be balanced, time use has to be *socially functional* as well as *personally enjoyable*. There is no universal recipe for achieving this. Time use balance varies for different population groups. What works for one group need not satisfy others. Time balance is an objective as well as a subjective category. It is affected by situational factors, personality dispositions and preferences. Long hours of paid work may comply with balanced time use among professionals, but not among blue-collar workers. Table 7 shows that teens, who socialised with friends in excess of 2 h on school days, forfeited their emotional balance and reported lower level of happiness, but on Sundays the 'off balance' threshold point moved up to 5 h or more. While there may not be a universal prescription for optimal use of time, it can be established for different population groups, based on practical experience and survey research, as for example with the optimal length of sleep for children and teens, at variance with the adults. We will probably never find the ultimate key to human happiness, but may provide a useful operational hint on how much of what is "too much" and what direction to take to reach a more balanced life style.
6. It has been said that seeking pleasure is built into our genes for the preservation of the species rather than for its own sake. "The pleasure we take in eating is an efficient way to ensure that the body will get the nourishment it needs. The pleasure of sexual intercourse is an equally practical method to program the body to reproduce" (Csikszentmihalyi 1990, p. 17). Philosophically, enjoyment is an instrument or a lubricant rather than a goal. Pursuing joy for its own sake is from this perspective a dead end. It does not surprise therefore that serious authors of the past distinguished between pleasure and true happiness. "Deep happiness", argued Montaigne, "contains more of rigour than joy, and the ultimate satisfaction rests with serenity more than with pleasure" (Essays, Vol. 12, Chapter XX). For more recent in-depth analyses of 'true' happiness see Csikszentmihalyi 1990 and Seligman 2002. True contentment or happiness, in a Socratic sense, presuppose a purpose, something that unfortunately is missing in most statistical analyses. The relationship between time use and subjective well-being is neither linear nor universal, but an emotionally and behaviourally balanced life is a precondition of well-being, that deserves serious research and policy attention.

Acknowledgments The 1985 and 2003 ESM surveys were supported by Grants from the Canadian Federal Department of Fitness and Amateur Sport and Social Sciences and Humanities Research Council of Canada and were directed by Jiri Zuzanek (principal investigator) and Roger Mannell. The author would like

to thank Kimberly Fisher, Margo Hilbrecht, Steven Mock, Tania White and Natasha Graham for their advice.

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