WILLIAM PAVOT AND ED DIENER

THE AFFECTIVE AND COGNITIVE CONTEXT
OF SELF-REPORTED MEASURES OF
SUBJECTIVE WELL-BEING

ABSTRACT. Researchers attempting to understand the experience of subjective well-being have relied heavily on self-report measurement. Recent research focused on this method has demonstrated that a number of factors, such as the current mood of the respondent and the cognitive and social context surrounding the response, can significantly influence response to items inquiring about global subjective well-being or satisfaction with life. In the present study, several measurement strategies (e.g., single-item measures, multiple-item scales, and memory search tasks) were compared with regard to their susceptibility to such influences. Although some evidence for effects due to item-placement or transient mood were found, all of the global measures of subjective well-being and life satisfaction has significant convergence with peer-reports, and the single-item measures showed good temporal reliability across a one-month interval. The data provide evidence for a significant degree of stability in subjective well-being and life satisfaction.

Despite their diversity, the vast majority of measures of subjective well-being (SWB) share a common methodology; they are almost exclusively based on the self-report of the respondent. SWB researchers are interested in the individual's experience level of SWB, rather than his or her well-being in terms of objective criteria (e.g., level of income). Thus, self-report data may provide the most direct access to the individual's experience of SWB. Recent research, however, in the area of social cognition has suggested that responses to self-report measures may be heavily influenced by the immediate affective and cognitive context surrounding those responses. It is imperative that measures or procedures be designed to minimize these effects, in order to better assess the "signal" of long-term states of subjective well-being through the "noise" of transient affective or cognitive states. Although transient and situational effects may be the phenomena of interest for some (and hence, not noise), most SWB researchers are interested in experiences which persist over time.

Three of the fundamental assumptions that SWB researchers have

made are that: (1) people have reasonably stable levels of SWB over time; (2) people have access to information about their long-term level of SWB which is stored in memory; and (3) people search for, access, and report this information when they make reports of their SWB to others. A large body of evidence has now been produced to suggest that such a view ignores a number of potentially powerful influences, such as the affective and cognitive context within which such reports are embedded.

In a specific consideration of the effects of current mood on self-reported life satisfaction and SWB, Schwarz and Clore (1983) reported that subjects who were currently in a good mood reported higher levels of global life satisfaction and SWB than subjects in a bad mood. The findings suggest that individuals use the affective state which they are experiencing at the time of inquiry as a source of information for making evaluations of their long-term levels of SWB or life satisfaction.

In addition to the effects of current mood on reports of SWB, such subtle factors as item placement within a questionnaire can have a dramatic effect upon responses to items assessing SWB and life satisfaction. For example, Strack, Martin, and Schwarz (1988) observed a strong, positive correlation ($r = 0.66$) between dating frequency and life satisfaction when the dating frequency question was asked first, but a small negative correlation was produced when the dating question was placed after the life satisfaction question. Thus, it appears that when the dating question is placed first, respondents use their satisfaction with that domain, which has become cognitively salient, as a primary source of information in determining their response to the global life satisfaction question. Such demonstrations clearly demonstrate the potential power of the immediate cognitive context to influence response.

Taken as a whole, the above effects of current mood and situational variables represent the empirical basis for what Diener has called the "constructionist view" (Diener, 1990, p. 29) of well-being. According to the constructionist view of well-being, people formulate their judgments regarding their level of SWB at the time of inquiry, and these constructed judgments are based on immediately available information (Diener, 1990). This information may include the respondent's current mood and/or other recent, salient cognitive input (Schwarz and Strack,

1991). In its strongest form, this argument suggests that there may not be anything resembling long-term well-being. Rather, responses to questions about long-term SWB may be momentary and idiosyncratic constructions, based on the most powerful and relevant cognitive information available at the moment of response.

Despite the substantial evidence for the influence of transient states on self-reports of SWB, there is also evidence that SWB is a stable phenomenon. One part of this evidence is that measures of SWB show considerable temporal reliability. Reliabilities of 0.67 have been found for measures of hedonic level over a two-year span (Wessman and Ricks, 1966), and have been reported in the 0.5 to 0.6 range for well-being measures over a six-year period (Heady and Wearing, 1989). Another body of evidence for the long-term stability of SWB stems from a number of studies that have revealed a substantive, long-term relationship between extraversion and positive affect and neuroticism and negative effect (Costa and McCrae, 1980; Emmons and Diener, 1985; Pavot et al., 1990). This degree of correlation between experienced affect and personality would not be expected if the reports of affective well-being were based upon only transient influences.

Other evidence for the long-term nature of SWB is the substantial degree of agreement between the ratings of life satisfaction given by the friends and by the families of college students. Pavot et al. (1991) found a correlation of 0.54 between the reports on the SWB of target students given by friends and those given by members of their family. Thus, informants who interacted with the subjects in very different situations, and whose interpersonal relationships were likely quite different as well, showed substantial agreement in terms of the subject's level of SWB.

In sum, although a considerable amount of evidence suggests that some degree of long-term stability in SWB does exist, a substantial number of studies have also demonstrated that self reports of global SWB and life satisfaction can be to some extent influenced by transient factors. One question that arises is whether the depth or amount of cognitive processing required to complete the measure of SWB is a moderator of the effects of current mood and/or cognitive context upon the response. In demonstrating the effects of current mood (Schwarz and Clore, 1983) and item placement (Strack et al., 1988) on

a subject's response to inquiries about global SWB and life satisfaction, the experimenters used very simple, single item measures of SWB. This is, in fact, the typical sort of item that is found in much of the research on SWB (Diener, 1984). Presumably, such a single-item measure could involve a relatively minimal memory review on the part of the respondent, and would consequently be more subject to the sort of conscious and unconscious influences discussed above (Clark and Isen, 1982; Schwarz and Clore, 1983; Schwarz and Strack, 1991). In such a case, it seems plausible that a relatively strong mood state, or other salient cognitive information, could become a source of information in the formulation of a response. However, it is still unclear whether the same effects would be observed if a more extensive measure were used to assess global, long-term SWB.

Several factors combine to suggest that a longer, multiple-item test would produce a more valid assessment of long-term SWB than is obtained from a response to a single-item measure. The first evidence stems from classical test theory. According to this theory, as the length of a test increases, the reliability of the test should increase, other factors being equal (Cronbach, 1960). Another important factor is that multiple-item measures should prompt individuals to make a more extensive search of their memory for relevant evidence upon which to base his or her responses. If such a search is sufficiently motivated and intentional, it should work to reduce or eliminate the effects of preconscious influences (Bargh, 1989). In the case of a single-item measure, a respondent might be unwilling or unable to devote sufficient cognitive resources to make an intentional cognitive search to formulate a response. In such a case an individual's response to any single item might be heavily influenced by preconsciously supplied information (Bargh and Thein, 1985). However, a multiple-item measure which repeatedly inquires about a particular domain might prompt respondents to seek more evidence relevant to that domain. Thus, a multi-item SWB inventory may be less susceptible to the influences discussed by Schwarz and Strack (1991).

Along with simply increasing the length of the measure, another way to encourage a more extensive informational search is to make the task more personally relevant to the respondent (Chaiken, 1980). One way to accomplish this might be to ask the respondents to self-nominate a

list of their own most important life domains, and then evaluate each of the domains in terms of their affective valence. These domains could be goals, relationships, or other areas of their lives which are important and affectively relevant. Presumably, a response to a self-report measure of SWB presented immediately after such a procedure would be less likely to be influenced by transient, preconscious influences, and more likely to be based on salient, intentionally retrieved information connected to the appraisal of relevant domains.

The present study has several primary objectives. First, it was intended to examine whether, or to what extent, each of several methods of assessing SWB and life satisfaction would be influenced by instrument characteristics such as item-placement. Second, it was intended to determine whether measures which demand a more extensive memory search and/or which are more personally relevant to the subject would be less influenced by these factors and show stronger relationships to external criteria than relatively simple, one-item measures. Finally, the data could be used to examine the degree to which global measures of SWB and life satisfaction reflect stable rather than transient experiential states.

METHOD

Subjects

The subjects for the study were 741 students at the University of Illinois, participating to partially fulfill a course requirement for introductory psychology. The sample included 305 (41%) men and 435 (59%) women. Two participants did not indicate their gender. Each subject was also requested to enlist three peers to provide additional data. Data were received from at least one peer for 565 of the subjects, from two peers for 429 of the subjects, and from three peers for 274 of the subjects. A total of 1269 usable peer reports were returned. Only data which could be averaged across two or three peers was analyzed. Thus, for peer data variables, the sample was reduced to 429, including 155 (36%) men and 274 (64%) women. No systematic differences in the return rate across conditions (e.g., single-item versus multiple-item conditions) were observed, so that comparisons across conditions

should reflect no systematic biases. Further, we did not observe self-reported differences in happiness between those whose peers did or did not respond.

Measures

A number of diverse measures of SWB were included in the study. These multiple measures were intended to provide a range of complexity, and to allow for the examination of convergence of measures representing distinct methodologies (e.g., peer- versus self-reported measures). Single-item measures of SWB and life satisfaction represented the most simple of the assessments. Participants responded on a seven-point Likert scale to the global items "In terms of your life as a whole, how happy are you?" and "How satisfied are you with your life?". Multiple-item measures included the 20-item Affectometer (Kammann and Flett, 1983) as a measure of SWB, and the Satisfaction with Life Scale (Diener *et al.*, 1985), a five-item measure of global life satisfaction.

The most extensive and involving of the measures of SWB incorporated a life domain search/evaluation procedure. In this procedure, participants were asked to self-nominate the most important and affectively relevant domains in their life, and to list these domains on a sheet of paper. Then, the subjects were asked to go through the list, and assign a value on a scale of one to seven, according to the degree they are happy with each of these domains (1 = very unhappy, 7 = very happy).

In addition to the above measures, an external criterion measure of global SWB and life satisfaction was obtained, in the form of peer reports from three peers selected by the subject. Each of these peers was asked to make ratings of the global SWB, life satisfaction, and personality of the subject, and to mail these ratings directly back to the experimenter. In return for their participation, each peer was given a chance to participate in a cash lottery, which offered five prizes of $20 each.

Measures of current mood and personality were also obtained from the subjects. Current mood was assessed with a single global mood item, "How would you describe the mood you are feeling right now?"

Responses were made on a seven-point scale, ranging from "very positive" to "very negative." As a self-report measure of personality, the 57-item Eysenck Personality Inventory (EPI) (Eysenck and Eysenck, 1964) was used to provide an index of extraversion and neuroticism.

Procedure

A summary of the various conditions, measures, and order of presentation of measures is presented in Figure 1. The subjects participating in the study were randomly assigned to three different measurement conditions, each representing a different assessment strategy. In the single-item assessment group, the assessment of SWB and life satisfaction consisted of brief, single-item measures. In the multiple-item

Single-item Group	Multiple-item Group	Memory search Group
(Conditions 1 & 2)	(Conditions 3 & 4)	(Conditions 5 & 6)
Dating item L.S. item SWB item	Dating item SWLS SWB scale	Current Mood Memory search Dating item L.S. item SWB item
Occupation ratings		
Current Mood	Current Mood	
Financial Satis. L.S. item SWB item	Financial Satis. SWLS SWB item	
Personality measures	Personality measures	Personality measures
Peer reports	Peer reports	Peer reports
One-month retest of sub-test ($N = 185$) Single-item measures		

Note: In the odd-numbered conditions, the dating frequency and financial satisfaction items were placed before the SWB and life satisfaction measures. In the even-numbered conditions, the dating frequency and financial satisfaction items came after the SWB and life satisfaction measures.

Fig. 1. Order of procedures and measure presentation.

assessment group, the assessment of SWB and life satisfaction consisted of multiple-item measures of each. In the third group, participants completed the life domain search/evaluation procedure, which was then followed by the same single-item measures described above. Each of these three main groups was then sub-divided into two smaller groups, for whom the order of presentation of the various measures was varied. This was done to examine the effects of item placement as reported by Strack et al., (1988). In one half of these six conditions (conditions 1, 3, and 5), the dating item used by Strack et al. was placed before the measures of SWB and life satisfaction, and in the other three conditions (conditions 2, 4, and 6), the dating item was placed after the satisfaction and SWB measures.

The subjects completed the study in sessions of 12 to 20 subjects each. In the single item assessment group (conditions 1 and 2), subjects completed single-item measures of SWB. In their sessions, this group would being by responding to a single item measure of SWB, and single item measure of life satisfaction, and a question about dating frequency. Following the procedure used by Strack et al. (1988), one half of these subjects completed the dating question before the SWB and life satisfaction items, and the other half completed it after completing those items. After these measures, all the subjects then completed a filler/distractor task, consisting of the rating of 85 occupations in terms of their social contact or their stimulation. This task was intended to provide a temporal gap between the first and second measurement occasions, approximating the length of time used for the domain/memory search procedure completed by the maximal assessment group. Then, they again completed the single-item measures of SWB and life satisfaction and the EPI (Eysenck and Eysenck, 1964). As a replication of the item placement effect, a second single-item measure, in the form of a financial satisfaction item, was included in conditions 1 through 4. This second item-placement test was not included in conditions 5 and 6, because of time constraints coupled with the greater time requirements of the memory search task.

In the multiple-item assessment group (conditions 3 and 4), subjects first completed multiple-item measures of SWB and life satisfaction, as well as the dating frequency item, in the same manner as the single-item assessment group. Following the completion of these measures, all the

subjects of the maximal assessment group completed the life domain search procedure described above. Then, they again completed the multi-item SWB measures and the same measures of current mood and personality as the minimal assessment group.

In the memory search group (conditions 5 and 6), subjects first completed a measure of current mood, followed by the life domain search/evaluation procedure. This procedure was immediately followed by the same single-item measures of life satisfaction and global SWB as was completed by the single-item measurement group. In the same way as the other groups, this group then completed the personality measure.

At the end of these procedures, all the subjects were given three sets of peer reports, which they were instructed to give to three friends or others who are well acquainted with them. The peer reports included the Satisfaction with Life Scale and the Fordyce Happiness Scale (Fordyce, 1977), as well as some personality items. Each set included instructions for the person completing the forms, and a pre-addressed envelope so that the forms could be returned directly back to the psychology department. The subjects were then debriefed and thanked, and the session was concluded. In order to provide for the assessment of the temporal reliability of the measures, a subset of the participants ($N = 185$) who participated in later studies were asked to complete single-item measures of life satisfaction, global SWB, and current mood after a one-month interval.

RESULTS

As a first step in examining the data, reliability estimates were obtained for the various measures of SWB and life satisfaction. For the multiple-item measures, internal reliabilities were computed. A Cronbach's Alpha of 0.89 was obtained for the 20-item Affectometer global happiness measure, and the observed Alpha for the Satisfaction with Life Scale was 0.85. For the single-item measures, a test-retest reliability based upon a one-month interval was available. The test-retest reliabilities for the single-item SWB and life satisfaction measures were 0.71 and 0.49, respectively. For the peer-reported measures of SWB and life satisfaction, pairwise inter-rater agreement averaged $r = 0.34$ for SWB and $r = 0.29$ for life satisfaction. Applying the Spearman Brown

formula (Allen and Yen, 1979), estimated reliability for the mean of three peer ratings was 0.61 for SWB and 0.55 for life satisfaction. The observed Alpha for the extraversion scale of the EPI was 0.70, and the Alpha for the neuroticism scale of the same inventory was 0.79.

The groups were then examined for effects on the SWB measures due to item placement or context, as demonstrated by Strack *et al.* (1988). In order to search for these effects, correlations were computed between the self-reported measures of SWB and life satisfaction and the dating frequency question, and these correlations are presented in Table I. The relevant comparisons are between the two ordering conditions subsumed under each particular measurement strategy (e.g., the correlation between life satisfaction and dating frequency in condition 1 versus the correlation between the same two variables presented in opposite order in condition 2).

Within the single-item assessment group (Conditions 1 & 2), which represents a conceptual replication of the study reported by Strack *et al.* (1988), a test for a difference between independent correlations (Glass and Hopkins, 1984) revealed a significant shift of the relationship between dating frequency and global SWB. The direction of the shift (a stronger relationship when the dating question was presented first, a weak relationship when the SWB item was presented first) was similar to that observed by Strack *et al.* (1988). A similar but nonsignificant shift was observed for the relationship between dating frequency and life satisfaction in Conditions 1 versus 2. Thus the effect of item placement on response was partially replicated within the single-item condition. However, the magnitude of the effect was much smaller than as observed by Schwarz *et al.* (1988).

In the multiple-item group, the expected shift in the relationship between self-reported SWB and life satisfaction and the dating frequency was nonsignificant, and in the opposite direction from the single-item group. In the memory group, in which the single-item measures were completed after the life domain search/evaluation procedure, the shift was also nonsignificant, and in the same direction as the multiple-item group. In the multiple-item and memory groups, it is likely the case that a greater number of life domains were considered before making judgments about global SWB or life satisfaction, and thus the salience and importance of the dating domain to these judg-

TABLE I
Correlations of SWB measures with frequency of dating and
financial satisfaction

	Life satisfaction		Global SWB	
Dating frequency				
(Single-item groups)				
Condition 1, $N = 128$	0.31	(0.44)	0.38[A]	(0.45)
Condition 2, $N = 117$	0.16	(0.23)	0.14[B]	(0.17)
(Multiple-item groups)				
Condition 3, $N = 122$	0.18	(0.20)	0.22	(0.23)
Condition 4, $N = 122$	0.33	(0.36)	0.32	(0.34)
(Memory Search groups)				
Condition 5, $N = 126$	0.08	(0.11)	0.04	(0.05)
Condition 6, $N = 122$	0.26	(0.37)	0.19	(0.23)
Financial satisfaction				
(Single-item groups)				
Condition 1, $N = 128$	0.31[c]	(0.44)	0.22	(0.26)
Condition 2, $N = 117$	0.01[D]	(0.01)	0.12	(0.14)
(Multiple-item groups)				
Condition 3, $N = 122$	0.35	(0.38)	0.15	(0.16)
Condition 4, $N = 104$	0.28	(0.30)	0.25	(0.27)
(Memory Search groups)				
Condition 5	—		—	
Condition 6	—		—	

Note: Differences between correlations: A, B, $p < 0.05$; C, D, $p < 0.05$. Financial satisfaction item was not completed in conditions 5 or 6. Numbers in parentheses are observed correlations after correction for attenuation due to unreliability of SWB and life satisfaction measures.

ments were reduced. In the conditions in which the dating question came before the SWB and life satisfaction measures, this should reduce the correlations between dating and SWB, and that corresponds to the observations. This does not explain, however, the somewhat larger correlations in the conditions in which the dating question came after the well-being judgments were made. It might be that a greater awareness of one's global SWB in the multi-item conditions led one to evaluate one's dating life in this light. In the lower half of Table I, the correlations between life satisfaction and global SWB and the financial

satisfaction question essentially replicate those based on the dating frequency item.

Overall, the results offer some evidence of the contextual effects which have been demonstrated by Schwarz and Strack, particularly when single-item measures are used. However, no significant effects were observed when multiple-item measures of SWB were used, or when a memory procedure involving a search and evaluation of relevant life domains preceded single-item measures.

Another important issue regarding item-placement effects is the question of the degree to which such shifts work to invalidate self-report responses about global SWB and life satisfaction. That is, do such self-reports still have valid predictive validity, even when some-what shifted by immediate contextual factors? In order to examine this question, it is possible to compare the relationship between the various measures of SWB and life satisfaction and external criteria, such as personality, and peer-reported well-being. If the validity of measures of SWB and life satisfaction is lowered due to such contextual effects, a significant change in the relationship between the self-reported meas-ures of well-being and personality or peer reported well-being should be evident.

The correlations between the self-reported measures of SWB and life satisfaction and peer-reported well-being, extraversion, and neuroticism are presented in Table II. The correlations represent a similar pattern of relationship between self-reported life satisfaction and global SWB, across the assessment groups and across ordering conditions. All the self-report measures of SWB and life satisfaction were significantly correlated with the mean of the corresponding peer-reports. Also, the expected pattern between the personality dimensions of extraversion, neuroticism, and the self-reports of life satisfaction and global SWB was replicated across the conditions, and was similar to a number of previous studies (Costa and McCrae, 1980; Emmons and Diener, 1984; Pavot et al., 1990). This consistent pattern of results indicates that, although the relationship between self-reports of life satisfaction or SWB and a specific domain may be significantly shifted by contextual effects such as item placement, those self-reports will still have substan-tial covariance with more global and long-term markers of SWB, such as peer-reported well-being and personality.

TABLE II
Correlations of self-report measures of SWB and life satisfaction with peer reports, extraversion, neuroticism, and current mood

		Peer reports	Extraversion	Neuroticism
Global SWB				
Single-item Groups	Cond. 1	0.43 (0.65) N = 72	0.05 (0.08) N = 126	−0.43 (−0.62) N = 128
	Cond. 2	0.25 (0.38) N = 73	0.18 (0.28) N = 116	−0.16 (−0.23) N = 116
Multi-item Groups	Cond. 3	0.45 (0.61) N = 60	0.20 (0.25) N = 120	−0.55 (−0.65) N = 121
	Cond. 4	0.47 (0.64) N = 70	0.27 (0.34) N = 116	−0.63 (−0.75) N = 119
Memory search Groups	Cond. 5	0.33 (0.50) N = 76	0.22 (0.34) N = 121	−0.34 (−0.49) N = 124
	Cond. 6	0.27 (0.41) N = 78	0.18 (0.28) N = 120	−0.38 (−0.55) N = 122
Life satisfaction				
Single-item Groups	Cond. 1	0.27 (0.52) N = 73	0.04 (0.07) N = 126	−0.46 (−0.70) N = 128
	Cond. 2	0.28 (0.54) N = 72	0.20 (0.32) N = 115	−0.30 (−0.45) N = 115
Multi-item Groups	Cond. 3	0.49 (0.72) N = 60	0.09 (0.12) N = 120	−0.39 (−0.48) N = 121
	Cond. 4	0.42 (0.62) N = 70	0.28 (0.36) N = 116	−0.45 (−0.55) N = 119
Memory Search Groups	Cond. 5	0.35 (0.67) N = 76	0.22 (0.35) N = 121	−0.34 (−0.52) N = 124
	Cond. 6	0.26 (0.50) N = 78	0.16 (0.26) N = 120	−0.25 (−0.38) N = 122

Note: Numbers in parentheses are correlations after correction for attenuation due to unreliability of measures.

The correlation in Table II can also be used to address another question, whether assessment strategies which appear to require a greater cognitive involvement on the part of the respondent (e.g.

multiple-item measures or a memory search task) would produce a significant increment in the validity of measurement of SWB, over that observed for single-item measures. As a test of this question, the correlations observed for the various conditions could be compared to each other, using the test for significant differences between independent correlations (Glass and Hopkins, 1984). The pairwise test of correlations revealed that, although the correlations for the multiple-item measurement group appear to be consistently larger than those for the single item group or the memory group, these differences are not significant for the well-being measures. Thus, comparing the single-item correlations did not reveal a significant increment in validity for either the multiple-item group or the memory group, over that observed for the single-item group.

Another goal of the study was to examine the effects of current mood on self-report measures of SWB, and to determine whether these effects differ for different assessment strategies. Across all conditions, all of the measures of life satisfaction and global well-being were significantly correlated with current mood. For life satisfaction, correlations with current mood ranged from 0.19 (condition 6) to 0.52 (condition 5), with an average of 0.43. For global SWB, correlations with current mood ranged from 0.27 (condition 6) to 0.55 (condition 3 and 4), with an average correlation of 0.43. At this level of analysis, the data suggest that all the self-reported measures are significantly related to the momentary mood of the respondent. Current mood, however, is only partially determined by momentary factors. Mood at any one point in time is also influenced by the long-term mood level of the individual, which in turn is influenced by dispositional temperament. Therefore, in order to understand the influence of transient mood factors on self-reports of SWB, the component of current mood which represents long-term mood states must be removed. This can be done by means of multiple regression. By entering measures representing long-term mood states, such as peer-reported life satisfaction or SWB, and the one-month interval measure of global SWB before current mood is entered into the equation, the stable component of current mood should be effectively removed. When current mood is entered after these variables, the increment in predictive validity of the model at that step should be a more accurate measure of the effect of transient mood

states on self-reported SWB. These multiple regression models were constructed for the self-reported measures of life satisfaction and global SWB, and are presented in Tables III and IV.

In the three regression models predicting the self-reported measures of life satisfaction for the three measurement groups, presented in Table III, current mood added a significant increment to the prediction in only one of the three models. In all the models, peer reported life satisfaction and one-month interval self-reported SWB both contributed to the predictive validity of the model to a greater extent than current mood. In all of the three models predicting the measures of global SWB, current mood failed to contribute significantly to the model. Interestingly, current mood contributed the most to the prediction of the single-item measures which were completed after the memory search task. This is contradictory to the expectation that a more extensive review of affectively relevant life domains prior to the completion of a well-being measure would reduce the degree to which that measure was related to current mood. Across all six regression models in Tables III and IV, a much larger component of the variance

TABLE III

Multiple regressions with self-reported life satisfaction predicted by peer reports, one-month interval SWB, and current mood

Variable	F	Multi-R	R-squared	Change
Dependent variable = single life satisfaction item				
Peer Satis.	7.40	0.58	0.33	0.33***
One-month SWB	21.76	0.82	0.67	0.34***
Current Mood	0.87	0.82	0.67	0.00
Dependent variable = satisfaction with life scale				
Peer Satis.	2.46	0.66	0.43	0.43***
One-month SWB	1.18	0.71	0.51	0.08
Current Mood	2.94	0.76	0.56	0.05
Dependent variable = Life sat. item following memory search				
Peer Satis.	5.58	0.47	0.22	0.22***
One-month SWB	16.59	0.57	0.44	0.22**
Current Mood	15.68	0.78	0.61	0.16*

Note: Statistics reported are those observed for the completed regression models, after all indicated variables had been entered.

TABLE IV

Multiple regressions with self-reported global SWB predicted by peer reports, one-month interval SWB, and current mood

Variable	F	Multi-R	R-squared	Change
Dependent variable = single global SWB item				
Peer SWB	1.24	0.36	0.13	0.13*
One-month SWB	25.78	0.74	0.55	0.42***
Current Mood	0.40	0.75	0.56	0.01
Dependent variable = affectometer scale				
Peer SWB	6.37	0.79	0.63	0.63***
One-month SWB	6.14	0.87	0.76	0.13*
Current mood	5.48	0.89	0.80	0.04
Dependent variable = single global SWB item after memory search				
Peer SWB	3.78	0.38	0.15	0.15**
One-month SWB	20.56	0.67	0.45	0.30***
Current Mood	4.52	0.71	0.51	0.06

Note: Statistics reported are those observed for the completed regression models, after all indicated variables had been entered.

was accounted for by the long-term mood variables than by current mood. Furthermore current mood had a small and nonsignificant influence on the multiple-item measures in all cases.

DISCUSSION

The question of the effects of the immediate cognitive context on self-reported measures of SWB and life satisfaction was operationalized by using an item-placement paradigm (Schwarz and Strack, 1991) which had previously been demonstrated to have the effect of drastically altering the observed relationship between two self-reported variables, simply on the basis of varying the order of presentation to the respondent. In the single-item condition of the present study, this effect was weakly replicated. However, when multiple-item measures of SWB or life satisfaction were used, no significant shift in the relationship between the two target domains (SWB and dating frequency) was observed. This effect was also nonsignificant when a memory search

and affective evaluation of relevant life domains was completed before single-item measures of SWB and dating frequency were presented. A further important point is that, regardless of item ordering or specific methodology, the self-reported measures of SWB and life satisfaction were significantly correlated with peer reports of well-being and life satisfaction, and showed the expected relationship with the personality dimensions of extraversion and neuroticism. Nevertheless, the findings in the single-item conditions do alert us to the fact that item ordering, and hence salience of information, under some conditions can influence responding.

As observed in previous work (Diener *et al.*, 1991), the zero order correlations between current mood and the self-reports of SWB and life satisfaction were significant across all measurement conditions. However, when effects due to transient mood and effects due to long-term mood were separated by means of forced entry multiple regression, long-term mood, as represented by peer reported well-being and well-being at a one month interval, was always a stronger predictor of self-reported SWB and life satisfaction than current mood. Current mood only rarely added to the predictive validity of the model when entered after long-term mood, and this did not occur in the case of the multiple-item measures.

Another purpose of the study was to compare several different assessment strategies with the goal of establishing whether a particular method or combination of methods might offer a clear increment in terms of reliability and validity of measurement. In comparing single-item versus multiple item self-report measures, the multiple-item measures appeared to offer a consistent pattern of stronger association to external well-being criteria and personality. However, when tested, the differences between these correlations were not significant. Importantly, multiple-item measures were found to be less susceptible to effects such as item placement in a questionnaire battery. Multiple-item measures could potentially overcome some of the contextual factors which have been demonstrated when single-item measures are used.

In terms of their essential validity, however, the usefulness of the single-item measures appears to be largely confirmed. When adjustment is made in terms of their somewhat lower reliability, they rival the power of internally consistent multiple-item measures. And they do not

appear to be more greatly effected by the transient component of current mood than more extensive multiple-item measures.

Another strategy examined was the use of a memory search and evaluation procedure. It was hypothesized that such a procedure, by requiring respondents to make an intentional search of the important domains of their lives, and then evaluate the affective impact of each domain, would increase the validity of self-reports of SWB and life satisfaction which immediately followed the procedure. The observed data offered little support for this hypothesis. The single-item measures of global SWB and life satisfaction showed no stronger association with peer reports or personality variables than did the single-item measures completed without a memory search preceding them.

One explanation for the failure of the memory search to enhance the measurement involves the notion of a stored judgment of SWB or life satisfaction, based upon a prior evaluation (Diener, 1990). Based upon the finding that nearly all people have reported making global evaluative judgments of their well-being (Andrews and Withey, 1976), it seems plausible that this prior evaluation would serve as a major source of information in responding to inquiries about global SWB. Thus, initiating a memory search would essentially be a duplication of a prior evaluative process, rather than a completely new source of information. As such, engaging respondents in a memory search might not produce any new information, and hence not increase the validity of a later response about global SWB or life satisfaction.

These data have several important implications for future research which involves measurement of SWB and life satisfaction. First, although some evidence of effects due to item placement were found, in no case across the three measurement groups did these effects substantially invalidate the self-reported measures of well-being, as judged by both external criteria and temporal consistency. Thus, the validity of both single and multiple-item measures of SWB does not appear to be significantly threatened by such effects. In situations which necessitate their use, researchers should be confident that single-item measures of global SWB and life satisfaction have good temporal reliability and convergent validity with external criteria. However, the use of multiple item measures appears to be highly desirable, not only because of increased reliability in the classical sense, but also because multiple-

item measures show less variability due to item-placement effects. Future research should examine more carefully the other contextual effects presented by Schwarz and Strack (1991), and until such effects are clearly determined, researchers should be mindful of their potential to influence self-report responses, and to utilize methodologies designed to minimize or eliminate such artifactual influences.

The work of Schwarz and Strack (1991) is very important because it sheds light on at least some of the processes which are typically involved in the formulation of judgments of SWB and life satisfaction. Understanding the cognitive basis used by respondents for making judgments of global SWB and life satisfaction is an essential element of the understanding of the experience of SWB as a whole.

REFERENCES

Allen, M. and Yen, W.: 1979, Introduction to Measurement Theory (Brooks/Cole, Monterey, CA).

Andrews, F. M. and Withey, S. B.: 1976, Social Indicators of Well-Being: America's Perception of Life Quality (Plenum, New York).

Bargh, J. A.: 1989, 'Conditional automaticity: Varieties of automatic influence in social perception and cognition', in J. S. Uleman and J. A. Bargh (eds), Unintended Thought (The Guilford Press, New York).

Bargh, J. A. and Thein, R. D.: 1985, 'Individual construct accessibility, person memory, and the recall-judgment link: The case of information overload', Journal of Personality and Social Psychology 49, 1129—1146.

Chaiken, S.: 1980, 'Heuristic versus systematic information processing and the use of source versus message cues in persuasion', Journal of Personality and Social Psychology 39, 752—766.

Clark, M. S. and Isen, A. M.: 1982, 'Toward understanding the relationship between feeling states and social behavior', in A. H. Hastorf and A. M. Isen (eds), Cognitive Social Psychology (Elsevier, New York), pp. 73—108.

Costa, P. T. and McCrae, R. R.: 1980, 'Influence of extraversion and neuroticism on subjective well-being: Happy and unhappy people', Journal of Personality and Social Psychology 38, 668—678.

Cronbach, L. J.: 1960, Essentials of Psychological Testing (Harper & Brothers, New York) 2nd ed.

Diener, E.: 1984, 'Subjective well-being', Psychological Bulletin 95, 542—575.

Diener, E.: 1990, Challenges in measuring subjective well-being and ill-being, manuscript submitted for publication, University of Illinois.

Diener, E., Emmons, R. A., Larsen, R. J., and Griffin, S.: 1985, 'The satisfaction with life scale', Journal of Personality Assessment 49, 71—75.

Diener, E., Sandvik, E., Pavot, W., and Gallagher, D.: 1991, 'Response artifacts in the measurement of well-being', Social Indicators Research 24, 35—56.

Emmons, R. A. and Diener, E.: 1985, 'Personality correlates of subjective well-being', Personality and Social Psychology Bulletin 11, 89—97.

Eysenck, H. J. and Eysenck, S. B. G.: 1964, Manual of the Eysenck Personality Inventory (Educational and Industrial Testing Service, San Diego, CA).

Fordyce, M. W.: 1977, The Happiness Measures: A sixty-second index of emotional well-being and mental health, unpublished manuscript, Edison Community College, Ft. Myers, Florida.

Glass, G. and Hopkins, K.: 1984, Statistical Methods in Education and Psychology (Prentice-Hall, Englewood Cliffs, NJ).

Heady, B. and Wearing, A.: 1989, 'Personality, life events, and subjective well-being: toward a dynamic equilibrium model', Journal of Personality and Social Psychology 57, 731—739.

Kammann, R. and Flett, R.: 1983, 'Affectometer 2: A scale to measure current level of general happiness', Australian Journal of Psychology 35, 257—265.

Pavot, W., Diener, E., Colvin, C. R., and Sandvik, E.: 1991, 'Further validation of the satisfaction with life scale: evidence for the cross-method convergence of well-being measures', Journal of Personality Assessment 57, 2—13.

Pavot, W., Diener, E., and Fujita, F.: 1990, 'Extraversion and happiness', Personality and Individual Differences 11, 1299—1306.

Schwarz, N. and Clore, G. L.: 1983, 'Mood, misattribution, and judgments of well-being: informative and directive functions of affective states', Journal of Personality and Social Psychology 45, 513—523.

Schwarz, N. and Strack, F.: 1991, 'Evaluating one's life: A judgment model of subjective well-being', in F. Strack, M. Argyle, and N. Schwarz (eds), Subjective Well-Being: An Interdisciplinary Approach (Pergamon, Oxford).

Strack, F., Martin, L. L., and Schwarz, N.: 1988, 'Priming and communications: Social determinants of information use in judgments of life satisfaction', European Journal of Social Psychology 18, 429—442.

Wessman, A. E. and Ricks, D. F.: 1966, Mood and Personality (Holt, New York).

University of Illinois,
Psychology Dept.,
603 East Daniel St.
Champaign, IL 61820, U.S.A.