CHARLES E. LANCE AND CHRISTOPHER E. SLOAN

RELATIONSHIPS BETWEEN OVERALL AND LIFE FACET SATISFACTION: A MULTITRAIT-MULTIMETHOD (MTMM) STUDY

(Accepted 4 April 1993)

ABSTRACT. We extended research on the construct validity of overall and life facet satisfaction measures by (a) estimating relations among satisfaction constructs disattenuated for measurement error, and (b) controlling for spurious effects of common method variance, using confirmatory factor analysis (CFA) of multitrait-multimethod (MTMM) data. Results indicated strong support for convergent and discriminant validity, as well as for significant method effects. Results also indicated that corrected correlations among latent satisfaction variables were similar to their observed counterparts, suggesting that the attenuating effects of measurement error tend to balance spuriousness interjected by common method variance. Suggestions for future research include determining boundary variables which influence the direction of the relationship between overall and life facet satisfaction, and for identifying subgroups of individuals within which these relationships are homogeneous.

After over 30 years of research, much is now known about the relationship between overall life satisfaction and satisfaction in various life domains (see Diener, 1984; Heady *et al.*, 1985; Michalos, 1985; Rain *et al.*, 1991; and Sloan, 1990, for reviews). However, much of the research in this area suffers from two measurement limitations: (a) use of single- or few-item scales, leading to possible attenuation in estimates of overall — life facet satisfaction relationships due to measurement error, and (b) mono-operation bias, which can inflate observed overall — life facet satisfaction relationships due to the interjection of common method variance. The upshot of these limitations is to call into question the construct validity of satisfaction measures (Rain *et al.*, 1991) on the basis that they may have either (a) underestimated overall — life satisfaction relations due to measurement unreliability, and/or (b) overestimated these relations due to mono-operation bias (common method variance). The purpose of the present study was to disentangle these two measurement artifacts in a multitrait-multimethod (MTMM) study of overall — life facet satisfaction relations and to assess the relative impacts of these measurement artifacts on observed relationships.

Social Indicators Research **30**: 1—15, 1993.

Effects of Attenuation Due to Measurement Error

Many studies of overall — life facet satisfaction relations have used single indicators (and frequently single items) to operationalize satisfaction constructs (Diener, 1984; Glatzer and Mohr, 1987). As a result, estimates of relations among satisfaction constructs likely have been attenuated by unreliability in scale scores. The effect of measurement error on observed overall — life facet relationships can be seen from the classic attenuation formula:

$$r_{xy} = \rho_{xy} r_{xx'}^{1/2} r_{yy'}^{1/2}, \quad (1)$$

where r_{xy} is the attenuated correlation between two satisfaction measures, ρ_{xy} is the disattenuated correlation, and $r_{xx'}$ and $r_{yy'}$ are the variables' reliabilities.

Unfortunately, disattenuated estimates of overall — life facet satisfaction relationships are rarely reported. In part, this may be due to the lack of appropriate reliability estimates for satisfaction measures. For example, internal consistency estimates are unavailable for single-item scales, and test-retest estimates may be inappropriate due to the instability of the latent satisfaction variables themselves (Guion, 1965).

However, use of multiple manifest indicators for satisfaction constructs permits estimation of (a) scale scores' reliabilities, on the basis of communality estimates (see Bentler and Woodward, 1983; Feldt and Brennan, 1989), and (b) disattenuated estimates of correlations among latent satisfaction variables which are, theoretically, perfectly reliable (see Blalock, 1969; Costner, 1969; James *et al.*, 1982). As is explained below, we operationalized satisfaction latent variables in the present study using multiple measurement methods in an MTMM design. As shown in the next section, this approach also allowed us to correct estimates of relations among latent satisfaction variables for the effects of common method variance.

Effects of Common Method Variance

A second threat to the construct validity of satisfaction measures is spuriousness due to common method variance, defined as "an artifact of measurement [which] can bias results when researchers investigate relations among constructs measured with the common method" (Bagozzi and Yi, 1990, p. 547). Generally, the effect of common method variance is to inflate observed relations since they reflect the influences both of the underlying satisfaction constructs as well as the method used to operationalize them. The use of multiple measurement methods in an MTMM design, and a confirmatory factor analytic (CFA) approach (Marsh and Hocevar, 1983), allowed us to control for spurious method effects in the estimation of relations among satisfaction constructs.

For example, Sloan (1990) showed that a corrected estimate of the relationship between two latent satisfaction "traits" T1 and T2, as measured by a common method M1, can be computed from a heterotrait-monomethod correlation ($r_{\mathrm{T1M1,T2M1}}$) and the observed measures' Trait (Λ_{T1} and Λ_{T2}) and Method ($\Lambda_{\mathrm{T1,M1}}$ and $\Lambda_{\mathrm{T2,M1}}$) factor structure coefficients:

$$\rho_{\mathrm{T1T2}} = \frac{r_{\mathrm{T1M1,T2M1}} - (\Lambda_{\mathrm{T1,M1}}\Lambda_{\mathrm{T2,M1}})}{\Lambda_{\mathrm{T1}}\Lambda_{\mathrm{T2}}}. \tag{2}$$

Equation 2 shows that the corrected estimate of the correlation between the two latent satisfaction Traits T1 and T2 (ρ_{T1T2}) is disattenuated in the denominator by dividing by the measures' Trait factor structure coefficients ($\Lambda_{\mathrm{T1}}\Lambda_{\mathrm{T2}}$), and is corrected for spuriousness in the numerator by subtracting out common method variance ($\Lambda_{\mathrm{T1,M1}}\Lambda_{\mathrm{T2,M1}}$) from the observed correlation between the two measures ($r_{\mathrm{T1M1,T2M1}}$). Thus CFA of MTMM data permits the estimation of relationships between latent satisfaction variables while controlling simultaneously for unreliability and common method variance.

Present study. The developments in the two previous sections suggest that both measurement unreliability and/or common method variance may pose a threat to the construct validity of measures of latent satisfaction constructs. However, these two threats have opposing effects on observed relationships (i.e., to attenuate vs. inflate them), and the pervasiveness of their influence remains unsettled. On the one hand, single- or few-item scales are reputed to be notoriously unreliable, but there is some evidence for their reliability and validity (Diener, 1984; Scarpello and Campbell, 1983). Also, debate continues over the pervasiveness of response artifacts in survey research (e.g., Diener *et al.*, 1991) and common method variance in particular (Spector, 1987; Williams *et al.*, 1989). Thus this study sought to determine the relative impacts of measurement unreliability and common method variance on estimates of overall — life facet satisfaction relationships with the aim of contributing to literature on the construct validity of satisfaction measures (Rain *et al.*, 1991).

METHOD

Subjects

An initial pool of 600 potential study participants was identified by randomly selecting names from the faculty-staff telephone listing of a large state university in the southeastern United States (faculty members were not targeted for data collection). Each potential respondent was sent by campus mail a questionnaire containing overall and life facet satisfaction measures, along with additional measures not related to this study. A total of 243 respondents provided completed questionnaire data for a response rate of 41%.

Questionnaire

The questionnaire sent to potential survey respondents contained three different sets of items (measurement methods) to measure overall life satisfaction and satisfaction in seven life domains or facets identified by Sloan (1990) as being those which have been most often studied in research on overall — life facet satisfaction relations. These included one's (a) job, (b) friends, (c) marriage or partnership, (d) family, (e) health, (f) neighborhood, and (g) leisure activities. The three different sets of items were anchored by different scales corresponding to (a) Kunin's (1955) Faces scales, and (b) Andrews and Withey's (1976) D-T, and (c) Circles scales. In about half of the questionnaires the overall life satisfaction item appeared first in all three sets of items, and in the other half it appeared last.

Analyses

We conducted confirmatory factor analyses using LISREL's maximum likelihood estimation procedure (Jöreskog and Sörbom, 1986) in order to estimate relations among latent Trait (satisfaction constructs) and Measurement Method factors (Long, 1983; Marsh and Hocevar, 1983; Schmitt and Stults, 1986). A target model (Model I) was fit to the 24 × 24 correlation matrix (i.e., 8 Satisfaction Traits × 3 Measurement Methods), in which (a) the measure of the ith Satisfaction construct ($i \rightarrow 8$) as measured by the jth Measurement Method ($j \rightarrow 3$) was specified to load on appropriate Satisfaction and Measurement Method latent variables, and (b) Satisfaction and Measurement Method latent variables were specified as being mutually correlated, but uncorrelated with each other. This model corresponds to Model IIIC in Widaman's (1985) taxonomy of CFA models for MTMM data. A null model also was fit to the data in order to compute overall incremental goodness-of-fit indices, as were four alternative models (see below) which provided baseline fit indices for the assessment of convergent and discriminant validity, and method effects in the target model.

RESULTS

Correlations among the 24 observed measures are shown in Table I. Significant convergent validity is evident here in that most of the monotrait-heteromethod correlations (the "validity diagonal", underlined) are in the 0.60s and 0.70s or higher, and tend to be the highest correlations in the MTMM matrix (Campbell and Fiske, 1959). Discriminant validity is also evident in that both the heterotrait-monomethod and heterotrait-heteromethod correlations are low (generally in the 0.20s and 0.30s). However, there also is some indication of method effects in that the average heterotrait-monomethod correlation (mean = 0.30) is somewhat larger than the average heterotrait-heteromethod correlation (mean = 0.25).

Overall goodness-of-fit indices for the CFA models are shown in Table II. In addition to the χ^2 statistic and model degrees of freedom (df), Table II shows Bentler and Bonett's (1980) normed fit index (NFI) and two indices recommended by Marsh, Balla, and McDonald

TABLE I
Multitrait-multimethod correlations among satisfaction measures

Faces Scales:																								
Job	1.00																							
Friendships	0.34	1.00																						
Marriage	0.36	0.53	1.00																					
Family	0.08	0.38	0.59	1.00																				
Global	0.15	0.18	0.35	0.29	1.00																			
Health	0.16	0.22	0.22	0.16	0.23	1.00																		
Neigh'hood	0.20	0.21	0.11	0.18	0.04	0.04	1.00																	
Leisure	0.18	0.43	0.37	0.16	−0.04	0.20	0.24	1.00																
Delighted-Terrible Scales																								
Job	0.87	0.23	0.37	0.11	0.21	0.11	0.21	0.15	1.00															
Friendships	0.49	0.68	0.42	0.22	0.22	0.22	0.23	0.39	0.45	1.00														
Marriage	0.35	0.45	0.85	0.49	0.35	0.23	0.06	0.31	0.39	0.46	1.00													
Family	0.30	0.38	0.36	0.56	0.22	0.30	0.22	0.16	0.24	0.49	0.41	1.00												
Global	0.20	0.21	0.35	0.22	0.66	0.23	0.13	0.07	0.33	0.29	0.41	0.30	1.00											
Health	0.25	0.21	0.26	0.09	0.23	0.75	0.17	0.14	0.26	0.33	0.29	0.33	0.34	1.00										
Neigh'hood	0.20	0.16	0.20	0.26	0.11	0.04	0.70	0.19	0.28	0.32	0.17	0.30	0.23	0.20	1.00									
Leisure	0.14	0.43	0.41	0.21	0.12	0.14	0.28	0.69	0.24	0.43	0.42	0.29	0.24	0.19	0.33	1.00								
Circles Scales																								
Job	0.76	0.19	0.29	0.16	0.04	0.06	0.31	0.11	0.76	0.32	0.41	0.22	0.09	0.14	0.30	0.15	1.00							
Friendships	0.40	0.71	0.39	0.31	0.19	0.27	0.27	0.38	0.33	0.75	0.41	0.41	0.19	0.33	0.30	0.42	0.32	1.00						
Marriage	0.39	0.47	0.80	0.53	0.34	0.26	0.17	0.37	0.33	0.42	0.80	0.46	0.38	0.33	0.29	0.42	0.33	0.47	1.00					
Family	0.27	0.36	0.42	0.63	0.19	0.36	0.25	0.19	0.20	0.33	0.42	0.65	0.21	0.35	0.33	0.20	0.25	0.44	0.63	1.00				
Global	0.13	0.23	0.32	0.25	0.71	0.26	0.08	0.14	0.21	0.22	0.34	0.29	0.78	0.32	0.19	0.21	0.05	0.23	0.27	0.24	1.00			
Health	0.16	0.18	0.17	0.15	0.23	0.81	0.16	0.07	0.13	0.22	0.20	0.27	0.21	0.77	0.18	0.05	0.08	0.33	0.31	0.49	0.23	1.00		
Neigh'hood	0.32	0.28	0.19	0.14	0.07	0.13	0.69	0.28	0.26	0.40	0.16	0.34	0.17	0.27	0.67	0.32	0.35	0.45	0.37	0.42	0.15	0.26	1.00	
Leisure	0.25	0.41	0.49	0.26	0.10	0.20	0.25	0.76	0.28	0.43	0.48	0.27	0.19	0.24	0.26	0.83	0.27	0.52	0.56	0.35	0.21	0.15	0.37	

Note. For $r \geqslant |0.15|$ $p < 0.05$, for $r \geqslant |0.18|$ $p < 0.01$.
Validity diagonals are underlined.

TABLE II
Overall model goodness-of-fit indices

Model	χ^2	df	NFI	TLI	χ^2/I2
I. 8 Traits, 3 Methods	591.62	198	0.886	0.878	0.921
I′. 8 Traits, 3 Methods with Equal Effects	775.13	219	0.850	0.844	0.903
II. 8 Traits, 1 Method	786.62	200	0.848	0.820	0.982
III. 8 Traits, 0 Methods	1037.92	224	0.800	0.777	0.836
IV. 1 Trait, 3 Methods	2888.91	225	0.442	0.272	0.462
V. 0 Traits, 3 Methods	3407.37	249	0.342	0.220	0.359
Null Model	5179.37	300	—	—	—

Note. For all models, $p < 0.01$.

(1988) as being relatively independent of sample size: the Tucker-Lewis index (TLI) and an incremental index based on the χ^2 statistic (χ^2/I2). NFI, TLI and χ^2/I2 values above 0.900 usually are interpreted as indicating acceptable model fit. As Table II shows, even though the target model (Model I — 8 Traits, 3 Methods) was rejected statistically, its fit met, or nearly met conventional rules of thumb for acceptable model fit as assessed by the NFI, TLI and χ^2/I2 indices.

One natural question was whether the Faces, D-T, and Circles scales represent different measurement methods, or whether they represent different forms of the same measurement method (i.e., self-report questionnaire). To test this idea, we compared the fit of the target model (Model I) to that of a model which specified 8 traits (overall life satisfaction plus satisfaction in seven life facets) and only one measurement method (Model II). The significant difference in fit between these two models (difference $\chi^2(2) = 195.00$, $p < 0.01$) indicated that the three scale formats indeed comprise different measurement methods.

We also compared the fit of the target model to that of a model which specified 8 Traits and no measurement methods (Model III) in order to test for the presence of method effects. The difference in fit between these two models (difference $\chi^2(26) = 446.30$, $p < 0.01$) also was significant, indicating that significant measurement method effects were present. Third, we compared the fit of the target model to that of a model which specified three measurement methods and no satisfaction traits (Model IV) as an overall test of convergent validity. This difference too was significant (difference $\chi^2(27) = 2297.29$, $p < 0.01$), indicating convergent validity in the assessment of latent satisfaction constructs. Finally, we compared the fit of the target model to that of a model which specified 3 Methods, but only one General Satisfaction factor (Model V) as an overall test of discriminant validity. The difference in fit between these two models (difference $\chi^2(51) = 2815.75$, $p < 0.01$) also was significant, supporting the discriminant validity of the underlying satisfaction constructs.

Confirmatory factor loadings for the target model are shown in Table III, where null entries indicate parameters fixed equal to zero on an a priori basis. Evidence of convergent validity is also shown in Table III by the strong loadings (most of which are in the 0.70s and 0.80s) of the satisfaction measures on the underlying Satisfaction factors. Loadings of the measures on the Method factors also show significant method effects. However, these were not uniform across the three measurement methods. Method effects were larger for the D-T and Circles measures (means = 0.38 and 0.42, respectively) compared to the Faces measures (mean = 0.25). At the suggestion of one reviewer we compared the fit of the target model to that of an alternative model (Model I′) which imposed equality constraints on method effects within measurement methods to test whether variations in the loadings on the Method factors were random or systematic. The difference in fit between Models I and I′ (difference $\chi^2(21) = 183.51$, $p < 0.01$) indicated that method effects were significantly heterogeneous across satisfaction traits.

Table IV shows estimated correlations among the Satisfaction and Measurement Method latent variables. Consistent with earlier applications of CFA to MTMM data (Marsh and Hocevar, 1983; Widaman, 1985), correlations between Trait (Satisfaction) and Method latent variables were restricted to zero on an a priori basis. Recall that the correlations among the latent Satisfaction variables are disattenuated for measurement error, but also are corrected downward from their observed counterparts by the removal of method variance. By comparing the correlations among the latent Satisfaction variables in Table IV with heterotrait-monomethod correlations in Table I, the relative influences of attenuation due to unreliability and spuriousness due to common method variance can be determined. In fact, the average

TABLE III
Confirmatory factor loadings

	JOB	FRD	MAR	FAM	OVR	HLT	NGH	LSR	FAC	D-T	CIR
Faces:											
Job	0.87 (0.05)	0	0	0	0	0	0	0	0.55 (0.06)	0	0
F'ships	0	0.79 (0.06)	0	0	0	0	0	0	0.36 (0.07)	0	0
Marriage	0	0	0.94 (0.05)	0	0	0	0	0	0.19 (0.06)	0	0
Family	0	0	0	0.95 (0.05)	0	0	0	0	−0.03 (0.07)	0	0
Global	0	0	0	0	0.79 (0.06)	0	0	0	0.09 (0.06)	0	0
Health	0	0	0	0	0	0.85 (0.05)	0	0	0.32 (0.06)	0	0
Neigh'hd	0	0	0	0	0	0	0.86 (0.06)	0	0.16 (0.06)	0	0
Leisure	0	0	0	0	0	0	0	0.81 (0.06)	0.33 (0.06)	0	0
D-T:											
Job	0.88 (0.05)	0	0	0	0	0	0	0	0	0.32 (0.06)	0
F'ships	0	0.73 (0.05)	0	0	0	0	0	0	0	0.59 (0.06)	0
Marriage	0	0	0.89 (0.05)	0	0	0	0	0	0	0.28 (0.05)	0
Family	0	0	0	0.63 (0.06)	0	0	0	0	0	0.62 (0.06)	0

Table III continued

	JOB	FRD	MAR	FAM	OVR	HLT	NGH	LSR	FAC	D-T	CIR
Faces:											
Global	0	0	0	0	0.84 (0.05)	0	0	0	0	0.27 (0.05)	0
Health	0	0	0	0	0	0.75 (0.05)	0	0	0	0.43 (0.06)	0
Neigh'hd	0	0	0	0	0	0	0.80 (0.06)	0	0	0.22 (0.06)	0
Leisure	0	0	0	0	0	0	0	0.87 (0.05)	0	0.30 (0.05)	0
Circles:											
Job	0.80 (0.05)	0	0	0	0	0	0	0	0	0	0.26 (0.06)
F'ships	0	0.82 (0.05)	0	0	0	0	0	0	0	0	0.50 (0.06)
Marriage	0	0	0.84 (0.05)	0	0	0	0	0	0	0	0.50 (0.05)
Family	0	0	0	0.63 (0.05)	0	0	0	0	0	0	0.62 (0.06)
Global	0	0	0	0	0.89 (0.05)	0	0	0	0	0	0.19 (0.05)
Health	0	0	0	0	0	0.81 (0.05)	0	0	0	0	0.41 (0.05)
Neigh'hd	0	0	0	0	0	0	0.71 (0.05)	0	0	0	0.48 (0.06)
Leisure	0	0	0	0	0	0	0	0.94 (0.05)	0	0	0.39 (0.05)

Note. For Satisfaction factors, JOB = Job, MAR = Marriage, FAM = Family, OVR = Overall Life, HLT = Health, NGH = Neighborhood, and LSR = Leisure. For Method Factors, FAC = Faces, D-T = Delighted-Terrible, and CIR = Circles. Standard errors are shown in parentheses.

TABLE IV
Correlations among latent satisfaction and method factors

Satisfaction Factors:										
Job	1.00									
Friendships	0.35	1.00								
Marriage	0.38	0.53	1.00							
Family	0.16	0.43	0.63	1.00						
Global	0.18	0.25	0.43	0.31	1.00					
Health	0.03	0.17	0.23	0.23	0.29	1.00				
Neigh'hood	0.24	0.31	0.19	0.27	0.15	0.08	1.00			
Leisure	0.20	0.53	0.54	0.29	0.20	0.10	0.31	1.00		
Method Factors:										
Faces	0	0	0	0	0	0	0	0	1.00	
D-T	0	0	0	0	0	0	0	0	0.72	1.00
Circles	0	0	0	0	0	0	0	0	0.74	0.71

Note. For $r > |0.15|$ $p < 0.05$; for $r > |0.18|$ $p < 0.01$.

correlation among the Satisfaction latent variables (mean = 0.29) was nearly identical to the average heterotrait-monomethod correlations in Table I (mean = 0.30). This suggests that method variance effects largely offset attenuation due to measurement error.

The generally low correlations among the Satisfaction latent variables in Table IV also suggest that individuals clearly distinguish among satisfaction with different aspects of their life and illustrate why Model V (which specified only one General Satisfaction latent variable) fit the data more poorly than Model I which specified 8 separate Trait factors.

Finally, Table IV also shows correlations among Method factors which are in the 0.70s. This supports the idea that the Faces, D-T, and Circles scales, while related, are distinct measurement methods for the assessment of satisfaction constructs.

DISCUSSION

The present study extends research on the construct validity of overall and life facet satisfaction measures in an MTMM design by (a) estimating relations among satisfaction constructs disattenuated for measurement error, and (c) controlling for spurious effects of common method variance. Unexpectedly, the magnitude and patterns of the correlations among satisfaction latent variables were similar to those estimated on the basis of observed measures (heterotrait-monomethod correlations). In the introduction it was shown (Equation 2) that CFA of MTMM data simultaneously disattenuates estimates of relations among the latent constructs and also corrects these relations for common method variance. In the present study, these corrections largely offset each other. The implications of these findings, if upheld in additional research, are twofold. First, they suggest that previous research may not be subject to as serious bias due to measurement error or common method as might be thought. Second, they suggest that statistical corrections for measurement unreliability should *not* be effected unless a simultaneous correction for common method variance is also applied, since corrected correlations likely would overestimate relations among latent constructs.

Results shown in Table III also have practical implications for the measurement of satisfaction constructs. We found that Faces scales interjected less common method variance than did the D-T and Circles scale formats. For this reason, and because of their appropriateness for illiterate or semi-literate populations, we recommend the Faces scale format.

Limitations and Directions for Future Research

First, the present findings were strictly correlational, so we could not determine the direction of possible causal relations between overall and life facet satisfaction. Much of the theory in this area presumes bottom-up influences from satisfaction in specific life domains upward to overall life satisfaction (e.g., Rice *et al.*, 1985). However, there is some evidence that these influences may be multidirectional (e.g., Heady *et al.*, 1991; Lance *et al.*, 1989). Additional research is needed on the direction of overall — life facet satisfaction causal relations as is research on boundary conditions which affect the directions of these relationships.

Second, relations between overall and life facet satisfactions should be examined at the subgroup-, as well as the group-level of analysis. The present study, as most studies in this area, was nomothetic. Yet relations between overall and life facet satisfactions may be moderated by factors such as marital status, age, occupational status, cognitive ability, and personality. One way in which this may be explored is by clustering individuals who have similar satisfaction profiles to determine whether homogeneous subgroups can be identified (e.g., Shaffer, 1987).

Third, the present study should be replicated. We studied relationships between overall life satisfaction and satisfaction in several well-researched life domains using well-established scale formats. Other research in this area has examined somewhat more abstract life domains such as National Government, and Organizational Involvement (e.g., Andrews and Withey, 1974, 1976; Campbell *et al.*, 1976) or has used more ad hoc satisfaction measures (see Diener, 1984; Rain *et al.*, 1991). Thus findings here should not be extrapolated beyond the design characteristics of the present study.

ACKNOWLEDGEMENT

The research described in this article was based in part on a Doctoral Dissertation completed by the second author under the direction of the first author at The University of Georgia. An earlier version of this article was presented at the 1991 meeting of the Southern Management Association, Orlando, FL, USA. The authors wish to thank an anonymous reviewer for helpful comments on an earlier draft of this article.

Address correspondence concerning this article to Charles E. Lance, Department of Psychology, The University of Georgia, Athens, GA 30602 USA (BITNET CLANCE@UGA).

REFERENCES

Andrews, F. M. and Withey, S. B.: 1974, 'Developing measures of perceived life quality: Results from several national surveys', Social Indicators Research 3, pp. 1—19.

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

Bagozzi, R. P. and Yi, Y.: 1990, 'Assessing method variance in multitrait-multimethod matrices: The case of self-reported affect and perceptions at work', Journal of Applied Psychology 75, pp, 547—560.

Bentler, P. M. and Bonett, D. G.: 1980, 'Significance tests and goodness-of-fit in the analysis of covariance structures', Psychological Bulletin 88, pp. 588—606.

Bentler, P. M. and Woodward, J. A.: 1983, 'The greatest lower bound to reliability', in

H. Wainer and S. Messick (eds.), Principals of Modern Psychological Measurement (Erlbaum, Hillsdale, NJ), pp. 237—253.
Blalock, H. M. Jr.: 1969, 'Multiple indicators and the causal approach to measurement error', American Journal of Sociology 75, pp. 264—271.
Campbell, A., Converse, P. E. and Rogers, W. L.: 1976, The Quality of American Life: Perceptions, Evaluations, and Satisfactions (Russell Sage Foundation, New York).
Campbell, D. T. and Fiske, D. W.: 1959, 'Convergent and discriminant validation by the multitrait-multimethod matrix', Psychological Bulletin 56, pp.81—105.
Costner, H. L.: 1969, 'Theory, deduction, and rules of correspondence', American Journal of Sociology 75, pp. 245—263.
Diener, E.: 1984, 'Subjective well-being', Psychological Bulletin 95, pp. 542—575.
Diener, E., Sandvik, E., Pavot, W. and Gallagher, D.: 1991, 'Response artifacts in the measurement of subjective well-being', Social Indicators Research 24, pp. 35—56.
Feldt, L. S. and Brennan, R. L.: 1989, 'Reliability', in R. L. Linn (ed.), Educational Measurement (3rd. ed.) (Macmillan, New York), pp. 105—146.
Glatzer, W. and Mohr, H-M.: 1987, 'Quality of Life: Concepts and Measurement', Social Indicators Research 19, pp. 15—24.
Guion, R. M.: 1965, Personnel Testing (McGraw-Hill, New York).
Heady, B., Holmstrom, E. and Wearing, A.: 1985, 'Models of well-being and ill-being', Social Indicators Research 17, pp. 211—234.
Heady, B., Veenhoven, R. and Wearing, A.: 1991, 'Top-down versus bottom-up theories of subjective well-being', Social Indicators Research 24, pp. 81—100.
James, L. R., Mulaik, S. A. and Brett, J.: 1982, Causal Analysis: Models, Assumptions and Data (Sage, Beverly Hills, CA).
Jöreskog, K. G. and Sörbom, D.: 1986, LISREL-VI: User's Guide (Scientific Software, Mooresvile, IN).
Kunin, T.: 1965, 'The construction of a new type of attitude scale', Personnel Psychology 8, pp. 65—78.
Lance, C. E., Lautenschlager, G. J., Sloan, C. E. and Varca, P. E.: 1989, 'A comparison between bottom-up, top-down, and bidirectional models of the relationships between global and life facet satisfactions', Journal of Personality 57, pp. 601—624.
Long, J. S.: 1983, Confirmatory Factor Analysis (Sage, Beverly Hills, CA).
Marsh, H. W., Balla, J. R. and McDonald, R. P.: 1988, 'Goodness-of-fit in confirmatory factor analysis: The effect of sample size', Psychological Bulletin 103, pp. 391—410.
Marsh, H. W. and Hocevar, D.: 1983, 'Confirmatory factor analysis of multitrait-multimethod matrices', Journal of Educational Measurement 20, pp. 231—248.
Michalos, A. C.: 1985, 'Multiple discrepancies theory (MDT)', Social Indicators Research 16, pp. 347—413.
Rain, J. S., Lane, I. M. and Steiner, D. D.: 1991, 'A current look at the job satisfaction/life satisfaction relationship: Review and future considerations', Human Relations 44, pp. 287—307.
Rice, R. W., McFarlin, D. B., Hunt, R. G. and Near, J. P.: 1985, 'Organizational work and the perceived quality of life: Toward a conceptual model', Academy of Management Review 10, pp. 296—310.
Scarpello, V. and Campbell, J. P.: 1983, 'Job satisfaction: Are all the parts there? 'Personnel Psychology 36, pp. 577—600.
Schmitt, N. and Stults, D. M.: 1986, 'Methodology review: Analysis of multitrait-multimethod matrices', Applied Psychological Measuremen 10, pp. 1—22.
Shaffer, G. S.: 1987, 'Patterns of work and nonwork satisfaction', Journal of Applied Psychology 72, pp. 115—124.
Sloan, C. E.: 1990, Relations between Global Life and Domain Satisfaction: The Role of Domain Scope and Criticality. Unpublished doctoral dissertation (University of Georgia , Athens).

Spector, P.: 1987, 'Method variance as an artifact in self-reported affect and perceptions at work: Myth or significant problem?', Journal of Applied Psychology 72, pp. 438—443.
Widaman, K. F. : 1985, 'Hierarchically nested covariance structure models for multitrait-multimethod data', Applied Psychological Measurement 9, pp. 1—26.
Williams, L. J., Cote, J. A. and Buckley, M. R.: 1989, 'Lack of method variance in self-reported affect and perceptions at work: Reality or artifact?', Journal of Applied Psychology 74, pp. 462—468.

Charles E. Lance,
Department of Psychology,
University of Georgia,
Athens, GA 30602, U.S.A.

Christopher E. Sloan,
Life Office Management Associates.