

DEVELOPING A LIFE SATISFACTION MEASURE BASED ON NEED HIERARCHY THEORY

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Over the past few decades a number of researchers from various disciplines have directed considerable attention to a construct referred to as life satisfaction, subjective well-being, or perceived quality of life (QOL). Interest in life satisfaction has led to numerous attempts to measure this complex psychological state from different perspectives, such as QOL investigations, examinations of subjective well-being, research on happiness and morale, and the attempts to assess successful aging. For a comprehensive review of life satisfaction measurement issues, the reader should see Diener (1984).

The theoretical underpinnings for these life satisfaction measures come from a variety of conceptual frameworks, such as the telic theories (e.g., Wilson 1960), activity theories (e.g., Csikszentmihalyi and Figurski 1982), top-down/bottom-up theories (e.g., Kozma and Stones 1980), associationistic theories (e.g., Schwarz and Clore 1983), and judgment theories. As can be seen, there is a plethora of measurement approaches and accompanying theoretical perspectives.

Nonetheless, it should be noted that in the QOL literature, there are no measures of life satisfaction based on need hierarchy theory (e.g., Maslow 1954). The purpose of this chapter is to report a study in which a life satisfaction measure was developed using need hierarchy theory and tested on 1,226 adults from a variety of countries such as the United States, Canada, Australia, Turkey, and China.

NEED HIERARCHY THEORY

Sirgy (1986) developed a QOL model based on Maslow's need hierarchy theory. The model argues that developed societies involve members who are

mostly preoccupied with satisfying lower-order needs (biological and safety-related needs). QOL is defined in terms of the hierarchical need satisfaction level of most of the members of a given society. The higher the need satisfaction of the majority in a given society, the greater the QOL of that society. Institutions are designed to serve human needs in a society, and therefore, constitute a society's QOL. Societal institutions that serve human needs include productive, maintenance, managerial/political, and adaptive institutions. Each of these types of societal institutions involve a hierarchical dimension. The model argues that progressive increases in QOL are accompanied by hierarchical changes in these societal institutions.

Maslow's Concept of Need Hierarchy

From a human developmental perspective, QOL goals can be defined as satisfaction of human developmental needs in a community or society. The developmental psychology literature indicates that effective social-emotional functioning is viewed as movement toward the satisfaction of higher-order needs (e.g., self-actualization). Self-actualization, according to one prominent personality-developmental psychologist, Abraham Maslow (1954), is a state in which humans achieve their full potentialities. It can only be attained after lower-order needs (e.g., biological and safety needs) are mostly satisfied. Most developmental psychologists argue that there is a hierarchy of needs that people strive to meet; the fulfillment of one need releases the individual to fulfill another need at a higher level (cf. Erikson 1963; Loevinger 1976; Kohlberg 1969).

The central argument common to most human developmental theories reflects the notion that people grow through a progressive satisfaction of needs that are structured hierarchically, from lower-order (basic, biological maintenance needs) to higher-order (self-fulfillment and other psychological enhancement needs). Maslow stressed the point that people need to develop their full potentialities. The need for self-actualization (a superordinate goal) becomes more salient after other lower-order needs have been made less salient through adequate satiation (subordinate goals). In other words, Maslow argued that there is a hierarchy of needs that people strive to meet.

The hierarchy of needs involves the following needs, ordered from lower-order to higher-order. These are biological needs (e.g., food, water, oxygen), safety needs (e.g., physical and psychological security), social needs (e.g., need for affiliation, friendship, belonging), esteem needs (e.g., need for achievement, success, recognition), and self-actualization needs (e.g., need for creativity, self-expression, integrity, self-fulfillment). Lower-order needs have a higher prepotency than higher-order needs. In other words, the individual is motivated to allocate greater resources to the satisfaction of lower-order than higher-order needs. Frustration of a need at a specific level of the need hierarchy "fixates" the individual at that level. The fixation serves to ensure the

eventual satisfaction of the need. Growth, therefore, is viewed as movement from lower-level needs on the need hierarchy toward higher-level needs.

A human developmental perspective of QOL entails that QOL goals have to be defined in terms of the developmental needs (structured hierarchically) of the citizens of a given community or society. That is, an assessment of human needs must be undertaken to find out the mean level of fixation of need satisfaction of the members of that community (population or society).

Past Measures of Need Hierarchy

Porter (1961) developed a measure to gauge need satisfaction in an organizational context. The Need Satisfaction Questionnaire (Porter 1961) was used to assess the (1) level of employee needs that are pursued on the job, (2) the level of organizational resources relevant to the needs that are perceived or experienced by the employee, and (3) the congruence between a person's needs and organizational resources--with greater congruence reflecting increased need fulfillment by the organization.

Four need categories, including seven needs based on Maslow's hierarchy, were covered in the Porter instrument:

- (1) Survival needs:
 - (a) Security needs,
 - (b) Pay.
- (2) Social needs:
 - (a) Needs of interpersonal interactions friendships,
 - (b) Needs for membership and being-in-the-know in a significant social group.
- (3) Ego needs:
 - (a) Needs for self-esteem,
 - (b) Needs for autonomy.
- (4) Self-actualization needs.

A typical item on the measure is as follows:

"The feeling of security in my position:

- | | | | | | | | | | |
|----------------------------|-----|---|---|---|---|---|---|---|-----|
| (a) How much is there now? | min | 1 | 2 | 3 | 4 | 5 | 6 | 7 | max |
| (b) How much should there? | min | 1 | 2 | 3 | 4 | 5 | 6 | 7 | max |

The rating of the first of these two questions yields a measure of perceived organizational resources, while rating of the second question yields a measure of need level. The possible scores of organizational resources and needs range from 1 to 7 for the security need, the need for pay, and the need for being-in-the-know, all of which are represented by one item. The need for interpersonal interactions and friendships are represented by two items,

self-esteem and self-actualization are represented by three items each, and the need for autonomy is represented by four items. Need satisfaction (an index of congruence between organizational resources and personal needs) is derived by taking the absolute difference between "is" (organizational resources) and "should" (need) scores. The nomological validity of this measure was established by its use in research (e.g., Hall, Schneider, and Nygren 1970). Temporal reliability of this scale was reported to approximate .8 (unpublished; personal communication with L. W. Porter).

THE NEW MEASURE

The new measure of life satisfaction based on need hierarchy theory is essentially a modification of Porter's (1961) measure. Remember that Porter's measure was designed to gauge the degree of congruence between an employee's perceptions of his or her needs and organizational resources. Since, QOL measures are instruments that tap satisfaction with life, the focus of the new measure was adjusted to life in general; in other words, the measure did not focus on *organizational* need satisfaction, but more broadly on *life* need satisfaction.

The exact measure was as follows: "We would like for you to indicate the desired level of given need ("how much there should be") compared with the actual level in which the need is being met (or "how much there is"). Check the number that mostly describes how you view your situation.

1. The feeling of having been secure.
2. The feeling of having given to (and having received help from) others.
3. The feeling of having developed close friendships.
4. The feeling of having been "in-the-know."
5. The feeling of self-esteem (pride) a person has about oneself.
6. The feeling of prestige (reputation) one person has about oneself.
7. The feeling of having experienced independent thought and action.
8. The feeling of having determined my life course.
9. The feeling of having experienced personal growth and development.
10. The feeling of having experienced self-fulfillment.
11. The feeling of having had worthwhile accomplishments.

The following scale was used to record responses for each of the 11-items:

How much is there now?	min	1	2	3	4	5	6	7	max
How much should there be?	min	1	2	3	4	5	6	7	max

Item 1 was designed to measure security need satisfaction; items 2, 3, and 4 social need satisfaction; items 5, 6, 7, and 8, esteem need satisfaction; and items 9, 10, and 11, self-actualization need satisfaction. A composite life

satisfaction score is obtained by averaging the absolute differences of the scores for 11 items.

VALIDITY ASSESSMENT HYPOTHESES

Three construct validity tests were used to examine the validity of the need satisfaction (NS) measure. The first test involved a factor structure test. Since the overall NS measure is composed of four types of need satisfaction items (security, social, esteem, and self-actualization), we would expect the items measuring each type of need satisfaction to cluster together in factors. That is, the empirical factor structure should correspond directly to the conceptual factor.

- H1: The need satisfaction (NS) measure is expected to involve four factors: (a) a security need satisfaction factor (item 1), (b) a social satisfaction factor (items 2, 3, and 4), (c) an esteem need satisfaction factor (items 5, 6, 7, and 8), and (d) a self-actualization factor (items 9, 10, and 11).

The second construct validity test involved correlating the NS measure with two established measures of general life satisfaction. The two life satisfaction measures were the Andrews and Withey (1976) delighted-terrible life satisfaction (D-T) Scale and the Meadow, Mentzer, Rahtz, and Sirgy (1992) congruity life satisfaction (CLS) Scale. Hence, the following hypothesis were tested to ascertain the construct validity of the NS measure.

- H2: The need satisfaction (NS) measure is highly and significantly correlated with the delighted-terrible life satisfaction (D-T) measure and with the congruity life satisfaction (CLS) measure.

Third, the construct validity of the NS measure was tested for empirical support for the following relationships:

- H3: There is a *positive* relationship between life satisfaction and income (Alston, Lowe, and Wrigley 1974; Andrews and Withey 1976; Clemente and Sauer 1976; Diener et al. 1993).
- H4: There is a relationship between life satisfaction and marital status, in that married people are more satisfied with their lives than nonmarried people (Andrews and Withey 1976; Glenn 1975).
- H5: There is a *positive* relationship between life satisfaction and material or financial satisfaction (Diener and Diener 1993; Richins 1987).

- H6: There is a *negative* relationship between life satisfaction and amount of television viewership (Morgan 1984; Rahtz, Sirgy, and Meadow 1987, 1988, 1989).
- H7: There is a *negative* relationship between life satisfaction and materialism (Belk 1985, 1989; Cole et al. 1992; Richins 1987).

METHOD

Sampling

The present study involved six samples. These were:

1. U.S.: mail survey involving a consumer panel (N = 233).
2. U.S.: college student sample in which questionnaires were distributed in class (N = 234).
3. Canada: mail survey involving a random sample of urban households (N = 180).
4. Australia: questionnaires were distributed to households door-to-door (N = 249).
5. Turkey: questionnaires were distributed to households door-to-door (N = 139).
6. China: questionnaires were distributed to households door-to-door (N = 191)

The U.S. Consumer Panel Sample. Questionnaires were mailed to a survey research panel comprised of 542 households. The research panel was modeled after the University of Michigan Consumer Survey Research Center and located in a "test market" city in the Midwest. Two-hundred fifty questionnaires were returned with 234 containing usable data. The response rate was 43.1 percent.

The extent of nonresponse bias was examined through Chi-square goodness-of-fit tests. Subjects were representative of the population on the basis of age and education ($p > .10$) but were disproportional on the basis of gender ($p < .10$). More males than females participated in the study.

The U.S. College Students Sample. As a comparison to the data obtained from an adult U.S. population, a sample of 234 college students was also given the same survey instrument. These students were in attendance at a sizable university located in the same midwestern geographical area as the adult U.S. sample. As can be seen from Table 1.1, the average age was 21.5 indicating

the young group included in the study. Slightly more females than males participated. As can be expected from a college population, the average education level was slightly less than four years of college (see Table 1.1)

The Canadian Sample. The Canadian sample was gathered by using a mail survey. Vernon's Directories (1989) were used for the cities of Itchenor and Waterloo, Ontario. A random sample of 1,000 heads of household was selected, proportional to the relative populations of the two cities. Since 109 questionnaires were returned as undeliverable, the 180 that were completed represent a 20.2 percent response rate. The survey was mailed under the auspices of Wilfrid Laurier University, and a postage-paid reply envelope was included. Although the measures used in the Canadian sample were the same as those used in the U.S. sample, the order in which they appeared was somewhat altered. Table 1.1 shows that the average respondent was aged in the mid-40's comparable to the U.S. Consumer Panel Sample, and more males than females participated in the study. There was an average of two to four college education.

The Australian Sample. The Australian sample was gathered in and around Sydney, New South Wales, by students of the University of Wollongong. Of 350 questionnaires originally distributed, a total of 249 were returned fully completed, for an effective response rate of 71.1 percent. This high rate of response can be partly attributed to class participation grades being offered to the student interviewers. Sampling took place during October 1991, and all questions appeared in the exact same order and with the same wording as in the original version, which was used in the United States. Table 1.1 shows that the average age was 30 (more comparable to the Chinese and Turkish samples than the Canadian and U.S. samples). There was an equal number of males and females; average education was two to four years of college.

The Turkish Sample. Questionnaires were distributed by 25 students from the University of Istanbul. Of the 250 questionnaires that were given out, a total of 139 were returned, for a response rate of 55.6 percent. Sampling occurred during November and December 1990, and respondents were on average 32 years of age. More females than males participated in the study, and the average education level was three to four years of college (see Table 1.1).

The Chinese Sample. Data was collected in the city of Shenyang, China during the summer of 1990. Of 300 questionnaires that were distributed door-to-door, some 191 of the returns were usable. This amounts to a response rate of 63.7 percent. The average age was 33, slightly more females than males participated in the study, and the average education level was two years of college (see Table 1.1).

Table 1.1
Demographics of the Six Samples Involved in the Study

Sample	Age (yrs)	Gender (%)		Education	N
		Male	Female		
China	32.876 (8.322)	45.8	54.2	3.094 (.722)	191
Turkey	32.321 (12.894)	43.2	56.8	3.326 (1.330)	139
Australia	29.565 (12.409)	50.2	49.8	3.526 (1.126)	249
Canada	45.557 (13.805)	75.8	24.2	3.449 (1.231)	180
U.S.A. (CP)	48.450 (16.171)	59.7	40.3	3.302 (1.145)	233
U.S.A. (CS)	21.539 (3.525)	43.5	56.5	3.857 (.458)	234
All Combined	34.800 (15.320)	53.1	46.9	3.450 (1.075)	1226

Notes:

1. The figures pertaining to age and education are medians with standard deviations in parentheses. Education was coded as follows:
 - 1 = grammar school
 - 2 = high school
 - 3 = two-year college
 - 4 = four-year college
 - 5 = graduate school
2. (CP) = Consumer Panel
 (CS) = College Students

Measures

The following measures were embedded in the questionnaire:

Measures of Life Satisfaction. Life satisfaction was operationalized using two measures: (1) Andrews and Withey's (1976) Delighted-Terrible (D-T) Satisfaction Scale, and (2) Meadow, Mentzer, Rahtz, and Sirgy's (1992) Congruity Life Satisfaction (CLS) Scale. The D-T measure was reported to have temporal reliability of .66 for a 15-minute duration and .40 for a 6-month duration (Stock et al. 1983). Andrews and Withey (1976) demonstrated high convergent validity with other self-report measures and also nomological validity by providing empirical support for the relationships between life satisfaction and external variables such as self-efficacy, marriage, and standard of living. Other positive and strong evidence of the reliability and validity of the D-T measure was reported by Larsen, Diener, and Emmons (1983). The D-T measure is essentially a one-question self-report measure with a scale varying from "Delighted" (7) to "Terrible" (1), along with two additional categories, "Neutral" and "I never thought about it." (The latter categories were recoded as "4.")

The CLS measure is based on the theoretical notion that life satisfaction is a function of a comparison between perceived life accomplishments and a set of standards used to evaluate these accomplishments. These standards are classified as a function of their derivative sources (e.g., the life accomplishments of relatives, friends, and associates; past experiences; self-concepts of strengths and weaknesses, and average person in a similar position), and also based on their different forms (e.g., standards based on ideal, expected, deserved minimum tolerable, and predicted outcomes).

A six-point scale was used to measure the 10 CLS items. Meadow et al. (1992) demonstrated construct validity of the measure through two studies in which life satisfaction was shown to be related as predicted to various demographic and psychographic constructs.

Measure of Material/Financial Satisfaction. Material/financial satisfaction was measured using a variation of the delighted-terrible Scale (see Andrews and Withey 1976). The following item was used: "We would like for you to evaluate your standard of living or income. Check the category that most describe your feelings. How do you feel about your standard of living or income?"

Measure of Television Viewership. The TV viewership measure involved four frequency-type items:

How much time did you spend watching TV yesterday? ____ hrs.

How much time do you usually spend watching TV every day? ____ hrs.

How many hours per week do you watch TV? ____ hrs./wk.

On the average day, about how much time, if any, do you personally spend watching television? ____.

Scores pertaining to the item that measured TV viewership hours per week were converted to days and the scores from the four items were averaged into a composite score.

Measures of Materialism. Two measures of materialism were used: the Belk (1985) Materialism Scale, and the Richins (1987) Materialism Scale.

1. The Belk (1985) Materialism Scale.

Belk inferred materialism from three personality traits: possessiveness, nongenerosity, and envy (Belk 1985). Examples of items measuring possessiveness include "Renting or leasing a car is more appealing to me than owning one" (negatively phrased), and "I tend to hang on to things I should probably throw out." Examples of items measuring nongenerosity include, "I enjoy having guests stay in my home," and "I enjoy sharing what I have" (both are negatively phrased). Examples of items measuring envy include, "I am bothered when I see people who buy anything they want," and "I don't know anyone whose spouse or steady date I would like to have as my own" (negatively phrased).

Belk reported Cronbach alpha coefficients varying from 0.66 to 0.73 and involving the entire scale (a composite of possessiveness, nongenerosity, and envy). The subscales were moderately and significantly intercorrelated (0.25 to 0.35). Factor analysis confirmed the structure of the materialism scale involving possessiveness, nongenerosity and envy. The scale was significantly and negatively correlated with Gurin, Veroff, and Feld's (1960) measure of happiness ($r = -.26, p < .001, n = 338$) and Bradburn and Caplovitz's (1965) measure of satisfaction in life ($r = -.24, p < .001, n = 338$). In addition, the results of a related study concerning the patterns of materialism across three generation groups produced nomological validity for the materialism measure. Subsequent studies using the Belk scale (or one of the subscales) either failed to report reliability (e.g., Belk 1989; Wallendorf and Arnould 1988) or reported generally low reliability coefficients (e.g., Rudmin 1990; Ger and Belk 1990; Dawson and Bomossy 1990). The range in reliabilities was .09 to .71, averaging .6.

2. Richins' (1987) Materialism Scale.

Richins (1987) viewed materialism as a value, rather than a personality trait. She did not infer materialism from subtraits, but rather tried to measure it directly with a six-item measure. Using a sample size of 252, factor analysis produced two distinct factors, the first measuring personal happiness and the second reflecting a general belief that money can bring happiness. The correlation between the two factors was .32. Alpha coefficients were .73 for the first factor, and .61 for the second. The relationship between materialism and life satisfaction was, as hypothesized, negatively correlated and significant.

Cole et al. (1992) investigated the reliability and validity of both the Belk and the Richin materialism measures. They found that the Richins scale exceeded the .7 reliability benchmark established by Nunally (1978), while the Belk measure fell somewhat short of it. Both measures exhibited convergent and nomological validity.

Demographic Measures. All other measures included in the study consisted of simple demographic items, including age, gender, level of education, and marital status. For the measure of income, figures for annual income were collected in the currency of each country. No attempt was made to translate all the currencies into one common currency (such as U.S. dollars).

RESULTS

Factor Structure of the NS Scale (First Construct Validity Test)

Principal components factor analysis (using varimax and oblimin) produced a single factor for the combined sample, accounting for 39.4 percent of the variance. Table 1.2 shows the results of using factor analysis on each of the individual samples.

While the factor analysis produced only a single factor for the combined sample, it had been anticipated that there would be four factors; one representing each of the following needs: (1) security, (2) social, (3) esteem, and (4) self-actualization. While these factors did not emerge, it was found that those need satisfaction variables correlated more highly with other need satisfaction variables involving identical needs than they correlated with variables involving different needs (see Table 1. 3).

A Cronbach reliability analysis was .842 for the combined sample. For the subsamples, the following Cronbach alphas were obtained: China, .847; Turkey, .865; Australia, .819; Canada, .857, U.S. consumers, .859; US students, .819. These results show that the NS measure has an acceptable internal consistency overall and that the items pertaining to each need satisfaction subscale are also internally consistent. The results provide general support for H1.

Criterion Validity of the NS Measure (Second Construct Validity Test)

Hypothesis 2 states that the NS measure will be highly and significantly correlated with the D-T and the CLS measures of life satisfaction. For the combined sample, the correlation between NS and CLS was $-.3771$ ($p < .01$), and that between NS and D-T was $-.3566$ ($p < .01$). These results are supportive of the criterion validity of the NS measure. It should be noted that the NS scores are discrepancy scores; hence, the higher the score, the lower the degree of the need satisfaction.

Table 1.2
Factor Analysis Results

Sample Explained	Items											Total Number of Factors	Variance
	1	2	3	4	5	6	7	8	9	10	11		
China	1	1	1	1	2	1	1	1	2	2	2	2	50.9%
Turkey	2	2	3	2	3	3	1	1	1	1	1	3	62.8%
Australia	2	1	1	1	2	1	2	2	2	1	1	2	45.7%
Canada	1	2	2	2	2	2	1	1	1	1	1	2	53.1%
U.S. consumer	1	3	3	2	2	2	2	1	1	1	1	3	62.6%
U.S. students	2	3	3	3	2	2	3	1	1	1	1	3	55.2%
Combined Sample	1	1	1	1	1	1	1	1	1	1	1	1	39.4%

Notes:

1. The above numbers refer to the factor on which each item grouped.

2. Item

1 = The feeling of having been secure.

2 = The feeling of having given to (and have received help from) others.

3 = The feeling of having developed close friendships.

4 = The feeling of having been "in-the-know."

5 = The feeling of self-esteem (pride) a person has about oneself.

6 = The feeling of prestige (reputation) a person has about oneself.

7 = The feeling of having experienced independent thought and action

8 = The feeling of having determined my life course.

9 = The feeling of having experienced personal growth and development.

10 = The feeling of having experienced self-fulfillment.

11 = The feeling of having had worthwhile accomplishments.

3. Security need satisfaction is hypothesized to involve item 1.

Social need satisfaction is hypothesized to involve items 2, 3, and 4.

Esteem need satisfaction is hypothesized to involve items 5, 6, 7, and 8.

Self-actualization need satisfaction is hypothesized to involve items 9, 10, and 11.

Table 1.3
Item Factor Correlations

Item	Security	Self Social	Self- Esteem	Actualization
1	1.000	.308	.428	.415
2	.218	.684	.360	.339
3	.235	.736	.381	.324
4	.211	.732	.339	.325
5	.260	.321	.712	.385
6	.324	.396	.735	.456
7	.261	.382	.686	.406
8	.368	.346	.719	.506
9	.278	.346	.484	.783
10	.391	.388	.556	.851
11	.371	.420	.512	.881

Notes:

1. All correlations were significant at the .01 level.

2. Item

1 = The feeling of having been secure.

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3. Security need satisfaction is hypothesized to involve item 1.

Social need satisfaction is hypothesized to involve items 2, 3, and 4.

Self-esteem need satisfaction is hypothesized to involve items 5, 6, 7, and 8.

Self-actualization need satisfaction is hypothesized to involve items 9, 10, and 11.

The correlations of the NS scale with the CLS and D-T scales for each of the subsamples are shown in Table 1.4, which also provides support for the criterion validity of the NS measure.

Table 1.4

Correlations between the NS and CLS Measures and between the NS and D-T Measures of Life Satisfaction

Sample	CLS	D-T
China	-.229**	-.129*
Turkey	-.523**	-.421**
Australia	-.392**	-.296**
Canada	-.347**	-.305**
U.S. Consumers	-.607**	-.551**
U.S. Students	-.447**	-.472**
Combined Sample	-.377**	-.357**

Notes:

1. Negative correlations were expected because the life satisfaction scores from the NS measure are discrepancy scores (low discrepancy between "how much there is now" and "how much there should be" signifies high satisfaction, and vice versa).
2. * $p < .05$; ** $p < .01$.

Nomological Validity of the NS Measure (Third Construct Validity Test)

A positive relationship between life satisfaction and income was hypothesized (H3). Table 1.5 shows the correlations found between the NS measure and income. Only the correlation for the U.S. consumer panel sample was found to be significant. No overall correlation was calculated as the total sample involved five different currencies. Except for the U.S. consumer panel sample, the results generally do not support the hypothesis.

A relationship between marital status and life satisfaction was hypothesized in that married people we are expected to be happier than nonmarried people (H4). The correlation with marital status in the overall sample was positive and significant (.1649, $p < .01$). For the subsamples, the correlations are shown in Table 1.5. While all the correlations with marital status are in the positive direction as predicted, several (i.e., China, Canada, and U.S. students) were not significant.

Table 1.5

NS Correlations with Income, Marital Status, Material Satisfaction, and Television Viewership

Sample	Income	Marital Status	Material/ Financial Satisfaction	Television Viewership
China	-.0871	.1439	-.0086	-.0223
Turkey	-.1117	.1761*	-.3832**	-.1190
Australia	.0094	.1335*	-.1095	.1466**
Canada	-.0654	.1000	-.3222**	.0942
U.S. consumers	-.2168**	.2063**	-.3214**	.2727**
U.S. students	.0190	.0293	-.3200**	.1810**
Combined	/	.1649**	-.2087**	.1247**

Notes:

1. Negative correlations were expected in relation to income and material/financial satisfaction. That is, the higher the income (and material/financial satisfaction) the lower the discrepancy scores (discrepancy between "how much there is now" and how much there should be"). Conversely, positive correlations were expected in relation to marital status and television viewership. Married was coded as "0" (or low) and nonmarried was coded as "1" (or high).
2. * $p < .05$; ** $p < .01$.

A positive relationship between material/financial satisfaction and life satisfaction was hypothesized (H5). For the overall sample this correlation was $-.2087$ ($p < .01$), evidence in favor of the hypothesis. The correlations for individual countries are shown in Table 1.5. While not all the results reached significance, the overall pattern provides additional support for the nomological validity of the NS measure.

A negative relationship was hypothesized between life satisfaction and amount of television viewership (H6). The results of the overall sample indicate a positive and significant correlation between NS and TV viewership (.1247, $p < .01$) as expected (see Table 1.5). The negative correlations for China and Turkey, though nonsignificant, may be worth following up since they may indicate cultural differences between life satisfaction and amount of television viewership (or extent of ownership, perhaps). For those countries with a more Western orientation, the results are in the expected direction and generally significant.

A negative relationship was hypothesized between life satisfaction and materialism (H7). As reported earlier, two measures of materialism were used. The results are shown in Table 1.6.

Table 1.6
NS Correlations with Two Measures of Materialism

Sample	Correlations with Belk Measure	Correlations with Richins Measure
China	.0623	-.0290
Turkey	.3853**	.1588*
Australia	.1352**	.1588*
Canada	.1788*	.1148
U.S. consumers	.3090**	.2845**
U.S. students	.2261**	.0633
Combined	.2214**	.1241**

Notes:

1. Positive correlations mean, the higher the life satisfaction, the lower the materialism. This is because the life satisfaction scores from the NS measure are discrepancy scores (low discrepancy between "how much there is now" and "how much there should be" signifies high satisfaction, and vice versa).
2. * $p < .05$; ** $p < .01$.

As can be seen from the table the correlation between NS and materialism was highly significant (using either Belk's or Richin's scale) for the overall sample. However, not all the subsamples produced significant correlations.

DISCUSSION

The construct validity of the NS measure was tested in three ways. First, it was expected that the factor structure of the NS measure would reveal four factors representative of the four need satisfaction subscales (security need satisfaction, involving item 1; social need satisfaction, involving items 2, 3, and 4; esteem need satisfaction, involving items 5, 6, 7, and 8; and self-actualization need satisfaction, involving items 9, 10, and 11). The general pattern of the results was moderately supportive of the hypothesis lending a certain degree of validation support to the NS measure.

The second construct validity test involved correlating the NS with well-established QOL measures, such as the D-T and CLS scales. It was hypothesized that the NS measure would be highly and significantly correlated with both the D-T and CLS measures of life satisfaction. The overall results provided support for this hypothesis, lending additional validation support to the NS measure. The third construct validity test involved testing for well-established relationships. Previous studies have indicated that life satisfaction is positively related to income, marital status (i.e., married people are happier in life than nonmarried ones) and material/financial satisfaction, and negatively related to amount of television viewership and degree of materialism. The results of this study provide general support for the hypothesized relationships, although with some exceptions, which appear to involve cultural (or cross-cultural) influences. Specifically, it was expected that income would be negatively correlated with NS scores. The strongest and most significant negative correlation with income was limited to the U.S. consumer panel sample. Diener and Diener (1993) have argued that the relationship between life satisfaction and factors such as income may not be universal across cultures. For example, Diener et al. (1993) found that wealthier countries report higher levels of life satisfaction than poorer countries. Could the relationship between life satisfaction and income be limited to wealthier countries? The results of this study provide only initial and suggestive evidence to this possibility. One possible explanation for this effect may involve the fact that symbols of wealth in developed countries are more equated with successful life accomplishments than they are in developing countries. For example, in many developing countries, income may be less symbolic of successful life accomplishments than it is in the developed nations. Future research may explore the moderating effect of the level of economic development of a country on the relationship between income and life satisfaction.

Similarly, correlations with material/financial satisfaction varied considerably among the different samples, with the Turkey sample showing the weakest correlation. Veenhoven (1991) hypothesized that financial satisfaction is more strongly related to life satisfaction in poor countries than rich ones. He argued that finances become less important in countries in which the basic needs are mostly met. Personal finance becomes highly salient as a life goal (as for Maslow) when basic needs are not met. In other words, life satisfaction should relate less strongly in countries as income rises. Veenhoven (1991) as well as Diener and Diener (1992) reported results supportive of this theoretical notion. However, the data from Diener and Diener's study provided limited support of the moderating effect of the economic development level of the country, which was limited to women. The results of our study do not support Veenhoven and Diener and Diener's observations. The strongest correlation was evidenced through the Turkey sample (a country that is making significant strides toward economic development), followed by the United States, Canada, and Australia, with China (which is less-developed) showing the weakest correlation. Perhaps, the moderating effect of the level of economic development of countries on the

relationship between material/financial satisfaction and life satisfaction is an inverted U. That is, the moderation effect may be strongest in countries which are in the middle which are making significant strides toward economic development. Countries in the middle of the economic development dimension may be more keenly aware that income, the economy, material acquisition, and personal finance may prove to be the means for a better life. Hence, people who are in those countries may place greater salience on finance and material satisfaction (as means toward happiness in life) than people at either extreme of the economic development spectrum.

The correlations between the NS measure of life satisfaction and marital status are not consistent across the different cultural samples. The correlation from the U.S. student sample was the weakest. This is not a surprise, since college students may not regard marriage as instrumental to happiness, mostly because of their stage of life development. For example, they may regard education and career development as significantly more salient. Future research should use constructs such as marital and/or family satisfaction instead of marital status. The former are more "proximal" to life satisfaction and is significantly more meaningful than the latter (cf. Diener 1984; Diener and Diener 1993).

The correlations with the TV viewership measure also varied significantly across the different samples. The expected correlations were evidenced only in the U.S. samples and the Australia sample (to a lesser extent). Could the relationship between TV viewership and life satisfaction be ethnocentric (i.e., restricted to the U.S. culture)? Rahtz et al. (1988, 1989) explained that heavy TV viewers cultivate unrealistic beliefs to the effect that the average family in the United States is happy, free of life stresses and strains, and wealthy. Heavy TV viewers compare themselves with this stereotypic image, resulting in dissatisfaction with themselves and their lives. If this explanation is valid, could it be that only programs and advertising in the U.S. cultivate this stereotypic image, while TV programs and advertising in other countries do not cultivate the same image of the average family and individual? Future research should examine this issue more closely.

With respect to the correlations with the materialism measures, positive correlations were predicted to be indicative of a negative relationship between life satisfaction and materialism. The pattern of correlations from this study showed considerable variation among the samples. The strongest correlation was consistently evidenced through the U.S. consumer panel sample. No significant correlations were noted from the China sample. Could the relationships between life satisfaction and materialism be restricted to Western-type democracies, including countries in the middle of the economic development spectrum? One can argue that the Chinese culture does not place much value on material possessions. As a matter of fact, people who engage in conspicuous consumption are perceived negatively in communist countries such as China. Future research should examine closely the moderating effect of culture on the relationship between life-satisfaction and materialism.

Most importantly, future research should be directed to testing hypotheses generated directly from the need hierarchy theory and empirically tested using the NS measure developed in this study. Examples of hypotheses deduced from need hierarchy theory in relation to QOL include:

- H1: Life satisfaction is determined mostly by the satisfaction of needs for security, social interactions, esteem, and self-actualization.
- H2: The fixation level of an individual along the need hierarchy determines the salience of that need in impacting life satisfaction. For example, an individual who is fixated at the social need level is likely to regard social needs as highly salient, and therefore social need satisfaction is likely to play a greater role (than the satisfaction of other needs) in life satisfaction.
- H3: Personality factors such as level of self-esteem, locus of control, and intraversion-extraversion, among others, may influence the fixation level of an individual along the need hierarchy, thus determining the salience of a specific need in impacting life satisfaction.
- H4: Cultural factors such as individualism/collectivism, level of economic development, and political orientation, among others, may influence the extent of fixation level of an individual along the need hierarchy, thus determining the salience of that need in impacting life satisfaction.
- H5: Environmental factors such as crime, poverty, homelessness, leisure facilities, and educational resources, among others, may influence the extent of satisfaction of the various needs along the need hierarchy, thus impacting life satisfaction.

MANAGERIAL AND POLICY IMPLICATIONS

The need hierarchy measure of life satisfaction is important to marketers, for whom need hierarchy theory is a well-accepted motivational model. This measure allows marketers to gauge the effectiveness of their marketing programs. Instead of (or in addition to) employing traditional sales and profit objectives, marketers may set quality of life objectives to serve a specific consumer segment. The need hierarchy measure of life satisfaction allows the marketer to measure the extent to which the marketing program was instrumental in enhancing consumer's overall life satisfaction. This can be done through a pre-post experimental design. Before the implementation of the marketing program, the need hierarchy measure should be administered to a sample of customers. The same measure should again be administered after a reasonable

duration of time, and periodically thereafter. Significant increments in life satisfaction can be viewed as an indication that the marketing program is successful in enhancing the quality of life of the target population.

Furthermore, the measure allows the marketer to assess the effectiveness of the marketing program in terms of specific need satisfaction. For example, a healthcare marketer offering services related to basic biological needs such as the need to digest food, the need to inhale oxygen, or the need to be disease free is in a better position to assess the effectiveness of the healthcare services by focusing on biological need satisfaction. Significant increments (decrements) of biological need satisfaction can be viewed as indicators of success (failure) of the healthcare offerings.

Different products and services tend to cater to different needs. The need hierarchy measure allows the marketer to not only gauge overall life satisfaction of target consumers, but also to satisfy the need most relevant to the product or service offered.

The need hierarchy measure of life satisfaction can also be used to assess the long-term effectiveness of community residents consume a variety of business services such as banking and savings, insurance, taxi/private transportation, restaurants/night clubs, department stores, drugstores/supermarkets, specialty stores, healthcare services, telephone services, electric services, gas and oil services, housing, home repair, day care, nursing homes, retirement community-type services, and private schools, among others. The QOL impact of these business services can be assessed periodically using the need hierarchy measure. Thus, it would put the business community in a better position to assess strategic gaps in providing needed business services that enhance the community QOL.

Community government can assess the extent to which its many services are effective in serving the needs of the community residents. These include services for fires fighting, rescue ambulance, library, sanitation/refuse, water, police, town or county administration, planning for land use, economic development, parks and recreation, employment and job assistance, beautification programs, and street lighting, among others.

Besides government and business-related services serving community residents, there are community-related services. These include: alcohol/drug abuse services, crisis intervention services, adoption/foster care services, family planning services, support groups, chamber of commerce, legal aid services, mental retardation services, senior citizen services, adult education, food/shelter programs, hospice and nursing services, services for the handicapped, volunteer services, youth services, and cultural/leisure services, among others. Again, the long-term effectiveness of these community services can be assessed periodically through the need hierarchy measure.

Although this discussion focused on program evaluation at the community level, the need hierarchy measure can also be used to conduct program evaluation at the regional level, as well as the national and international levels. For example, state governments can regularly assess the effectiveness of

business services that are available for state residents. Strategic gaps can be identified based on the extent to which business fails to satisfy certain needs. Based on this assessment, the state government can take corrective action in an attempt to satisfy unfulfilled needs.

SUMMARY

A life satisfaction measure is developed in this chapter drawn from Maslow's need hierarchy theory. This measure is based on the theoretical notion that the greater the degree of satisfaction of lower- and higher-order needs, the greater the degree of life satisfaction. Lower-order needs are needs related to biological sustenance and safety, while higher-order needs are related to social belongingness, esteem, and self-actualization. The measure was administered to 1,226 adults (from the United States, Canada, Australia, Turkey, and China) along with other measures of life satisfaction and demographics, and the results provided evidence of the construct validity of the need hierarchy measure of life satisfaction. Marketing and public policy implications of the need hierarchy measure of life satisfaction were also discussed.

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