

10. SATISFACTION AND HAPPINESS*

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ABSTRACT. I review the recent literature on satisfaction and happiness, identify some plausible next steps to take at the frontiers of the research field and offer some suggestions to facilitate those steps. Using partial correlation techniques, substantial levels of covariation are found among the variables that are used in predictions of satisfaction and happiness with life as a whole from satisfaction with specific domains (e.g. family life, health). Using path analysis, confirmation is found in a dozen domains for a model which has satisfaction as a function of a perceived goal-achievement gap, and the latter as a function of comparisons with previous best experience and the status of average folks. Using discriminant analysis, satisfaction with family life is found to be a powerful and predominant discriminator among three groups, identified as Frustrated (dissatisfied and unhappy), Resigned (satisfied and unhappy) and Achievers (satisfied and happy).

1. INTRODUCTION

The structure of this paper is as follows. There is a review of some of the anomalies that have been encountered by social indicators researchers (section 2), and an overview of studies exploring various explanatory hypotheses of the anomalies (3). Plausible next steps are considered in the fourth section (4). Beginning with section (5), I report the results of a small survey undertaken at Guelph to at least prepare the way for others to take the important next steps on a grander scale. The methods and sample are described (5) and some basic statistics are provided (6). Substantial intercorrelations among domain satisfaction scores and life as a whole satisfaction and happiness scores are shown (7). A path model of satisfaction and happiness, called simply the Michigan model, is examined in relation to a dozen domains (8). Types of satisfaction are distinguished (9), and there is a brief conclusion (10).

2. ANOMALIES AS PRODS TO RESEARCH

Nobody ever needed social indicators to learn that different people often have different feelings about the same things. That, after all, is what makes a horse race. Nevertheless, it is precisely this commonplace phenomenon that

has stimulated much of the current research on so-called subjective or perceptual social indicators. We want to know *why* different people often have different feelings about the same things. If one asks oneself why this question seems so pressing, I think the answer must be because much more often, most of the time, most people feel practically the same way about most things. For very good physical, biological and social reasons most people are more similar than dissimilar to each other. If it were not so, then within any society the habits of communication, entertainment, transportation, eating, working, and so on would be unmanageable. Without plenty of uniformity, we would have plenty of chaos. We expect and in more or less subtle ways we cultivate and construct uniformity. Consequently, non-uniform, unexpected, unplanned phenomena confront us as anomalies. Moreover, perceived anomalies are necessary conditions of scientific research. When nothing is regarded as strange and unaccounted for, nothing is regarded as in need of explanation. The perceived need for an explanation of something is the threshold of scientific investigation, and probably magic, religion and philosophy for that matter. (This is basically Kuhn's (1962, 1977) view.)

The social indicators movement has generated its own anomalies. For example, although Cantril (1965, p. 194) reported a rank order correlation of 0.67 between his socioeconomic index and people's ratings of their present life on the Self-Anchoring Striving Scale, he also found that

the rank order correlation between the index and personal economic concerns was 0.01, with national economic concerns, -0.05 ; and with national social concerns, -0.01 – all indicating a complete lack of any relationship.

(Cantril, 1965, p. 201) Campbell (1972) reported that nearly half of the relatively poor white American respondents in a 'large-scale urban survey' described themselves as 'very satisfied' with their housing. Schneider (1975) reported significant differences between American cities when appraised using objective versus subjective indicators. Duncan (1975a) noticed that although there was an increase in the standard of living of respondents in Detroit from 1955 to 1971, there was no increase in the reported satisfaction with the standard of living. Allardt (1976) found that material level of living and reported satisfaction were independent. Hankiss *et al.* (1978) reported similar levels of perceived quality of life for people living in countries with dissimilar scores on a developmental index. Michalos (1980b) reported that although Americans were over five times as vulnerable to violent crimes as Canadians, national surveys in 1973 and 1974 revealed that roughly 40 per-

cent of respondents in both countries expressed some fear of walking alone at night in their own areas. It was anomalies such as these that prompted Campbell *et al.* (1976, p. 115) to speak of the 'dilemma' of social indicators research, namely, that

We become most suspicious of bias or measurement inadequacy when subjective assessment come into conflict with objective situations, although such discrepancies taken substantively are almost the principal reason for the conduct of the study [of subjective indicators].

Most of the research on subjective social indicators has centred around problems involved in the measurement of satisfaction or happiness with particular domains (e.g., housing, family relations and health) and with life as a whole. Measures of life as a whole are referred to as *global* measures, in contrast to more limited *domain* measures. In the next two sections I will briefly review some of the most salient literature in this field from the twentieth century. For a thorough and extremely thought-provoking historical review of the literature on satisfaction and happiness beginning in about the seventh century B.C., one should read Tatarikiewicz (1976). The next section is on the theories, models or hypotheses that have been proposed in order to explain perceived anomalies, e.g., hypotheses about the role of expectations, aspirations and so on in the determination of feelings of satisfaction. In the section following this review I present some ideas on plausible next steps to take in order to increase our understanding at key points in the current stage of the discussion.

3. OVERVIEW OF PREVIOUS RESEARCH

One of the first things that occurs to researchers interested in explaining anomalies in this field is that expectations have a lot to do with the way people feel about their objective circumstances. The hypothesis that reported satisfaction is a function of the perceived difference between achievement and expectations has been tested in a variety of experimental situations with mixed results. Confirming evidence has been reported by Spector (1956), Foa (1957), Hulin and Smith (1965), Ilgen (1969, 1971), Locke *et al.* (1970), Ilgen and Hamstra (1972), Greenstein (1972), Lewis (1973), Space (1974), Gelwick (1975), Al-Hoory (1976), and Campbell *et al.* (1976). Unsuccessful attempts to confirm the hypothesis have been reported by Kawakami (1967), Buckley (1969), Berkey (1971), Carey (1974), Weston (1974), Hibbs (1975), Newton (1976), Wantz (1976), and Morgan (1976).

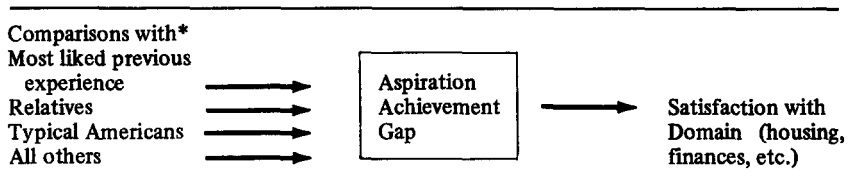
Although some people (e.g., Pelz and Andrews, 1976) use the terms 'expectations' and 'aspirations' as synonyms, there are good logical and experimental reasons for avoiding such usage. This was recognized clearly in the early studies of Lewin *et al.* (1944). Logically or conceptually there is a difference between what one aspires, hopes, wants or would like to achieve and what one expects to achieve. For example, underdog candidates for all sorts of positions may have high aspirations but very moderate expectations. They need not, of course, but it is logically possible and it often happens. Aspiration implies a conative element that is lacking in expectation. One has an emotional or affective stake in aspirations that may be entirely missing from expectations. (Edwards and Tversky (1967) is a good place to begin exploring studies of the impact of desirability on probability assessments.)

The fundamental logical distinction between expectations and aspirations is supported by the experimental literature. While we have just seen that the hypothesis regarding satisfaction as a function of the gap between *expectation* and achievement has had at best equivocal success, the hypothesis regarding satisfaction as a function of the gap between *aspiration* and achievement has been almost uniformly successful. Using the same computerized bibliographic search procedures that uncovered the mixed reports about expectation and achievement, I found only a single unsuccessful attempt to link satisfaction to an aspiration-achievement gap, namely, Carpenter (1973). Successful attempts to find an association were reported by Thibaut and Kelly (1959), Patchen (1961a, 1961b), Cook (1968), Bharadwaj and Wilkening (1974), Thompson (1975), Warr and Wall (1975), Campbell *et al.* (1976), Danielson (1977), Dorsett (1977) and Mason and Faulkenberry (1978).

Hamner and Harnett (1974) found that satisfaction in a competitive situation was a function of two comparisons which interacted, namely, the perceived achievement-aspiration difference mentioned above and the difference between one's own perceived achievement and that of one's selected reference person. The idea that satisfaction might be a function of the perceived difference between one's own status and that of a reference person or group has received indirect support from Davies (1962), Feierabend *et al.* (1969), Gurr (1970), Easterlin (1973, 1974), and Scott (1979). Duncan (1975a, p. 273) claimed that "the relevant source of satisfaction with one's standard of living is having more income than someone else, not just having more income". Gurr (1970, p. 52) cited a passage from Aristotle's *Politics* suggesting the antiquity of the hypothesis.

Cambell *et al.* (1976) tested the hypothesis directly using three reference groups (typical Americans, most close relatives and most close friends) and satisfaction with two particular domains (housing and neighbourhoods). In each case they found a positive association between reported satisfaction with the domain, and the gap between respondents' present status and the status of the reference groups as perceived by the respondents. In their most sophisticated model of satisfaction with particular domains of life, these authors have such social comparisons feeding directly into aspirations (as in Lewin *et al.* (1944, pp. 340–341)), with the aspiration-achievement comparison directly related to satisfaction. Exhibit 1 illustrates their model. The most influential comparisons respondents made were not with other people, but with the most liked previous experiences they had had. (See Exhibit 1.)

EXHIBIT 1.
Campbell *et al.* (1976) model
of satisfaction with particular domains as
a function of comparisons and an aspiration-
achievement gap.



* Comparisons are listed in order of their influence on aspirations.

Andrews and Withey (1976) also tested the social comparison hypothesis directly for one reference group (most people) and three domains (self-accomplishments, housing and national government). In each case they found the anticipated positive association.

Equity theory might be regarded as a particular species of Aristotle's old hypothesis insofar as it is based on a perceived difference between what one gets and what one thinks one is entitled to get, *given* what some reference person or group gets. As the theory has been developed since Adams (1963, 1965), it has led to mixed results. That, at any rate, is the conclusion reached by three reviewers of the literature, namely, Lawler (1968), Pritchard (1969), and Burgess and Nielsen (1974). Abrams (1972) and Strumpel (1972) both claimed that the reported satisfaction of their respondents was partly a func-

tion of the perceived equity of their situations. Andrews and Withey (1976) used an item that required respondents to make a judgment about the appropriateness or fairness of their housing, self-accomplishments and national government without necessarily making a comparison to any reference group. That seems to be another species of equity theory, and it at least yielded results consistent with the hypothesis that such judgments do influence reports of satisfaction concerning the three relevant domains.

Some researchers have found a positive association between goal setting and job satisfaction, even if the goals were not achieved, e.g., Latham and Kinne (1974), Kim and Hamner (1976), and Umstot *et al.* (1976). Others have found that it is not merely the presence of goals that contributes to job satisfaction (whether the goals are achieved or not), but it is participation in the goal setting process that is satisfying. (Arvey *et al.*, 1976). According to Umstot *et al.* (1976, p. 381), "A conservative weighing of the evidence suggests that goal setting has a strong, positive effect on productivity but an unknown effect on job satisfaction".

Some other theories that have a fairly direct relation to the ideas already discussed include cognitive dissonance theory (Festinger, 1957; Brehm and Cohen, 1962), adaptation-level theory (Helson, 1964; Appley, 1971), expected utility theory (Edwards and Tversky, 1967) and attribution theory (Jones *et al.*, 1971).

4. NEXT STEPS

As the preceding brief overview suggests, there is no shortage of plausible models and more or less developed theories available to account for anomalies of reported satisfaction with various domains and with life as a whole. There are many more models and theories, and there is more experimental evidence than anyone could review in anything less than a long book. Campbell *et al.* (1976, p. 287) remarked that by 1972 there were over 3 000 articles, books and dissertations written on job satisfaction alone! Nevertheless, these authors concluded (correctly, I think) that "However worthy generic explanatory constructs like tastes or aspirations may be, they fall far short of providing any very elaborated theory." (Campbell *et al.*, 1976, p. 483).

Apart from constructing a 'very elaborated theory', there are still some important developmental steps that can be taken. In the first place there is a question of the effects of intercorrelations among measures of satisfaction in

particular domains and for life as a whole. Weaver (1978) reported several significant intercorrelations among domain satisfaction scores. He concluded that

The considerable interdependence among domain variables suggests that happiness is based on satisfaction in a number of different parts of life, that the employee whose happiness is significantly related to job satisfaction is also likely to experience satisfaction in other parts of life as well (Weaver, 1978, pp. 838–839).

Although Weaver worked with a global measure of happiness with life as a whole rather than of satisfaction with life as a whole, the scores from the two measures generally correlate with Pearson r 's around 0.6 to 0.7 (McKinnell, 1978). Atkinson (1979, p. 14) reported that age and income were so highly intercorrelated that "any analysis of one of these factors must proceed with the effects of the other held constant". A systematic search for intercorrelation effects among domain satisfaction scores and life as a whole satisfaction and happiness scores would improve our understanding of such scores, and their change over time.

A second important question concerns the role of an aspiration-achievement gap in the explanation of satisfaction with particular domains and life as a whole. I have already noted that such a gap was found to be influential in reported satisfaction measures for housing, neighbourhoods, self-accomplishments and national government. Mason and Faulkenberry (1978) also found it influential in assessments of satisfaction with income and public safety. As Campbell *et al.* (1976) pointed out, so far no one has been able to design a questionnaire item that lends itself to repeated use across a variety of domains and that captures respondents' feelings about aspiration-achievement gaps. Consequently, different researchers focus on certain domains and invest the additional resources required to explore the relevant gaps in the limited areas. Thus, Campbell *et al.* (1976, p. 484) concluded that

it remains quite conceivable that the general structuring of standards of comparison and aspiration levels might take quite a different form in other more disparate domains such as financial situation or marriage.

A similar suggestion was made by Duncan (1975a, p. 273). In other words, the model illustrated in Exhibit I may be appropriate for some domains and inappropriate for others. Clearly, what is required is the design and testing of a new efficient questionnaire item for a variety of domains and for life as a whole. Such an item is introduced and used in the following sections of this paper.

All previous tests of the hypothesis concerning the influence of an aspira-

tion-achievement gap on reported satisfaction have involved the calculation of the gap from separate measures of aspiration and achievement. These procedures presume that the calculations researchers make are roughly identical to the calculations respondents make. The fact that relatively strong connections have been found between gap measures thus calculated and reported satisfaction measures suggests that the presumption is not entirely unfounded. Nevertheless, from the point of view of the basic assumption behind the study of perceptual or subjective indicators, the *perceived* gap between one's aspirations and achievements should be more closely related to reported satisfaction than the calculated gap. The gap we calculate for respondents may be significantly different from the gap they perceive on the basis of their own calculations and intuitions. The new efficient questionnaire item mentioned in the previous paragraph should allow us to capture the perceived gap between aspirations and achievements.

5. METHOD AND SAMPLE

In April 1979 I set out to try to pave the way for the important next steps described in the previous section. A campus mail questionnaire was distributed to the 867 members of the University of Guelph's Staff Association. This is the local union representing our office, clerical and technical staff. After three follow-up requests, a total of 357 or 41 percent of the questionnaires were received. Exhibit 2 summarizes the sample.

According to our personnel department, the office, clerical and technical staff is 70 percent female and 30 percent male. Sixty-six percent are married and 34 percent are not. As you can see, then, the sample has more women and married folks than the population from which it was drawn. Moreover, the sample is nowhere near demographically representative of Guelph, Ontario or Canada. My guess would be that it is roughly representative of office, clerical and technical staffs in most universities in Canada and probably the United States. Whether one looks at the demographic characteristics (sex, age, marital status, education and family income) of university faculties, staffs or students, I suspect one would find considerable homogeneity. I imagine, for example, that our staff is more like the staff at York University or the University of Waterloo than it is like the staff at Canadian General Electric (which is also located in Guelph). Nevertheless, it is not necessary to speculate about what bigger group our 357 people might plausibly represent. It is a partially

EXHIBIT 2
Sample Composition

	N	Percent		N	Percent
Sex: Male	80	22	<i>Education</i>		
Female	277	78	Completed grade 8 or less	4	1
	357	100	Completed 13 or less to 9	123	35
Age: 18-34	249	69	Completed some college, university, trade school	108	30
35-44	42	12	Degree, college or univ.	122	34
45-64	64	18		357	100
65-up	2	1			
	357	100	<i>Total Family Income</i>		
Marital Status			0-\$ 4 999	5	1
Single	112	31	\$ 5 000-\$ 9 999	70	20
Married	206	58	\$ 10 000-\$ 14 999	94	27
Separated	16	5	\$ 15 000-\$ 19 999	55	16
Divorced	15	4	\$ 20 000-\$ 24 999	50	14
Widowed	8	2	\$ 25 000 and over	76	22
	357	100		330	100

self-selected group with the composition specified in Exhibit 2, and I'm not making any inferences about any other group. I should add, however, that there are some remarkable similarities in the results reported here and elsewhere in North America.

The questionnaires had 64 items in five pages and took about 20 minutes to fill out. Besides the opening demographic page, there were four pages with 13 items covering 12 domains and life as a whole. The four pages covered perceived satisfaction, the goal-achievement gap, life compared to average folks the same age and life compared to the best previous experience. (To save space and shorten sentences I don't always put 'perceived' or 'reported' in front of 'satisfaction', 'goal-achievement gap' and so on. Similarly, I usually shorten phrases like 'satisfaction with free time activity' to 'free time activity'. In context these abbreviations should not be misleading.)

All of the 53 substantive items called for a single checkmark on a seven point rating scale, with one off scale option called 'No opinion'. The instructions and format of my satisfaction items were adapted from Andrews and Withey (1976) with small changes. In particular, their scale has 'pleasant' and 'unhappy' where mine has 'very satisfying' and 'very dissatisfying.' My instructions were as follows.

Below are some words and phrases that people use to identify various features of their lives. Each feature title has a scale beside it that runs from 'Terrible' to 'Delightful' in seven steps. In general we think of the numbers correlated with words such as the following:

1	2	3	4	5	6	7
Terrible	Very Dissatisfying	Dissatisfying	Mixed	Satisfying	Very Satisfying	Delightful

Please check the number on the scale beside each feature that comes closest to describing how you feel about that particular aspect of *your life these days*.

Twelve domain titles followed these instructions, namely, health, financial security, family life, friendship, housing, job, free time activity, education, self-esteem, area you live in, ability to get around and secure from crime. These were followed by the global question "How do you feel about your life as a whole?" Because my questionnaire was designed with one eye on using it in rural settings, I used 'area you live in' instead of the more common 'neighbourhood'. I considered 'transportation' and 'mobility', but finally settled for 'ability to get around'. In future studies other domains may be added or substituted.

The instructions and format of my goal-achievement gap items run thus:

Some people have certain goals or aspirations for various aspects of their lives. They aim for a particular sort of home, income, family life style and so on. Compared to your own aims or goals, for each of the features below, would you say that your life measures up perfectly now, fairly well, about half as well, fairly poorly or just not at all. Please check the percentage that best describes how closely your life now seems to approach *your own goals*.

Not at at	Fairly poorly	Half as well as your goal	Fairly well	Matches your goal	No opinion	
0%	20%	30%	50%	70%	80%	
1	2	3	4	5	6	
					7	
						8

The same twelve domain titles followed these instructions and were in turn followed by the global question "Now, considering your life as a whole, how does it measure up to your general aspirations or goals?"

The instructions and format of my average folks comparison items ran thus:

So far we have asked you to appraise several features of your life itself and in relation to your goals. Now we would like you to compare your life with that of other folks of your own age. Compared to average people of your age, for each of the features listed below, would you say that your life is a perfect fit (average), a bit better or worse, or far better or worse. Please check the number on the scale that comes closest to comparing your life to *the average*.

Far below average	Worse than average	Average	Better than average	Far above average	No opinion
1	2 3	4	5 6	7	8

Following the twelve domain titles, there was the global question “Now, considering your life as a whole, how does it measure up to the average for people your age?”

The instructions and format of my previous best comparison items ran thus:

Our final request is to have you compare your life now to your all time high. Compared to your own previous best experience, for each of the features listed below, would you say that your life now is far below the best it has been, worse than the best, matches the best, is better than your previous best, or far above the best it has ever been before. Please check the number on the scale that comes closest to comparing your life to *your previous best*.

Far below the best	Worse than best	Matches the best	Better than best	Far above the best	No opinion
1	2 3	4	5 6	7	8

Following the twelve domain titles, there was the global question “Now, considering your life as a whole, how does it measure up to the best in your previous experience?”

After this question, there was the following:

Finally, considering your life as a whole, would you describe it as very unhappy, unhappy, an even mixture of unhappiness and happiness, happy, or very happy?

Very unhappy	Unhappy	Mixed	Happy	Very happy	No opinion
1	2 3	4	5 6	7	8

Notice that, with the exception of the satisfaction scale, two scale numbers but only one verbal description is provided for the areas between the mid-points and the extremes, e.g., ‘₂unhappy₃’. The aim was to eliminate ‘noise’ from disparate verbal cues (e.g., Andrews and Withey’s insertion of ‘unhappy’ in a satisfaction scale), and to stay to a single scale-length.

6. MEANS, STANDARD DEVIATIONS AND SKEWS

Exhibit 3 summarizes some of the basic statistics of our diverse measures. The entries in the first four rows are arithmetic means of the means, standard deviations and skewness measures of the 12 domain scores taken collectively.

The skewness measures are those of the SPSS manual (Nie, *et al.*, 1975). Symmetric distributions have a zero value, while positive and negative values indicate clustering of values to the left and right of the mean, respectively. Thus, the top row of Exhibit 3 tells us that the mean of the means of the 12 domain satisfaction scores was 5.18, the average standard deviation for these 12 scores was 1.20 and the average skew was -0.67 (i.e., the values were clustered to the right of the mean). The entries in the last five rows are for each of the five global items described earlier (i.e., life as a whole satisfaction, goal-achievement gap, average folks comparisons, previous best comparisons and happiness).

From Exhibit 3 it's easy to see that, taken collectively, goal-achievement gap scores had the highest mean and the most skew, with rightside clustering. The average standard deviation for these scores was just barely bigger than that of the domain satisfaction scores, which was the smallest of the lot. The most variable set of scores of the four was that of average folks comparisons, which practically had a symmetric distribution. Insofar as Andrews and Withey (1976, pp. 206–210) are right about the virtues of symmetric distributions from the point of view of statistical operations, the average folks comparisons measures have some advantage over domain satisfaction measures.

Turning to the global measures, satisfaction with life as a whole had the highest mean, the lowest standard deviation and the greatest skew. As indicated earlier, this item was adapted from Andrews and Withey (1976). Although our samples were not comparable, they reported a mean of 5.30, a standard deviation of 1.05 and a skew of 1.05 for their comparable item.

EXHIBIT 3
Means, Standard Deviations and Skews

<i>Average for 12 domains</i>	Mean	Standard Deviation	Skew
Satisfaction	5.18	1.20	-0.67
Goal-achievement	5.21	1.23	-0.81
Average folks	4.86	1.52	0.06
Previous best	4.51	1.37	-0.14
<i>Global items</i>			
Satisfaction	5.45	1.06	-1.02
Goal-achievement	5.19	1.06	-0.90
Average folks	5.06	1.12	-0.55
Previous best	4.81	1.28	-0.29
Happiness	5.36	1.28	-0.60

EXHIBIT 4
Domain means, standard deviations and skewness*

	Means				Standard Deviations				Skews			
	SAT	GOAL	AVE	BEST	SAT	GOAL	AVE	BEST	SAT	GOAL	AVE	BEST
Health	5.50	5.61	5.05	4.12	0.97	1.06	1.23	1.37	-0.51	-1.20	-0.23	0.26
Financial security	4.56	4.73	4.64	4.63	1.30	1.19	1.25	1.51	-0.58	-0.63	0.03	-0.39
Family life	5.51	5.47	5.24	4.76	1.34	1.40	1.37	1.43	-1.07	-1.18	-0.48	-0.08
Friendships	5.34	5.27	4.83	4.36	1.22	1.23	1.27	1.36	-0.61	-0.68	0.06	0.16
Housing	5.25	5.01	4.87	4.58	1.21	1.29	1.19	1.50	-0.72	-0.53	0.17	-0.08
Job	4.74	4.62	4.61	4.40	1.36	1.39	1.20	1.53	-0.48	-0.61	-0.15	0.00
Free time activity	5.09	5.02	4.75	4.40	1.32	1.25	1.18	1.30	-0.54	-0.76	0.15	0.18
Education	4.70	4.96	4.71	4.56	1.04	1.15	1.00	1.20	-0.49	-0.55	0.55	0.73
Self-esteem	5.02	5.24	4.74	4.57	1.07	1.09	1.15	1.15	-0.72	-0.81	-0.10	0.21
Area you live in	5.37	5.33	4.89	4.47	1.22	1.23	1.12	1.40	-0.63	-0.77	0.37	0.23
Ability to get around	5.58	5.57	4.98	4.74	1.21	1.28	1.19	1.37	-1.05	-1.18	-0.06	0.04
Secure from crime	5.53	5.69	5.01	4.57	1.14	1.14	1.21	1.27	-0.68	-0.84	0.36	0.47

* SAT is short for satisfaction, GOAL for goal-achievement, AVE for average folks comparison and BEST for previous best comparison.

(Their skewness measure is positive for rightside clustering.) In terms of standard deviation and skew, my global goal-achievement gap measure was most similar to that of life satisfaction. However, the mean of the global happiness scores was most similar to the mean of life satisfaction scores.

Exhibit 4 summarizes some of the basic statistics for the 12 domains and the four different kinds of indicators. In terms of satisfaction, highest mean ratings went to the ability to get around, security from crime, family life and health. These same four domains obtained highest mean rating for goal-achievement and comparisons with average folks, although the order of the four changed. For comparisons with the best of previous experience, the domains of health and security from crime were replaced in the top four by financial security and housing.

In terms of satisfaction, financial security had the lowest mean rating, followed by education and job. Since all of the respondents were employees of the university and probably realised that the results of my study would find their way to the powers that be, they may have been sending the powers a message. The rest of that message shows up nicely in two other measures. Job had the lowest mean rating for goal-achievement and for comparisons with average folks of the same age as these respondents. Clearly, although these respondents are satisfied with their jobs, they are just barely satisfied. A score of 5 is labeled 'satisfying' and the mean score was 4.74. Moreover, their current jobs seem to take them half to two-thirds of the way toward their occupational goals, and to leave them slightly better off than they perceive average folks their age to be. In terms of their best previous experience with the 12 domains, the lowest mean rating went to health.

7. INTERCORRELATION

As indicated earlier, some researchers have found significant intercorrelation or covariation among domain and global indicators. Exhibits 5 and 6 summarize a series of partial correlations undertaken in order to find out how much of particular zero-order relationships might remain if conceptually distinct but relevant variables are controlled. For example, given that satisfaction with one's job and family life are each associated with one's satisfaction with life as a whole, how much of the associations remain if one of the domain variables is partialled out? In other words, how much of the associations are package deals in which several aspects of the quality of one's life are tied together?

EXHIBIT 5
Correlations of domain, demographic
and happiness scores with satisfaction scores^a

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Health	0.359	0.373	0.014	0.137	0.007	0.070	NS	0.132	0.011	0.062	NS
Financial security	0.400	0.409	0.009	0.212	0.001	0.196	0.001	0.226	0.001	0.220	0.001
Family life	0.602	0.661	0.059	0.393	0.001	0.257	0.001	0.380	0.001	0.245	0.001
Friendships	0.538	0.543	0.005	0.208	0.001	0.131	0.010	0.237	0.001	0.152	0.004
Housing	0.267	0.297	0.030	-0.089	0.05	-0.097	0.042	-0.056	NS	-0.062	NS
Job	0.343	0.355	0.012	0.133	0.008	0.133	0.009	0.156	0.003	0.161	0.003
Free time activity	0.413	0.448	0.035	0.131	0.009	0.122	0.015	0.093	0.052	0.074	NS
Education	0.359	0.376	0.017	-0.071	NS	-0.045	NS	-0.074	NS	0.050	NS
Self-esteem	0.454	0.477	0.023	0.172	0.001	0.139	0.007	0.152	0.004	0.132	0.011
Area you live in	0.283	0.347	0.064	0.049	NS	0.064	NS	0.058	NS	0.079	NS
Ability to get around	0.330	0.387	0.057	0.119	0.017	0.112	0.023	0.098	0.044	0.093	0.053
Secure from crime	0.135 ^b	0.220	0.085	0.028	NS	0.053	NS	0.026	NS	0.052	NS

^a Explanations column code:

- (1) Pierson τ , $P = .0001$.
 - (2) Eta.
 - (3) Col. 2 minus Col.1.
 - (4) Correlation of domain listed at left with S, partialling out all other domain effects.
 - (5) Significance levels of partial correlations in Col. 4, 319 degrees of freedom.
 - (6) Correlation of domain with S, partialling out all other domain effects plus global happiness effects.
 - (7) Significance levels of partial correlations in Col. 6, 316 degrees of freedom.
 - (8) Correlation of domain with S, partialling out other domain effects plus five demographic variables (sex, age, marital status, education, family income).
 - (9) Significance levels of partial correlations in Col. 8, 303 degrees of freedom.
 - (10) Correlation of domain with S, partialling out all other domain, happiness and demographic effects.
 - (11) Significant levels of partial correlations in Col. 10, 300 degrees of freedom.
- Significant levels less than 0.05 were uniformly labeled 'NS' for 'not statistically significant'
- ^b $P = 0.005$

Generally speaking, such analyses run the risk of being either unnecessary or misleading. Suppose, for example, that A , B and C represent any three variables. If A and B are completely unrelated, then partial correlations of either variable with C while controlling the other will yield results identical to zero-order correlations. Nothing in A is related to anything in B ; so partialling is unnecessary. At the other extreme, if $A = B$ then partial correlations of either with C while controlling for the other will yield results of zero, because one is merely partialling a 'relationship out of itself'. (Gordon, 1968) In such cases, whatever A and B designate may be strongly associated with whatever C designates, and the partial correlation coefficient of zero may be misleading.

In Exhibit 5 the dependent variable is my global measure of satisfaction with life as a whole, which hereafter will be abbreviated S . Column (1) gives the Pearson product moment coefficient r of each domain variable with S . Except for secure from crime, each domain variable is positively correlated with S above 0.27 with $P = 0.0001$ or better. Secure from crime correlates with S at 0.14 with $P = 0.005$.

Since Pearson's r measures only the linear association between variables and there was a possibility of curvilinear association, the same correlations were measured using the correlation ratio *eta*. (Guilford and Fruchter, 1978, pp. 296–300). The *eta* coefficients are listed in Column (2). The difference between r and *eta* values is a measure of the curvilinearity of the association between two variables. (Guilford and Fruchter, 1978). As Column (3) shows, with the exception of secure from crime, the difference between r and *eta* values never rose above 0.06, indicating practically no curvilinear association.

Column (4) shows the results of partialling out (statistically controlling) all other domain variables. In every case there was a fairly dramatic decrease in the correlation with S , indicating substantial covariation. Ignoring the three statistically insignificant correlations, the covariation ran from a maximum of 68 percent for free time activity to a minimum of 35 percent for family life. That is, 68 percent of the correlation coefficient measuring the linear association between satisfaction with free time activity and satisfaction with life as a whole represents shared covariation with the eleven other domain variables. Controlling the other eleven variables, the correlation between free time activity and S drops from 0.413 to 0.131. In the case of job satisfaction, when the covariation with all other domains is eliminated, the correlation with S drops from 0.343 to 0.133, a 61 percent decrease. The domain of family life has the highest correlation with S , $r = 0.602$, and also the least

covariation with other domains, 35 percent. It would be a mistake, however, to infer uniqueness from strength of association. Friendship has a 0.538 correlation with *S*, 61 percent of which covaries with the eleven other domains. In general, the mean covariation of the eleven other domains with any particular domain-*S* correlation was 59 percent. In other words, an average of nearly 60 percent of the association between satisfaction with any domain and satisfaction with life as a whole represents a package deal in which several aspects of the quality of one's life are tied together.

Column (6) of Exhibit 5 shows the results of partialling out all other domains plus global happiness, which hereafter will be abbreviated *H*. I will have much more to say about relations between *S* and *H* later. Here it is sufficient to notice that the Pearson *r* association between *S* and *H* is 0.68 ($P = 0.0001$) and that following Andrews and Withey (1976) and McKennell (1978), I'm assuming *H* is a purer measure of affect than *S*. Thus, the point of partialling out *H* is to try to eliminate some of the affective component from *S*, leaving a purer cognitive component. Ignoring the four statistically insignificant correlations, in seven of the eight remaining partial correlations, the removal of *H* decreased the domain-*S* association still farther. Only the job-*S* association remained unchanged. The family life-*S* association, for example, dropped from 0.393 to 0.257.

Column (8) shows the results of partialling out all other domains plus five demographic variables (sex, age, marital status, education and family income). Ignoring the four insignificant correlations, comparison with Column (4) reveals that in five cases there was a further decrease in the domain-*S* association and in three cases there was an increase. The average change brought about by the partialling out of demographic variables was 0.02, hardly worth the bother. I suppose the demographic variables are relatively unimportant because of the homogeneity of the sample.

Column (10) represents the bottom line of this sort of statistical striptease. Here we have domain-*S* associations with all other domains, five demographic variables and happiness partialled out. So we're looking at domain-*S* associations in about as pure a form as anyone has ever looked at them. Comparison of Columns (10) and (1) are startling. First, only half of the associations are statistically significant in Column (10). Second, the remaining significant associations are all severely diminished from Column (1). The average decrease in the domain-*S* associations from (1) to (10) is 62 percent.

As interesting as the preceding exercise may have been, it is worthwhile to

EXHIBIT 6
Correlations of domain, demographic and satisfaction scores with happiness scores^a

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Health	0.330	0.349	0.019	0.175	0.001	0.139	0.007	0.184	0.001	0.151	0.004
Financial security	0.310	0.329	0.019	0.084	NS	-0.003	NS	0.060	NS	-0.033	NS
Family life	0.585	0.607	0.022	0.376	0.001	0.234	0.001	0.373	0.001	0.239	0.001
Friendships	0.509	0.528	0.019	0.228	0.001	0.153	0.003	0.257	0.001	0.172	0.001
Housing	0.246	0.306	0.060	0.015	NS						
Job	0.243	0.271	0.028	0.027	NS						
Free time activity	0.335	0.370	0.035	0.032	NS						
Education	0.292	0.325	0.033	-0.071	NS						
Self-esteem	0.364	0.378	0.014	0.111	0.023						
Area you live in	0.229	0.270	0.041	-0.018	NS						
Ability to get around	0.246	0.273	0.027	0.042	NS						
Secure from crime	0.078 ^b	0.191	0.113	-0.067	NS						

^a Explanations column code:

- (1) Pearson r, P = .0001.
 - (2) Eta
 - (3) Col. 2 minus Col. 1.
 - (4) Correlation of domain listed at left with H, partialling out all other domain effects.
 - (5) Significance levels of partial correlations in Col. 4, 319 degrees of freedom.
 - (6) Correlation of domain with H, partialling out other domains plus S effects.
 - (7) Significance levels of partial correlations in Col. 6, 316 degrees of freedom.
 - (8) Correlation of domain with H, partialling out other domain effects plus five demographic variables.
 - (9) Significance levels of partial correlations in Col. 8, 303 degrees of freedom.
 - (10) Correlation of domain with H, partialling out all other domain, demographic and S effects.
 - (11) Significance levels of partial correlations in Col. 10, 300 degrees of freedom.
- ^b 'NS' is short for 'not statistically significant'.
The last 8 rows of columns (6) to (11) were omitted because there were no statistically significant associations.

b NS

remember the caveats introduced in the second paragraph of this section, and to recall Campbell, Converse and Rodgers's (1976, p. 122) warning of the danger of 'overcontrol'. "To overcontrol" they said, "is to adjust from view some contour of the data which is actually relevant in a substantive way to the more precise question being asked about reality." A case in point, for example, is the removal of H effects from domain- S associations. Technically, as we saw, the amputation is possible. But is the resulting satisfaction measure somehow purer or more valid, or just more artifact? Is it more frank or more Frankenstein? At this point, I suspect it is the latter.

Exhibit 6 summarizes a series of analyses that were patterned after those reviewed in Exhibit 5. The basic difference is that the dependent variable in these analyses is H , the global measure of happiness. Inspection of the first columns of Exhibits 5 and 6 reveals immediately that S is more closely related than H to domain satisfaction. In every case the domain- S association is stronger than the domain- H association. There is one statistically insignificant domain- H association, for secure from crime (which was an oddball earlier too). The *eta* minus r values in Column (3) again indicate the absence of any significant curvilinearity. The average *eta*- r difference is only 0.03. When we move to Column (4), in which all other domains are partialled out, we are left with only four statistically significant correlations (health, family life, friendships and self-esteem). In fact, with the exception of the self esteem- H association, we could just as well have omitted the last eight rows of every column from (4) to (11). To make a potentially long story short, it seems to me that the associations in Exhibit 6 suggest that H is not going to be as analytically useful as S as a basic dependent variable for quality of life studies.

8. PATH MODELS OF SATISFACTION

Campbell's *et al.* (1976) model of satisfaction was introduced earlier and illustrated in Exhibit 1. Because other researchers at the University of Michigan have worked with this model (Andrews and Withey (1976) for example), and in order to save space, I will hereafter refer to it as the 'Michigan model'. Given the brief literature review presented earlier and the historical antecedents documented in Tatarkiewicz (1976), there is no doubt that the Michigan model has very deep roots in Western civilization. To test the model directly for satisfaction and happiness with life as a whole, and for satisfaction with a

dozen domains, I undertook a series of path analyses. Formal models similar to those employed here are discussed in detail in Kerlinger and Pedhazur (1973, pp. 307–314, 322–327), and Duncan (1975b, pp. 42–44). So interested readers can consult those texts for detailed analyses of the formal features of path analysis generally and the Michigan model in particular.

All of the path models considered here have the form of those in Exhibit 7.1. In all of the diagrams *S* and *H* are interpreted as usual, while *G* is short for the goal-achievement gap, *P* for comparisons with the best previous experience and *A* for comparisons with average folks of the same age. The arrows in the diagrams indicate proposed (hypothesized, theorized, imagined, etc.) causal relations, with effects named at the arrowheads and causes named at the end

EXHIBIT 7.1 SATISFACTION WITH LIFE AS A WHOLE

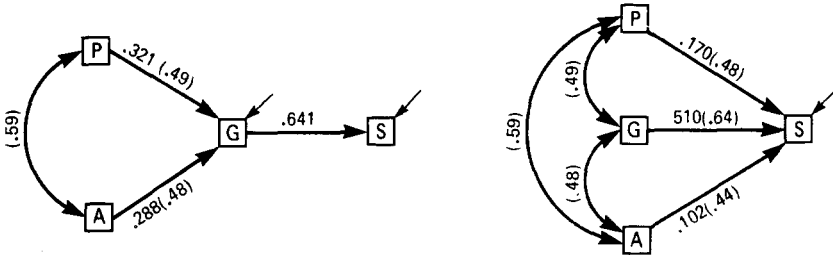
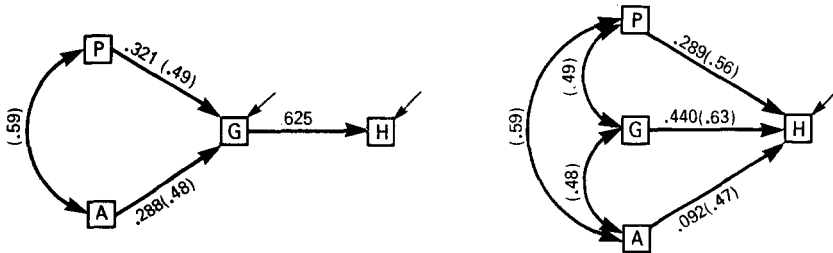


EXHIBIT 7.2 HAPPINESS WITH LIFE AS A WHOLE



- S SATISFACTION WITH LIFE AS A WHOLE
- H HAPPINESS WITH LIFE AS A WHOLE
- P COMPARISONS WITH BEST PREVIOUS EXPERIENCE
- G GOAL-ACHIEVEMENT GAP
- A COMPARISONS WITH AVERAGE FOLKS

of the shafts. The small arrows without names at the end of their shafts represent error terms on the endogenous variables. The model on the left is the Michigan model and the model on the right is its most plausible competitor. Thus, in the Michigan model, S is supposed to be caused directly by G which is in turn directly caused by P and A . In its competitor, S is directly caused by P , G and A . The numbers in parentheses along the shafts are the zero-order correlation coefficients between the variables named at either end of the shafts, while the other numbers are standardized regression coefficients (betas) or path coefficients. In the Michigan model, the path coefficient connecting G to S is obtained by regressing S on G , and a multiple regression of G on P and A gives the path coefficients connecting these variables. The betas of the competitor are obtained from a multiple regression of S on P , G and A . For example, then, in the Michigan model of Exhibit 7.1, the numbers above the arrow from P to G indicate that the Pearson r between these variables is 0.49, and that there will be an average change of 0.32 in G for every unit change in P (when both P and G are standardized to have means of zero and standard deviations of one). The path coefficient is analogous to a partial correlation coefficient in that it indicates a relation between two variables with the effects of all others in the system held constant.

Testing the Michigan model means, in the present context, comparing its features to those of its competitor and answering the following question: Are all of the path coefficients in the Michigan model bigger than their alternatives in its competitor? In other words, does the Michigan model represent a system or structure of relationships that is stronger or tighter than the system represented by its competitor? A second question of interest concerns the relative strength of the connections from P to G , and A to G . Campbell *et al.* (1976) and Andrews and Withey (1976) found that the former (P to G) was uniformly stronger than the latter (A to G). So, the question is: Will the relative strength of these connections be duplicated here?

For a number of reasons that need not detain us, it is obviously possible to have data consistent or inconsistent with a hypothesis without the hypothesis being true or false, respectively. Since, if all other things are equal, beta values are liable to be lowered as the number of covarying predictor variables increases in a multiple regression, one must be especially cautious about assessing apparently supporting evidence for our models. (Gordon, 1968) Nevertheless, hypotheses should at least be regarded as live options as long as the results of tests are consistent with them. Thus, affirmative answers to the fun-

damental question raised above represent some support for the Michigan model as a relatively good explanatory account of reported satisfaction and happiness.

Inspection of Exhibits 7.1 and 7.2 reveals that our basic question has an affirmative answer. In 7.1, for example, *P* and *A* are stronger predictors of *G* than of *S*, as hypothesized in the Michigan model. *G* to *S* connections (betas) are the strongest in the systems whether one adopts the Michigan model or not. Similar remarks apply to Exhibit 7.2, with *H* substituted for *S*. Moreover, in both exhibits, the *P* to *G* connection is stronger than the *A* to *G* connection, as reported by Campbell *et al.* (1976).

Exhibits 8.1–8.12 summarize the results of testing the Michigan model in twelve domains. In these cases, *S*, *P*, *G* and *A* have to be interpreted as *domain specific*. For example, in Exhibit 8.1, *S* is short for satisfaction with one's own health, *P* for comparisons with the best previous experience of one's own health, *A* for comparisons of one's own health with that of average folks of one's age, and *G* for the gap between one's health goals and one's achievement of those goals. In all twelve domains the Michigan model looks superior to its competitor. In every domain *P* and *A* are better predictors of *G* than of *S*, and *G* is always the strongest predictor of *S*. With the single exception of free time activity, in every domain the path coefficient connecting *A* to *G* is bigger than that connecting *P* to *G*, *contrary* to hypothesis and to results obtained by Campbell *et al.* (1976) and Andrews and Withey (1976) for their domains of housing, neighborhood and self-accomplishment. (My 'area you live in' is analogous to the 'neighborhood' of Campbell *et al.* and 'self-esteem' is very roughly related (I guess) to Andrews and Withey's 'self-accomplishments'.)

I don't know how to account for the discrepancy with respect to the relative relations between comparisons with the best previous experience and average folks. Maybe it's peculiar to this sample; maybe it's peculiar to Canadians. As indicated earlier, one of the motives behind this investigation was the suspicion that other domains may involve psychological processes different from those proposed in the Michigan model. Maybe they do.

The implications of confirmation of most of the postulated relations in the Michigan model are profound. Insofar as this type of model can be substantiated, human satisfaction is not just a brute fact to be accommodated like the wind and rain. It is to some extent manageable in the best sense and manipulable in the worst sense. By providing relevant experiences and

EXHIBIT 8.1 SATISFACTION WITH HEALTH

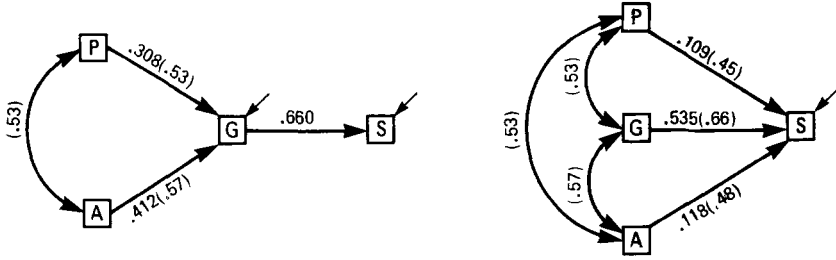


EXHIBIT 8.2 SATISFACTION WITH FINANCIAL SECURITY

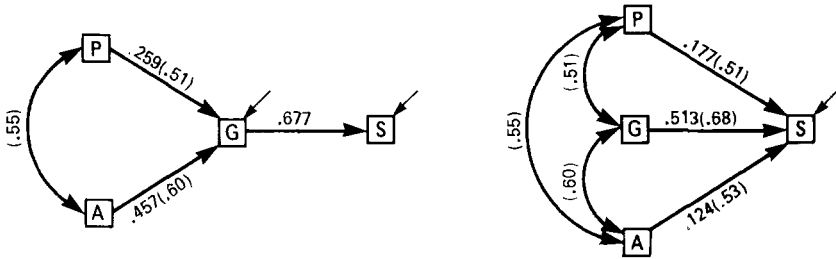


EXHIBIT 8.3 SATISFACTION WITH FAMILY LIFE

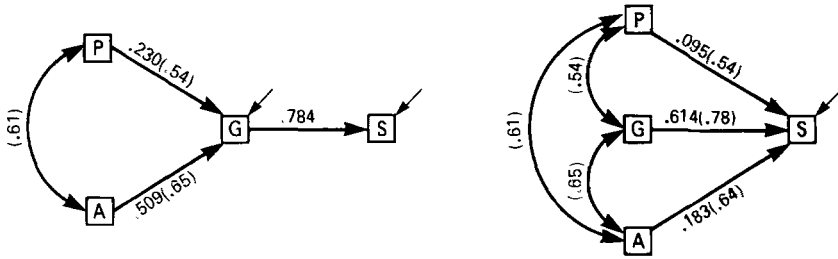


EXHIBIT 8.4 SATISFACTION WITH FRIENDSHIPS

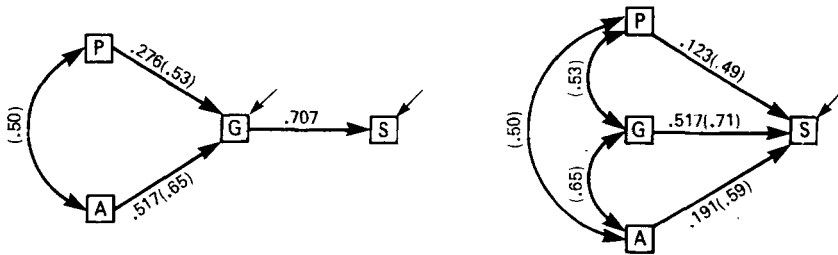


EXHIBIT 8.5 SATISFACTION WITH HOUSING

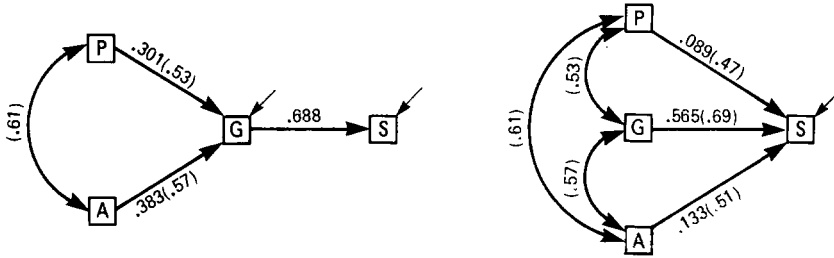


EXHIBIT 8.6 SATISFACTION WITH JOB

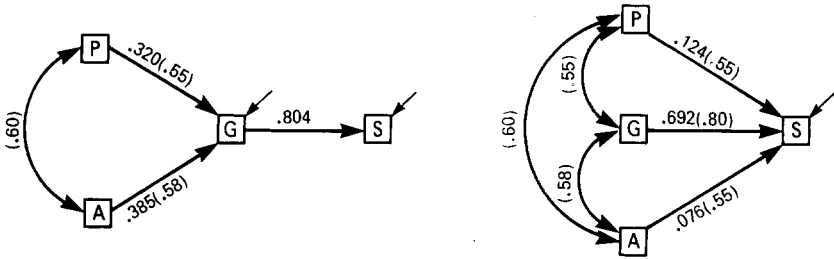


EXHIBIT 8.7 SATISFACTION WITH FREE TIME ACTIVITY

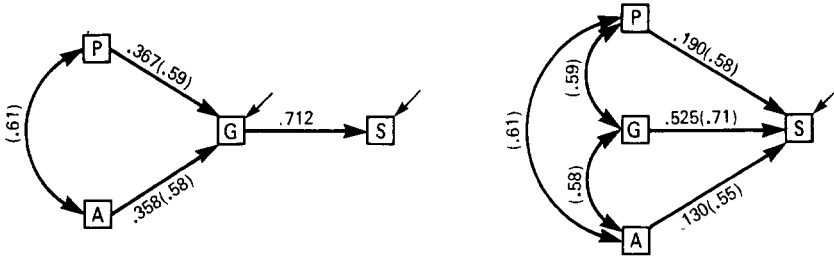


EXHIBIT 8.8 SATISFACTION WITH EDUCATION

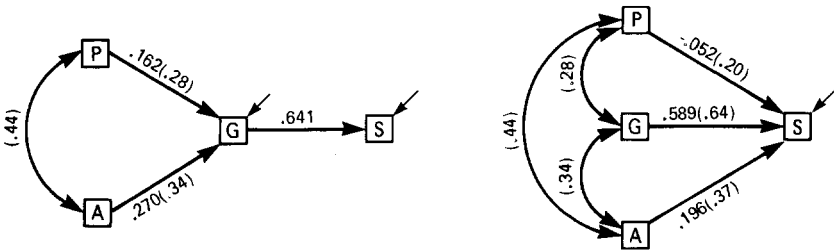


EXHIBIT 8.9 SATISFACTION WITH SELF-ESTEEM

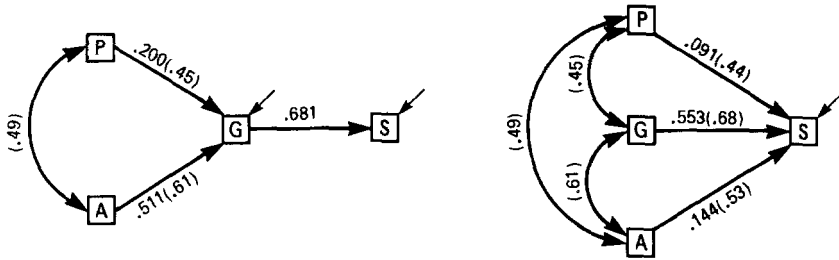


EXHIBIT 8.10 SATISFACTION WITH AREA YOU LIVE IN

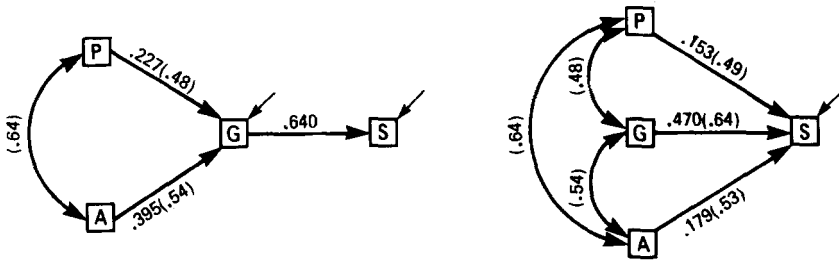


EXHIBIT 8.11 SATISFACTION WITH ABILITY TO GET AROUND

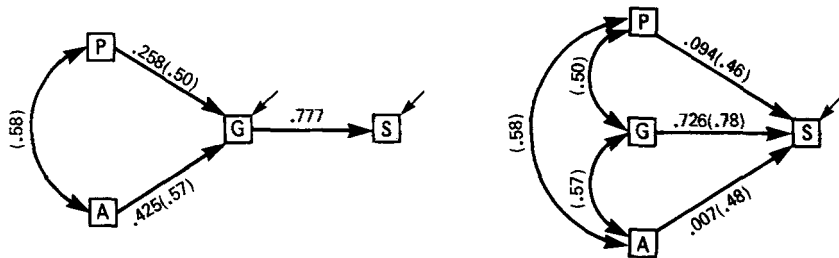
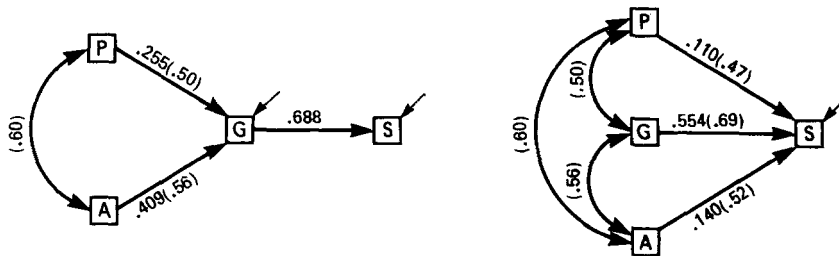


EXHIBIT 8.12 SATISFACTION WITH SECURITY FROM CRIME



information, people's goal-achievement gaps may be altered, with their satisfaction levels not far behind. Campbell *et al.* (1976, pp. 149–150) note that a tyrant might try to inflate the satisfaction levels of his or her subjects by restricting their experiences or giving them false reports about the status of their peers. Packard (1957), Key (1973), Michalos (1978a) and many others have argued that advertisers have attempted with more or less success to manipulate satisfaction and demand by providing unrealistic norms, e.g., strange guests who inspect glasses for soap marks, sniff carpets, squeeze toilet tissue, stroke the dust from the table tops, and so on. Confirmation of the Michigan model provides a picture of the psychology of satisfaction that is a necessary condition of carrying out such manipulation.

Insofar as satisfaction is generated as the Michigan model indicates, education and individual initiative have a fundamental role to play in the development of the good life for individuals and societies. Accurate perceptions of the real world have a vital role to play in the determination of satisfaction with that world. The proverbial Fool's Paradise may be regarded as the result of experiencing uninformed or misinformed satisfaction. Thus, if knowledge

EXHIBIT 9
Percent of variance explained
in path models of exhibits
7.1, 7.2, 8.1–8.12

<i>Dependent variables:</i>	<i>R² from 3 Predictors*</i>	<i>Dependent variables:</i>	<i>R² from 2 Predictors**</i>
Satisfaction with	(<i>P</i> = 0.001)	Goal-achievement gap	(<i>P</i> = 0.001)
Health	0.459	Health	0.398
Financial security	0.503	Financial security	0.406
Family life	0.650	Family life	0.455
Friendships	0.539	Friendships	0.484
Housing	0.499	Housing	0.377
Job	0.667	Job	0.397
Free time activity	0.556	Free time activity	0.423
Education	0.440	Education	0.137
Self-esteem	0.489	Self-esteem	0.402
Area you live in	0.471	Area you live in	0.322
Ability to get around	0.612	Ability to get around	0.374
Secure from crime	0.506	Secure from crime	0.359
Life as a whole	0.453	Life as a whole	0.295
Happiness with life as a whole	0.479		

* Goal-achievement gap, comparisons with previous best and average folks.

** Comparisons with previous best and average folks.

is a reasonable thing (i.e. something to which principles of sound reasoning are applicable), then so is satisfaction, taste, etc. Here the dreams of all naturalistic value theorists loom large. Values may be psychologically connected to facts roughly as theoreticians have held they ought to be logically connected. Again, unfortunately, this is not the place to examine these implications, though one ought to be aware of them. (Michalos, 1976; 1980a Chapter 1 address some of the issues.)

Exhibit 9 records the various percents of variance explained in the multiple regressions used to construct the paths in Exhibits 8.1–8.12. Some of these coefficients of determination (R^2) are fairly substantial, e.g. job (0.667), family life (0.650) and ability to get around (0.612). The percent of variance explained in *S* by *P*, *A* and *G* is, relative to the preceding figures, unimpressive (0.453). I did a bit better accounting for the variance in *H* (0.479). Allowing

EXHIBIT 10
Multiple regression of satisfaction with life as a whole on
domain satisfaction and demographic variables

	Six demographic variables	Predictors used	
		Ten domains ^b	Demographic & eleven domains ^c
Percent of variance explained	0.068	0.548	0.566 ($P = 0.001$)
Predictors:			
<i>Demographic variables</i>	<i>Beta</i>	<i>Beta</i>	<i>Beta</i>
Marital status	-0.135	a	0.014
Family income	0.109	a	-0.028
Age	-0.153	a	-0.128
Sex	-0.115	a	-0.096
Education	-0.030	a	-0.013
Work status	-0.026	a	0.044
<i>Satisfaction variables</i>			
Family life	a	0.348	0.351
Friendships	a	0.195	0.202
Financial security	a	0.152	0.184
Self-esteem	a	0.131	0.105
Job	a	0.100	0.109
Health	a	0.107	0.101
Ability to get around	a	0.088	0.082
Free time activity	a	0.083	0.062
Housing	a	-0.049	-0.019
Education	a	-0.026	-0.041
Secure from crime	a	-	-0.005

^a predictor omitted.

^b 'area you live in' and 'secure from crime' had F-levels too low to enter equation.

^c 'area you live in' F-level was too low for admission.

for some attenuation due to measurement error, it is safe to say that I am able to account for well over fifty percent of the explainable variance in all of my dependent variables, (See Andrews and Withey, 1976, pp. 142–144, and Cochran (1970).)

As Exhibit 10 shows, best predictive results were obtained from eleven domains and six demographic variables to S , namely, $R^2 = 0.566$. Attempting to predict H in the same way (Exhibit 11), I was only able to reach an R^2 of 0.462, and even so a couple domains failed to be included in the equation due to unacceptably low F -levels.

EXHIBIT 11
Multiple regression of happiness with life as a whole on domain satisfaction and demographic variables

	Predictors used		
	Five Demographic variables	Eleven domains ^b	Demographic & ten domains ^c
Percent of variance explained	0.050	0.451	0.462 ($P = 0.001$)
Predictors:			
<i>Demographic variables</i>	<i>Beta</i>	<i>Beta</i>	<i>Beta</i>
Family income	0.167	a	0.065
Marital status	-0.126	a	-0.033
Age	-0.078	a	-0.016
Sex	-0.060	a	-0.055
Education	-0.039	a	-0.023
<i>Satisfaction variables</i>			
Family life	a	0.384	0.391
Friendships	a	0.225	0.238
Health	a	0.121	0.124
Financial security	a	0.092	0.073
Self-esteem	a	0.070	0.066
Ability to get around	a	0.050	0.039
Secure from crime	a	-0.048	-0.048
Job	a	0.033	0.034
Education	a	-0.033	-0.039
Free time activity	a	0.027	0.023
Housing	a	0.005	-

^a Predictor omitted.

^b 'Area you live in' F -level was too low to enter equation.

^c 'housing' and 'area you live in' F -levels were too low for admission.

SATISFACTION AND HAPPINESS

9. TYPES OF SATISFACTION

Campbell *et al.* (1976, p. 10) wrote that

It may be necessary to distinguish between a satisfaction which is associated with an experience of rising expectations and one which is associated with declining expectations. An individual who has achieved an aspiration toward which he has been moving may be said to experience the satisfaction of success. Another person may have lowered his aspiration level to the point which he can achieve, and he might be said to experience the satisfaction of resignation. The two individuals might be equally satisfied in the sense of fulfilled needs, but the affective content associated with success and resignation may well differ. In experiences of dissatisfaction, we might expect the affective content of disappointment and frustration to accompany any failure to achieve one's expectations.

This passage is instructive in a number of ways. In the first place, it may be noticed that the authors seem to use the terms 'aspiration' and 'expectation' as synonyms, a practice that ought to be discouraged. Second, the passage contains a hint of another assumption that is probably unwarranted. The basic view of these authors seems to be that satisfaction may be thought of as essentially a matter of need fulfillment, insofar as aspirations are somehow generated by needs. I suppose they would recognize some difference logically and psychologically between wanting something and needing something, but if they do, they never seem to allow the difference to emerge in their remarks about fulfillment. I have discussed these issues at length in Michalos (1978b), but here I only want to say that from the point of view of theorizing about and occasionally even managing satisfactions, it may be worthwhile to be scrupulously attentive to the difference between want and need fulfillment.

The third lesson to be learned from the quotation above is central to my purposes. That is the suggestion that one might begin to distinguish types of satisfaction on the basis of the significance of its affective component. McKennell (1978), Andrews and McKennell (1980), and McKennell and Andrews (1980), have explored this possibility with some success. McKennell (1978) suggested the following Boolean classification of people.

<i>Subgroup</i>	<i>Interpretation</i>	<i>Short name</i>
1. Satisfied – Happy	Satisfaction of achievement	Achievers
2. Satisfied – Unhappy	Satisfaction of resignation	Resigned
3. Dissatisfied – Happy	Satisfaction of aspiration	Aspirers
4. Dissatisfied – Unhappy	Satisfaction of frustration	Frustrated

Using this scheme, my sample was divided into the four groups illustrated in Exhibit 12. Achievers had scores of 5–7 on *S* and *H*; Resigned had 5–7 *S* and 1–4 on *H*; Aspirers had 1–4 on *S* and 5–7 on *H*; Frustrated had 1–4 on

EXHIBIT 12
Achievers, resigned, aspirers and frustrated

HAPPINESS	SATISFACTION	
	Terrible-Mixed (1-4)	Satisfied-Delighted (5-7)
Very unhappy	Frustrated	Resigned
Mixed (1-4)	<i>N</i> = 46, 13.2% Group 4	<i>N</i> = 52, 14.9% Group 2
Happy	Aspirers	Achievers
Very happy (5-7)	<i>N</i> = 2, 0.6% Group 3	<i>N</i> = 248, 71.3% Group 1

S and *H*. Curiously and unfortunately only two people out of 348 classifiable respondents (0.6%) fell into the Aspirers group. Campbell *et al.* (1976, pp. 36, 165-168) and McKennell (1978, pp. 401-403) found the dissatisfied-happy combination (Aspirers) to be especially characteristic of youth, and the Guelph sample is relatively youthful. Seventy percent of the respondents are 18 to 34 years old. Besides, you recall that in section 6 it was pointed out that, so far as their jobs are concerned, these respondents are only half to two-thirds along the way to their goals. So, I expected to find more Aspirers in the group. It's worth mentioning, however, that the global goal-achievement gap mean (5.19) is higher than the job goal-achievement gap mean (4.62) for the total sample (Exhibits 3 and 4), which indicates that there is globally a smaller goal-achievement gap than one would suspect from considering only the job domain. At any rate, it would have been pointless to try to perform a statistical analysis with a two-membered Aspirers group. So I confined the discriminant analysis to the three remaining groups.

Discriminant analysis has not been especially popular with social indicators researchers, although it is available in *SPSS* and there are some nice discussions of it in Kleinbaum and Kupper (1978) and Thorndike (1978). Without such a procedure we might discriminate our three groups (Achievers, Resigned and Frustrated) by selecting, say, some demographic variables and inspecting the means and variances of these variables for each of the three groups. With the procedure we simply form composite scores based on some selected set of variables and discriminate the groups on the basis of these scores. Technically speaking, a linear combination or function of variables is

EXHIBIT 13
Standardized discriminant
function coefficients

	Function 1	Function 2
Relative percent of variance explained in 12 variables	97.84	2.16
Canonical correlation	0.712 ($P = 0.0001$)	0.149 (NS)
<i>Discriminators:</i>		
Satisfaction with		
Health	-0.117	0.198
Financial security	-0.108	-0.416
Family life	-0.610	0.276
Friendships	-0.219	0.093
Free time activity	-0.099	-0.451
Education	0.154	0.042
Self-esteem	-0.196	0.444
Ability to get around	-0.103	-0.417
<i>Demography</i>		
Sex	0.115	0.126
Marital status	0.147	-0.216
Work status	-0.175	0.363
Education	-0.103	-0.607

constructed such that the variation of its values *between* any two groups will be greater than the variation of its values *within* the groups.

Exhibits 13–15 summarize the results of a discriminant analysis of the three groups (Achievers, Resigned and Frustrated) on the basis of 12 domain satisfaction and 6 demographic scores. Exhibit 13 lists the standardized discriminant function coefficients for the discriminating variables that had F levels sufficient to keep them in the equation. A single function accounted for 98 percent of all the variance in these variables, and the canonical correlation between this set of variables and the two variables (S and H) used to define the three groups was 0.712 ($P = 0.0001$). The second function was relatively worthless given the amount of variance left to be accounted for in the 12 variables and the statistically insignificant canonical correlation between it and H and S .

Inspection of the column under 'Function 1' reveals that family life is three times as important as its nearest rival, friendships, in determining the values of the function. Insofar as any single name would accurately describe what is captured by Function 1, one would have to say it is satisfaction with family life. Thus, given the question "Which domain satisfaction and demographic scores provide the maximum discrimination among Achievers,

EXHIBIT 14
Mean scores on variables
in the discriminant function for three groups

	Dissatisfied + unhappy = <i>frustrated</i> (N = 42)	Satisfied + unhappy = <i>resigned</i> (N = 49)	Satisfied + happy = <i>achievers</i> (N = 224) Total = 315
<i>Satisfaction with</i>			
Health	4.83	5.31	5.69
Financial security	3.50	4.47	4.79
Family life	3.71	5.14	5.99
Friendships	3.93	5.00	5.68
Free time activity	3.91	5.00	5.39
Education (Sat.)	3.98	4.61	4.92
Self-esteem	4.02	4.74	5.32
Ability to get around	4.67	5.55	5.80
Sex*	1.91	1.78	1.76
Marital status*	2.26	1.98	1.79
Work status*	1.12	1.02	1.06
Education*	2.79	3.12	3.02

* Demographic variables.

Resigned and Frustrated?”, the answer is “Satisfaction with one’s family life”.

Exhibit 14 lists the mean scores of each of the 12 variables of the discriminant functions for each of the 3 groups. The domain satisfaction means provide a splendid summary of the difference among the groups. Indeed, given the predominance of satisfaction with family life as a discriminating variable, one can practically imagine the three groups distinguished along that single axis. Visually speaking, the plots of the means of this variable for the three groups are very similar to the plots of the group centroids, i.e. similar to roughly the means of the means of the scores of each individual on each variable for each group.

In an earlier study of the quality of life in a rural township in Ontario, Michalos (1978c) reported that satisfaction with family life was the strongest predictor of personal life satisfaction. A pilot survey in Guelph in the fall of 1977 revealed the same thing. (No report was written on that study.) Accordingly, I’m beginning to suspect that satisfaction with family life really is the primary determinant of satisfaction with life as a whole for Canadians. Campbell *et al.* (1976, p. 85) reported that family life satisfaction was the

EXHIBIT 15
Results of predicting
group membership from discriminant functions

<i>Actual groups</i>	<i>Frustrated</i>	<i>Predicted groups</i>	
		<i>Resigned</i>	<i>Achievers</i>
Frustrated (<i>N</i> = 42, 13%)	32 (76%)	4 (10%)	6 (14%)
Resigned (<i>N</i> = 49, 16%)	4 (8%)	9 (18%)	36 (74%)
Achievers (<i>N</i> = 224, 71%)	2 (1%)	3 (1%)	219 (98%)
Total <i>N</i> = 315			
83 percent of grouped cases correctly classified.			

strongest predictor of global well-being in their sample, and Andrews and Withey (1976, p. 169) had it in second place behind 'amount of fun'.

Exhibit 15 summarizes the results of using the discriminant functions to predict group membership. Eighty-three percent of the cases were correctly classified. Perfect accuracy of classification would have given 100% figures along the left to right diagonal in Exhibit 15. So it's apparent that the discriminant functions were strongest for predicting Achievers (98%) weakest for Resigned (18%), and pretty good for Frustrated (76%).

Several other discriminant analyses were undertaken with results similar to those just reported. When the three global predictors were used (goal-achievement gap, comparisons with previous best and average folks), two significant functions were obtained. The first function captured 95 percent of the variance in the three predictors and was dominated by the goal-achievement gap. The second function was led by comparisons with best previous experience.

10. CONCLUSION

I set out to review the recent literature on satisfaction and happiness, to identify some plausible next steps to take along the frontiers of this area of research and to offer some suggestions to facilitate those steps. Using partial correlation techniques, substantial levels of covariation were found among all the variables that were used in predictions of satisfaction and happiness with life as a whole from satisfaction with specific domains (e.g. family life, health). Using path analysis, confirmation was found in a dozen domains for a model which has satisfaction as a function of a perceived goal-achievement gap, and the latter as a function of comparisons with previous best experience and the

status of average folks. Using discriminant analysis, satisfaction with family life was found to be a powerful and predominant discriminator among three groups, identified as Frustrated (dissatisfied and unhappy), Resigned (satisfied and unhappy) and Achievers (satisfied and happy).

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