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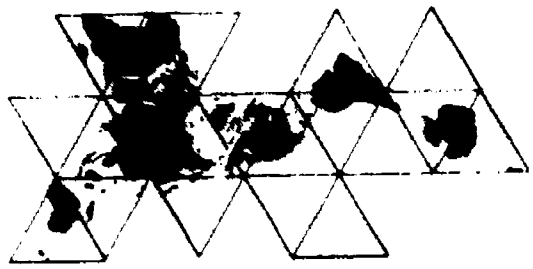
ABSTRACT

The Monitoring the Future study surveys high school seniors annually. Data from a special survey of high school seniors (N=1,050) conducted in 1978 designed to complement the annual Monitoring the Future survey were compared to data from the 1978 Monitoring the Future survey of approximately 18,000 high school seniors. Means and correlations were compared in order to determine the extent to which the special survey reproduced the findings from the Monitoring the Future sample. Only one clear-cut difference between the two sets was found. Results indicated that respondents in the special data collection exhibited a tendency to give identical answers to most or all of the questions within large item sets in later parts of the questionnaire. The reported data suggest that due to what is assumed to be a decline in motivation people responded in somewhat more stereotypical ways in latter parts of the long questionnaire used in the special data collection, as reflected in the straight-line or almost straight-line reporting. Appropriate cautions are therefore suggested when using the data from this special data collection for estimation of means and interrelationships between questions from the same set, but correlational and multivariate analyses using questions from different sets should not be seriously biased. (BHK)



monitoring **the future**

occasional paper series

paper 6

DESCRIPTION OF A SPECIAL SURVEY USING A SINGLE COMBINED FORM OF THE MONITORING THE FUTURE QUESTIONNAIRES

A. Regula Herzog
Jerald G. Bachman

Monitoring the Future: A Continuing Study of the Lifestyles and Values of Youth

As its title suggests, this study is intended to assess the changing lifestyles, values, and preferences of American youth on a continuing basis. Each year since 1975 about 17,000 seniors have participated in the annual survey, which is conducted in some 130 high schools nationwide. In addition, subsamples of seniors from previously participating classes receive follow-up questionnaires by mail each year.

This Occasional Paper Series is intended to disseminate a variety of products from the study, including pre-publication (and somewhat more detailed) versions of journal articles, other substantive articles, and methodological papers.

A full listing of occasional papers and other study reports is available from Monitoring the Future, Institute for Social Research, The University of Michigan, P.O. Box 1248, Ann Arbor, MI 48106.

DESCRIPTION OF A SPECIAL SURVEY USING A SINGLE COMBINED FORM OF THE MONITORING THE FUTURE QUESTIONNAIRES

Monitoring the Future Occasional Paper 6

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ABSTRACT

This paper describes a special survey of 1,050 high school seniors carried out in 1978 in nine high schools across the nation. The survey was designed to complement the annual Monitoring the Future surveys by collecting responses on all questions from each respondent. (The Monitoring the Future surveys distribute questions over five different questionnaire forms.) Since the data of the special survey are to be used for multivariate analyses for which the Monitoring the Future data are not well suited, the comparability of the data sets was carefully investigated. A variety of means and correlations were examined, involving demographic as well as attitudinal information. Only one clear-cut difference between the two data sets was found. The respondents in the special data collection showed more tendency to give identical answers to most or all questions within large item sets in later parts of the questionnaire. This response pattern was attributed to the length of the questionnaire used in the special data collection. While means and intercorrelations among items within the same set are affected by this response pattern, intercorrelations between items from different sets are much less affected. Appropriate cautions are therefore suggested when using the data from this special data collection for estimation of means and interrelationships between questions from the same set, but correlational and multivariate analyses using questions from different sets should not be seriously biased.

Introduction

This paper describes a special survey of 1,050 seniors carried out in 1978 in nine high schools across the nation and presents a comparison of the data from this source with the data from the 1978 Monitoring the Future survey of about 18,000 high school seniors. Means and correlations are compared in order to determine the extent to which the special survey reproduces the findings from the Monitoring the Future sample. Special attention is given to differences between the two data sets with respect to demographic characteristics and sex role-related variables. The latter were emphasized because the special data collection was undertaken as part of a study of sex role attitudes in young women and men, sponsored by the National Institute of Education.

Rationale for the Special Data Collection

The annual surveys of the Monitoring the Future project contain a large number of questions on social and life style issues in addition to patterns of drug use and attitudes about drug use. Examples are attitudes regarding education, work, family, sex roles, pollution, conservation, race relations, and the like. Although the Monitoring the Future data provide a rich resource for descriptive and trend analyses of all those issues, they are less well suited for extensive correlational and multivariate analyses. This is the case because of some of the design features of the Monitoring the Future study. Specifically, questions in the annual survey are located in five different questionnaire forms. This means that except for demographic and some drug use items, which are included in each of the five forms, questions can only be related to questions that appear in the same questionnaire form.[1]

In order to deal with this problem, an additional data collection was conducted in the spring of 1978. This involved a "Long Form" questionnaire which included nearly all of the questions contained in the five Monitoring the Future questionnaire forms, thereby permitting a much wider range of correlational analyses.

Selection of Schools for Participation in the Long Form Data Collection

Nine schools were selected from the schools which participated in previous Monitoring the Future data

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[1]For continued discussion of the Monitoring the Future study design, see the Appendix.

collections, approximating the distribution of the 1976 Monitoring the Future sample with regard to region, urban density, and school size. Within this stratification schools were selected not randomly, but so as to exclude schools which (a) will participate in a future Monitoring the Future sample, (b) are presently part of a special sample designed to test the effects of marijuana law changes, or (c) had proven to be particularly troublesome in previous questionnaire administrations. Of the nine schools, three refused to participate and were replaced with others conforming to the same specifications. In five of the small and medium sized schools, questionnaires were distributed to the entire senior class; in one small and three large schools, students were randomly selected by classroom or home room. The overall response rate was 75 percent.

Table 1 shows that the distributions on region, urban density, and school size are very similar along the stratification variables for the Long Form respondents and both the 1976 Monitoring the Future sample, which was used as the basis for stratification, and more important, the 1978 sample, which will frequently be used in conjunction with the Long Form respondents.

The Long Form Questionnaire

The Long Form questionnaire combined the materials from the five Monitoring the Future forms, deleting only duplicates of items that were repeated in several or all of the forms. In addition, a few variables related to sex role and work attitudes that were not retained after 1975 or 1976 were included. Variable numbers in the Long Form data set from 1001 through 5999 correspond to the variable numbers for the five 1977 questionnaires; variable numbers from 6000 through 6999 represent variables included from the 1976 Monitoring the Future instrument and 7001 through 7999 are from the 1975 questionnaires.

Procedures of the Long Form Data Collection

The selected schools were approached in the same way as in the Monitoring the Future study, except that the length of administration and the payments of $5.00 for participating students and $100.00 for participating schools were mentioned at the outset, since these conditions represented a difference from the previous administrations.

Following the procedures of the Monitoring the Future study, the specific arrangements for questionnaire administration were made by the local SRC representatives. These included setting dates in late April or early May,

visiting the schools before the scheduled administrations, and handing out materials to teachers and students (the materials were identical to the Monitoring the Future study but the pamphlet to teachers included an extra page describing the specifics of this data collection).

The administrations were conducted by the local SRC representatives and their assistants. Unlike the Monitoring the Future administrations, Long Form administrations were conducted at the same time for all the eligible seniors from each school. Such "mass" administrations were necessary since they imposed the least inconvenience on the part of the schools when scheduling three-hour administration periods for large numbers of seniors. The actual administration time was approximately 2 1/2 hours.

Comparison of Seniors Responding to the Long Form Questionnaire with the Sample of Seniors Responding to the Five Standard Monitoring the Future Questionnaires in 1978

The comparison of the two groups follows two major lines of inquiry.[2] First, the groups are compared on mean levels of: (1) various demographic and academic characteristics, (2) a selective set of sex role attitudinal items, and (3) a few central drug use variables. Means and standard deviations are presented for the Long Form respondents and the Monitoring the Future sample in Table 2 (males) and Table 3 (females). In the case of variables which are measured in all five standard Monitoring the Future questionnaire forms, the mean is calculated by pooling the respondents from the five forms (in these cases, the ranges of means and standard deviations are provided in additional columns). No weights are used for calculating the means for the Long Form respondents, while the Monitoring the Future data are weighted in order to take account of variations in the sizes of samples from one school to another as well as the variations occurring at the earlier stages of sampling (see also Bachman and Johnston, 1978). Differences between means for the Long Form respondents and the Monitoring the Future sample are evaluated by t-test.

On a second level of comparison, correlations between demographic characteristics and sex role attitudinal items, as well as correlations among sex role attitudinal items, are compared across samples. In Tables 4 and 5 the correlations between demographics and sex role items are presented for the Long Form respondents and the Monitoring the Future sample, differences between the corresponding

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[2]A third line of inquiry is described in the final section of this paper.

correlations across samples are indicated, and summaries for the absolute differences per demographic characteristic are provided. In Table 6 only the summaries for differences between the corresponding correlations for all the sex role attitudinal items are shown.

With regard to differences in means (Tables 2 and 3), a larger number of strong differences between the two groups are noted than would be expected if both were simple random samples from the same universe. The pattern of differences suggests that the two groups of seniors are systematically different, primarily along socio-economic, race and academic lines. Specifically, the Long Form respondents are somewhat more likely to be black, have less educated fathers and mothers, and rate their own academic abilities lower than those in the Monitoring the Future sample. Male Long Form respondents, in addition, are less likely to plan on going to college. On the other hand, only small differences exist for school grades, drug use variables, political orientation, and religious commitment. With regard to specific sex role attitudes, the Long Form respondents react more traditionally than the Monitoring the Future sample. This difference is particularly obvious in the proportions agreeing with two items: "Most people will have fuller and happier lives if they choose legal marriage rather than staying single, or just living with someone," and "The husband should make all the important decisions in the family."

It is possible to approximate the Monitoring the Future sample by using a weight variable when analyzing the data from the special data collection, in order to scale down the proportion of seniors from black and lower socioeconomic background among the Long Form respondents to the proportion observed in the Monitoring the Future sample. Such a weight variable was developed in the following way: Bivariate tables were calculated for race by parents' education for both the long form and the annual national survey samples of 1977 through 1979 (the large N was used to smooth out any small yearly fluctuations). The weights were then created for each combination by dividing the national sample's cell N by the long form's cell N, and multiplying this by the long form's total N divided by the annual sample's total N. This produces a weight for each respondent in each long form cell which adjusts the cell's proportion so as to match the proportions in the national sample. The weights range from .46 to 1.9, the average weight being .984.

When the comparisons of the Long Form respondents with the Monitoring the Future respondents (Tables 2 and 3) is repeated, using these weights (data not shown), the differences are substantially reduced and all of them fall short of statistical significance. This is of course the case because the racial and socioeconomic imbalance are

related to differences in abilities and educational aspirations.

With regard to differences between correlations of the Monitoring the Future sample and the unweighted Long Form respondents, we would expect about 5 percent of the differences to lie above .10 for males and above .09 for females (i.e., outside the 5%-confidence interval), if the two groups of respondents were simple random samples drawn from the same universe. Tables 4 through 6 indicate that the actual percentages falling above these values are somewhat higher. However, the two groups of respondents do not represent simple random samples. If we were to take a design effect into account, the confidence intervals would increase and the distribution of the differences observed here would be more similar to a chance distribution. In conclusion, we suspect that the correlational patterns among the Long Form respondents are somewhat but not greatly different from the Monitoring the Future sample; the actual degree of the difference depends on our assumption about the design effects on these variables.

No doubt the more important question about the differences between the two sets of correlations is whether they reflect systematic differences, and thus potential biases, when Long Form respondents are used to estimate what would be the pattern of correlations for the Monitoring the Future sample. While that would be a very difficult issue to settle definitively, we can report a few observations that leave us fairly sanguine about the Long Form correlational data. We looked further at the data provided in Tables 4 and 5 in order to see whether there was any fairly obvious evidence of systematic bias. In order to simplify these efforts we concentrated on those instances in which the differences between Long Form correlations and Monitoring the Future correlations were .10 or greater (absolute value). A first look considered whether such differences of .10 or greater were more often in a positive than a negative direction. For males (Table 4), 12 such differences were positive and 12 were negative; for females (Table 5) there were 14 positive and 9 negative. While there were more such differences than might have been expected by chance, there is no evidence thus far to suggest that they are systematic. A further look at the differences of .10 or greater indicated that for males (Table 4) about one third of them involved a correlation which was larger for the Long Form respondents but in the same direction as for the Monitoring the Future sample, one third a correlation which was larger for the Monitoring the Future sample, and one third correlations which were in opposite directions for the two types of respondents (e.g., correlations of -.06 and .07 producing a difference of .13). For females (Table 5) the large majority of the differences (16 out of 23) involved correlations in opposite directions.

This pattern hardly suggests that one data set yields consistently higher or lower relationships than the other.[3]

One further check for a bias in the correlations in Tables 4 and 5 involved a comparison between male and female data. The underlying logic was that if differences for males and females matched fairly closely, this would surely suggest systematic bias rather than largely random factors. (The reverse, of course, does not necessarily follow; nevertheless, we felt that it was worth looking for this one other possible indication of bias.) Of the 24 differences greater than .10 shown in Table 4 (male data), only four corresponded to differences exceeding .10 for females (Table 5). For two of the correlations involving race, the differences for both males and females were greater than .10. The other two instances of matching turned out to be in opposite directions, e.g., in one case the difference for males was +.15 whereas it was -.11 for females. Once again, a closer look at correlational data failed to provide indication of systematic bias.

In order to see whether male-female comparisons would reveal systematic biases in mean scores rather than correlations, we carried out an exploration of the data in Tables 2 and 3 following a logic similar to that used above. Out of a total of 10 differences in means for males that had t-ratios greater than 2.0 (absolute values), we found 7 matching differences for females (same variable, same direction of t-ratios). (There was a total of 12 differences in means for females that had t-ratios greater than 2.0.) There was no instance in which t-ratios for the two genders exceed 2.0 in opposite directions (i.e., one positive, one negative). This considerable degree of similarity between male and female differences in means is consistent with our earlier observations that there are indeed systematic demographic differences between the two data sets.

"Straight-Line" Responding in the Long Form Questionnaire[4]

On the whole, the comparisons of long and short forms revealed rather little evidence of systematic differences across a variety of means and correlations. Somewhat later, however, we did identify one particular effect of questionnaire length which appears to be limited to long sets of items using identical response scales. The effect manifests itself as an increased tendency to use an

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[3]One important departure from this general conclusion is discussed in the final portion of this paper.

[4]This portion of the paper was written in 1980.

identical response category for all items in such a set, a form of responding that we label in the following paragraphs as "straight-line" responding. In other words, respondents are increasingly more likely to show some form of position bias in later parts of the questionnaire. The following section documents the existence of this response pattern and examines its possible effects on substantive results.

In Table 7 sets of 10 or more items which appeared in sequence and used a common response scale (e.g., agree-disagree) are listed in the order of their occurrence in the long questionnaire.[5] In columns A through C the exact numbers of items per set are indicated, as well as the location in the long questionnaire and the location in the short questionnaire. Column D shows the percentages of long form respondents who answered each item in the set using a single response category (e.g., response of "mostly disagree" to all items in a set).[6] The table shows quite clearly that while few respondents adopted such a "straight-line" stereotypical response strategy at the outset of the questionnaire, increasing numbers showed the straight-line pattern in the second half of the questionnaire. Interestingly, the last set of items in the questionnaire, which deal with personality traits, produced a lower number of straight-line responses than did some of the previous sets of items which focused on attitudes towards social problems. Another set of items which produced lower numbers of straight-line responses refers to how much the respondent agrees with his or her parents on various personal and social issues. These few examples suggest that the tendencies toward stereotypical responding are weaker for items which deal with personal information--presumably of more immediate interest--than for items which deal with purely attitudinal topics.

Although the content of the question set seems to influence its "susceptibility" to the straight-line response pattern, the data in Table 7 clearly indicate that question content is not the sole cause of the pattern. The same question sets appear in the long form and in the five different short forms, but show quite different proportions of straight-line responders. The factor which determines these differences, in large measure, is questionnaire

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[5]The special long form weights described earlier are used for this and all further analysis. The regular sampling weights are used for the national survey data.

[6]Thirteen sets of items for which some form of entirely identical responding appeared reasonable were omitted from Table 1; most of those item sets dealt with use of various types of drugs, and many respondents indicated "no use" of any drug.

length. Even within the short questionnaires the degree of straight-line responding varies somewhat. Of particular interest to the present argument--and in agreement with it--is the tendency towards an increase in straight-line responding that shows up within three of the five forms.[1] All in all, data from the long form in combination with data from the short forms suggest quite strongly that straight-line responding increases gradually as the time spent in responding grows longer.

A more detailed examination of the responses to the item sets listed in Table 7 revealed that the particular response categories chosen by the straight-line responders reflect neither random choice nor a simple and consistent position bias (data not shown). Rather, it appears that straight-line responses tend toward whatever is the modal response category for the general sample of respondents, provided that the same one or two response categories turn out to be modal for all items in a particular set. For example, in the set of 12 items dealing with competence of various institutions, just under half of the straight-line responders gave all institutions "fair" ratings and most of the rest gave them all "good" ratings; and these same ratings were the modal categories employed by the full sample in their (non-straight-line) ratings of each of the institutions. A different pattern emerged, however, when we examined item sets which used agree-disagree response scales (and also showed considerable variation in modal patterns across the various items in the set). For such agree-disagree item sets, the large majority of all straight-line responders (about 80 percent) employed the middle category consisting of a non-committal "neither," even though that category was infrequently chosen by the other respondents. In sum, the particular response category chosen for the great majority of stereotypical responding appears to be that which is most "middle-of-the-road"--either in terms of sticking with the most common (i.e., modal) category or in terms of the non-committal category. These patterns suggest that respondents did not stop reading altogether; rather, when they found a long set of relatively less interesting items they tended to slip into a comfortable "groove" that allowed them, in effect, to skip on to the next questions.

Given the above observations, it should come as no surprise that the tendency toward stereotypical responding

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[1]The most striking instance is the set of questions about honesty of institutions, which produced 2.6 percent straight-line responders in the short form (when it appeared in the tenth of 12 pages and followed a lot of demographic items), compared with 1.4 percent straight-line responders in the long form version (where it appeared on page nine of a 36-page questionnaire).

is not limited to a totally straight-line pattern; it also reveals itself in a more subtle way as a general tendency toward nearly uniform patterns of responding, which we can refer to as an "almost-straight-line" pattern. Table 8 presents a clear illustration of this phenomenon: 4.0 percent of long form respondents, versus only 0.7 percent of short form respondents, produced a straight-line pattern of response to all 23 items in the question set; more importantly, the all-but-one identical responses pattern appeared more often among long form respondents, as well as the all-but-two, all-but-three, and all-but-four patterns. Other item sets that we have examined show similar patterns.

Effects of "Straight-Line" Responding on Substantive Results

Given the increased tendency towards stereotypical responding for long sets of items that is suggested by these data, the critical issue then becomes the potential bias of substantive results based on the data collected by such a long questionnaire. We will explore that issue for both means and correlations, in each case comparing long form items with the corresponding items from the short forms. In order to limit the size of the task, and also to focus attention where the problems are likely to be most severe, our comparisons made use of the last four items in each of the long item sets.

Of course, our procedure of defining bias as a difference between long form and short form data is not without its problems and clear limitations. The two sets of data provide an ideal opportunity for an exploration of the effects of unusual questionnaire length; but in other respects the two types of questionnaires are rather similar and thus susceptible to other biases in similar ways. We would not, therefore, wish to leave the impression that we consider the short form data to be entirely free of measurement error.

Differences in means. Each difference between a mean of the short form and a mean of the long form was divided by the standard deviation for the short form to provide a "standardized" measure of the difference. The absolute values of these differences were then averaged across items within each set. Averaged standardized differences in means from large item sets are displayed in Table 7, Column G. These results are quite clear; among long item sets the average absolute differences grow larger in latter parts of the long form questionnaire, reflecting most likely the increasingly substantial impact of the response bias. While at the beginning of the questionnaire all average differences remained less than a tenth of a standard deviation, in later parts many of them exceeded that level, and a few reached as much as two tenths of a standard

deviation.[a]

Since these overall differences could be caused by any form of inaccurate reporting that increasingly occurs towards the end of a lengthy questionnaire rather than specifically by straight-line responding, it is useful to consider two additional pieces of evidence. First, aside from the general trend towards increasing differences in means, the variation in the level of differences across item sets, as shown in Table 7, parallels rather closely the extent of straight-line responding displayed for each item set. Second, when we examined means of randomly selected items that were not part of large item sets, and thus by definition could not be affected by straight-line responding, we found only small differences between long form and short form data, and no trend towards increasing differences in later parts of the long questionnaire (data not shown).

Differences in correlations. For assessing the effect of straight-line responding on correlations, we examined long form versus short form differences in three types of averaged correlations: (a) all pair-wise correlations involving the last four items within each large item set, (b) correlations pairing each of the last four items in one large item set with each of the last four items in another large item set, and (c) correlations pairing each of the last four items of large sets with each of several (usually four) single items.

We expect the problems generated by straight-line responding to be most severe in the case of correlations between two items within the same larger set. This is the case because straight-line responding involves positively correlated measurement errors, which have the effect of biasing correlations in a positive direction. Thus, to the extent that straight-line responding occurs in a set of

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[a]While we recognize the desirability for estimates of statistical significance levels for these differences, any such estimate is gravely afflicted by the difficulty of making reasonable assumptions about design effects in the data collected with the long form, short of extensive and costly computations. While we estimate the design effect for much of the MtF data to be approximately 1.75 (see Johnston, Bachman and O'Malley, 1980, for design effect estimates), for the Long Form data it may range from 2.5 up to 7, depending on how much a particular item is related to school and regional characteristics, since the long form respondents were highly clustered on those dimensions. If we assume a Long Form design effect of 2.5, a difference of .11 of a standard deviation would reach statistical significance ($p < .05$, two-tailed).

items, we would expect the long form correlations to be more positive (or less negative) than the corresponding short form correlations. Expectations are less clear for correlations pairing items across sets, or pairing one item from a set with a single item. To the extent that straight-line responding simply adds "noise" to the data, the correlation should be attenuated (move toward zero, no matter whether initially positive or negative). However, if there is any tendency for straight-line responding to extend over several item sets this would have the positively biasing effect described at the start of this paragraph.

Findings concerning correlations between items from the same set match our expectations quite well (Table 7, Column J). In the beginning of the long questionnaire, where little if any straight-line responding was taking place, differences between averaged signed correlations per set from the long form and short form are small and inconsistent in their direction (i.e., in the first quarter of the questionnaire no single difference exceeded .05).' After the first quarter of the long questionnaire the differences start to become larger and consistent in their direction. The correlations among items in the long questionnaire are consistently more positive than the comparable correlations in the short forms, the differences ranging from .04 to .21. That this increasing difference is indeed related to straight-line responding is suggested not only by its relationship to the questionnaire location but also by variations in the level of differences across particular item sets. Specifically, the two item sets which appear late in the questionnaire but still show little straight-line responding are also less divergent in the level of intercorrelations than the remaining sets.

With regard to correlations across large item sets we were again interested in the size of the differences as well as in their direction. As it turned out, we found generally small and unsystematic differences. In fact, their distribution closely approximates a random distribution, assuming a design effect of 2.5 for the data collected with the long form (data not shown). For those correlations which paired a single item with an item from a long set, the general thrust of the findings is similar; we found no evidence for anything except random differences between correlations (data not shown).

'Similar considerations concerning design effect estimates as noted in the previous footnote also apply to the estimation of statistical significance of differences in correlations. A difference of .11 would just about reach statistical significance ($p < .05$, two-tailed) given a long form design effect of 2.5.

Discussion

The observed pattern of straight-line responding and its relationship to questionnaire length may be explained in a parsimonious, albeit post-hoc fashion with reference to the concept of respondent motivation. Motivation to comply with a request to provide answers to survey questions is likely to decline if the survey process extends beyond an optimal point. Given their lowered motivation, respondents are then likely to look for easier ways of responding, short of prematurely terminating the process. In this context, long item sets provide an inviting setting for adopting a uniform and therefore less taxing response strategy.

Of course, many factors will affect a respondent's motivation; the length of the interview is only one of them. It has also been argued that respondents in fact enjoy discussing a topic of interest or importance with the interviewer (Kahn and Cannell, 1957); and presumably some of this "intrinsic motivation" would also operate among respondents completing a questionnaire. To the extent that a topic is of interest to the respondent, he or she may overcome low motivation and respond more accurately. Although the present data do not permit a systematic test of such a hypothesis (since item sets have not been systematically varied along the dimension of intrinsic interest), certain observations corroborate such a notion. For example, as noted above, the two item sets that showed a considerably lower level of stereotypical responding than other item sets at a similar position in the questionnaire deal with information of a highly personal matter, i.e., self-esteem, feelings of competence, loneliness, and areas of agreement/disagreement with one's parents. On the other hand, item sets which seem to prompt high levels of stereotypical responding deal largely with attitudes towards general social issues, which are presumably of less personal interest and require more attention and thinking.

In conclusion, the reported data suggest that due to what we assume is a decline in motivation, people respond in somewhat more stereotypical ways in later parts of the long questionnaire used in the special data collection, as reflected in straight-line or almost-straight-line responding. However, the effect is less pervasive than might be anticipated. First, the straight-line responding occurs by no means with certainty, since even at the very latest part of the two-hour-plus questionnaire some item sets show very little straight-line responding. Second, although means appear biased according to the level of straight-line responding, correlations are much less affected. Specifically, only correlations between items from the same set appear to be substantially altered, while

correlations between items belonging to different sets appear much less altered, if at all.

Of course, expanding the capability for correlational analyses was the main rationale for collecting data with the long form in the first place: Because questions are contained in five different Monitoring the Future questionnaire forms and therefore cannot be correlated with questions in other forms, data were needed from respondents who answered all five questionnaires. On the other hand, estimates of means and standard deviations are available from the full Monitoring the Future sample. And given the potential bias in means of items from the Long Form questionnaire, only Monitoring the Future data should be used for those estimates.

Finally, it may be worth noting some practical implications of these findings for future research. It appears that even a surprisingly long questionnaire can be administered without large-scale and pervasive deterioration of the quality of the data, particularly if efforts are made to maintain respondent motivation. If the data are to be used for correlational and multivariate analyses using items from different sets, even responses to the very last questions may not produce distorted results. In retrospect it appears that any researcher who does find it necessary to use a quite long questionnaire (or interview) might be well advised to split the material into at least two parts and administer the parts in different orders for different (random) subsets of the sample. Such a strategy would provide some means for measuring and perhaps controlling any distortions resulting from late placement in the questionnaire.

TABLES

Table 1

Distributions of Long Form Respondents and Monitoring the Future Samples on Region, Urban Density, and Size of School

	Monitoring the Future National Sample 1976	Long Form Respondents 1978	Monitoring the Future National Sample 1978
Region			
North-East	23%	24%	24%
North-Central	31%	33%	29%
South	31%	30%	33%
West	15%	13%	14%
Urban Density			
Self-representing (12 largest) Standard Metropolitan Statistical Areas	25%	25%	26%
Other Standard Metropolitan Statistical Areas	40%	43%	44%
Non-Standard Metropolitan Statistical Areas	35%	32%	30%
School Size			
Less than 150 seniors	24%	26%	22%
150-300 seniors	34%	31%	29%
Over 300 seniors	42%	43%	49%

Table 2

Comparisons Between the Long Form Respondents and the Monitoring the Future 1978 Sample: Means and Standard Deviations on Major Background, Drug Use, and Sex Role Attitudinal Variables, for Males

Variable	Long Form Respondents 1978			MtF Sample 1978			t-Ratio	Range of Five MtF Questionnaire Forms			
								$\bar{X}$		SD	
	N	$\bar{X}$	SD	WTDN	$\bar{X}$	SD		Low	High	Low	High
Race (1=white/2=black)	400	1.22	0.41	8011	1.11	0.31	6.91	1.09	1.13	0.29	0.32
Marital Status (1=single, 2=married, engaged)	423	1.07	0.25	8680	1.06	0.24	0.51	1.05	1.07	0.22	0.25
Academic Self-Concept (School Ability & Intelligence: 1=low, 7=high	414	4.73	0.98	8197	4.92	1.07	-3.46	4.89	4.93	1.04	1.12
#Cigarettes Smoked/Last 30 days (1=not at all, 7=2 or more packs)	413	1.79	1.35	8610	1.93	1.49	-1.90	1.90	1.94	1.46	1.54
# Drinks/Last 30 days (1=none, 7=40 or more)	386	3.05	1.74	8217	3.09	1.67	-0.38	2.99	3.[illegible]	[illegible].60	1.71
# Times Smoked Marihuana-Hashish/Last 30 days (1=none, 7=40 or more)	422	2.29	1.99	8426	2.46	2.07	-1.75	2.42	2.[illegible]	[illegible].04	2.11
Father's Education Level (1=grade school or less, 6=grad or professional school)	396	3.15	1.44	8195	3.51	1.44	-4.91	3.48	3.[illegible]	[illegible].43	1.45
Mother's Education Level (1=grade school or less, 6=grad or professional school)	411	3.08	1.56	8358	3.37	1.18	-4.99	3.32	3.[illegible]	[illegible]	1.20
Mother Worked While R Was Young (1=no, 4=yes, nearly all the time)	429	2.22	1.03	8628	2.11	1.08	2.00	2.08	2.[illegible]	[illegible]	1.09

Table 2 (Continued)

Variable	Long Form Respondents 1978			MtF Sample 1978			t-Ratio	Range of Five MtF Questionnaire Forms			
								$\bar{X}$		SD	
	N	$\bar{X}$	SD	WTDN	$\bar{X}$	SD		Low	High	Low	High
R's Political Beliefs (1=very conservative, 6=radical)	322	3.16	1.16	6583	3.18	1.10	-0.40	3.13	3.22	1.09	1.11
Importance of Religion in R's Life (1=not important, 4=very important)	429	2.67	1.01	8576	2.64	1.00	0.73	2.61	2.66	0.98	1.01
R's H.S. Grades (1=D, 9=A)	427	5.39	1.85	8417	5.42	1.92	-0.33	5.36	5.51	1.91	1.96
Hours/Week Worked During School Year (1=none, 8=30+ hours)	422	4.46	2.51	8259	4.54	2.44	-0.64	4.46	4.63	2.42	2.47
Number of Dates/Wk (1=never, 6=more than 3/wk)	419	3.23	1.49	8103	3.35	1.52	-1.58	3.32	3.38	1.50	1.54
R Will Attend 4 yrs. College (1=definitely won't, 4=definitely will)	415	2.35	1.14	8097	2.56	1.19	-3.51	2.52	2.62	1.18	1.21
Sex Role Variables											
Married Couple Without Children:											
Husband works full-time, wife does not have job (1=not acceptable, 4=desirable)	430	2.55	0.90	1716	2.51	0.86	0.81				
Husband and wife work full-time (1=not acceptable, 4=desirable)	428	2.33	1.03	1709	2.43	1.02	-1.85				

Table 2 (Continued)

Variable	Long Form Respondents 1978 N	$\bar{X}$	SD	MtF Sample 1978 WTDN	$\bar{X}$	SD	t-Ratio	Range of Five MtF Questionnaire Forms $\bar{X}$ Low	$\bar{X}$ High	SD Low	SD High
Married Couple With Pre-School Children:											
Husband works full-time, wife does not have job (1=not acceptable, 4=desirable)	430	3.16	0.92	1715	3.19	0.88	-0.59				
Husband and wife both have full-time jobs (1=not acceptable, 4=desirable)	426	1.57	0.94	1709	1.46	0.85	2.31				
Husband has full-time job, wife does not work:											
Wife does all child care (1=not acceptable, 4=desirable)	428	2.29	1.03	1712	2.27	1.02	0.47				
Husband and wife share child care equally (1=not acceptable, 4=desirable)	426	2.82	0.94	1706	2.94	0.90	-2.33				
Men and women should be paid equally for equal work (1=disagree, 5=agree)	427	4.45	0.92	1709	4.48	1.03	-0.59				
Better if men work outside of home and women take care of home and family (1=disagree, 5=agree)	424	3.57	1.17	1698	3.58	1.37	-0.15				

Table 2 (Continued)

Variable	Long Form Respondents 1978			MtF Sample 1978			t-Ratio	Range of Five MtF Questionnaire Forms			
								$\bar{X}$		SD	
	N	$\bar{X}$	SD	WTDN	$\bar{X}$	SD		Low	High	Low	High
Child suffers with working mother (1=disagree, 5=agree)	424	3.70	1.14	1695	3.81	1.33	-1.61				
Working mother can have as warm a relationship with family as non-working mother (1=disagree, 5=agree)	425	2.99	1.30	1703	2.87	1.53	1.50				
Fuller lives for people who marry (1=disagree, 5=agree)	382	3.36	1.13	1827	2.99	1.43	4.71				
Husband should make all important decisions (1=disagree, 5=agree)	383	3.22	1.11	1835	2.79	1.39	5.68				

Table 3

Comparisons Between the Long Form Respondents and the Monitoring the Future 1978 Sample: Means and Standard Deviations on Major Background, Drug Use, and Sex Role Attitudinal Variables, for Females

Variable	Long Form Respondents 1978			MtF Sample 1978			t-Ratio	Range of Five MtF Questionnaire Forms			
								$\bar{X}$		SD	
	N	$\bar{X}$	SD	WTDN	$\bar{X}$	SD		Low	High	Low	High
Race (1=white/2=black)	504	1.22	0.42	8589	1.14	0.34	5.20	1.13	1.15	0.33	0.35
Marital Status (1=single, 2=married, engaged)	530	1.16	0.83	9190	1.13	0.33	1.78	1.12	1.14	0.32	0.35
Academic Self-Concept (School Ability & Intelligence: 1=low, 7=high)	511	4.71	1.04	8658	4.82	0.98	-2.54	4.80	4.83	0.98	1.02
#Cigarettes Smoked/Last 30 days (1=not at all, 7=2 or more packs)	520	1.94	1.40	9095	1.95	1.42	-0.17	1.93	1.96	1.41	1.46
#Drinks/Last 30 days (1=none, 7=40 or more)	500	2.65	1.57	8676	2.51	1.47	2.14	2.45	2.56	1.40	1.52
#Times Smoked Marihuana-Hashish/Last 30 days (1=none, 7=40 or more)	518	2.02	1.72	8953	1.93	1.67	1.10	1.90	1.96	1.63	1.74
Father's Education Level (1=grade school or less, 6=grad or professional school)	504	2.98	1.42	8602	3.35	1.46	-5.64	3.28	3.41	1.45	1.48
Mother's Education Level (1=grade school or less, 6=grad or professional school	521	3.00	1.16	8906	3.24	1.21	-4.54	3.20	3.28	1.19	1.24
Mother Worked While R Was Young (1=no, 4=yes, nearly all the time)	536	2.25	1.12	9153	2.19	1.11	1.11	2.17	2.21	1.09	1.13

Table 3 (Continued)

Variable	Long Form Respondents 1978			MtF Sample 1978			t-Ratio	Range of Five MtF Questionnaire Forms			
								$\bar{X}$		SD	
	N	$\bar{X}$	SD	WTDN	$\bar{X}$	SD		Low	High	Low	High
R's Political Beliefs (1=very conservative, 6=radical)	358	3.21	0.95	6146	3.21	0.95	-0.04	3.17	3.27	0.92	0.96
Importance of Religion in R's Life (1=not important, 4=very important)	538	2.89	0.96	9156	2.90	0.94	-0.22	2.87	2.93	0.93	0.96
R's H.S. Grades (1=D, 9=A)	534	6.18	1.86	8979	6.03	1.84	1.82	5.95	6.06	1.84	1.88
Hours/Week Worked During School Year (1=none, 8=30+ hours)	527	3.96	2.50	8907	3.90	2.32	0.56	3.82	3.98	2.28	2.36
Number of Dates/Wk (1=never, 6=more than 3/wk)	534	3.67	1.67	8813	3.62	1.66	0.69	3.57	3.68	1.63	1.70
R Will Attend 4 yrs. College (1=definitely won't, 4=definitely will)	527	2.40	1.18	8738	2.48	1.21	-1.48	2.43	2.53	1.19	1.23
Sex Role Variables											
Married Couple Without Children:											
Husband works full-time, wife does not have job (1=not acceptable, 4=desirable)	534	1.88	0.89	1853	1.92	0.88	-0.83				
Husband and wife work full-time (1=not acceptable, 4=desirable)	533	2.94	0.94	1853	2.86	0.94	1.68				

Table 3 (Continued)

Variable	Long Form Respondents 1978 N	$\bar{X}$	SD	MtF Sample 1978 WTDN	$\bar{X}$	SD	t-Ratio	Range of Five MtF Questionnaire Forms $\bar{X}$ Low	$\bar{X}$ High	SD Low	SD High
Married Couple With Pre-School Children:											
Husband works full-time, wife does not have job (1=not acceptable, 4=desirable)	534	2.93	0.99	1856	2.98	0.97	-0.96				
Husband and wife both have full-time jobs (1=not acceptable, 4=desirable)	529	1.63	0.93	1851	1.53	0.83	2.32				
Husband has full-time job, wife does not work:											
Wife does all child care (1=not acceptable, 4=desirable)	535	2.17	0.99	1853	2.10	0.98	1.58				
Husband and wife share child care equally (1=not acceptable, 4=desirable)	532	3.08	0.91	1846	3.11	0.88	-0.55				
Men and women should be paid equally for equal work (1=disagree, 5=agree)	535	4.77	0.63	1916	4.86	0.48	-3.66				
Better if men work outside of home and women take care of home and family (1=disagree, 5=agree)	535	2.95	1.36	1907	2.78	1.45	2.31				

Table 3 (Continued)

Variable	Long Form Respondents 1978			MtF Sample 1978			t-Ratio	Range of Five MtF Questionnaire Forms			
								$\bar{X}$		SD	
	N	$\bar{X}$	SD	WTDN	$\bar{X}$	SD		Low	High	Low	High
Child suffers with working mother (1=disagree, 5=agree)	533	3.42	1.30	1902	3.14	1.48	3.90				
Working mother can have as warm a relationship with family as non-working mother (1=disagree, 5=agree)	535	3.48	1.34	1915	3.67	1.41	-2.77				
Fuller lives for people who marry (1=disagree, 5=agree)	506	3.33	1.27	1753	2.96	1.50	5.07				
Husband should make all important decisions (1=disagree, 5=agree)	506	2.55	1.28	1752	1.91	1.22	10.23				

Table 4

Comparison Between the Long Form Respondents and the Monitoring the Future 1978 Sample: Correlations Between Background/Drug Use Variables and Sex Role Attitudes, for Males

	No Children Hus. Works Wife Doesn't			No Children Both Work Full Time			Pre-Schoolers Hus. Works Wife Doesn't			Pre-Schoolers Both Work Full Time			Hus. Works Wife Doesn't Wife All Child Care			Hus. Works Wife Doesn't Both Equal Child Care			Men and Women Equal Pay for Equal Work			Men-Work Women-Home		
	MtF	LF	d	MtF	LF	d	MtF	LF	d	MtF	LF	d	MtF	LF	d	MtF	LF	d	MtF	LF	d	MtF	LF	d
Race	-.12	-.14	-.02	.05	.02	-.03	-.24	-.29	-.05	.25	.23	-.02	.02	.07	.05	-.03	-.23	-.20	.00	-.05	-.05	-.04	.04	.08
Marital Status	-.01	-.04	-.03	-.02	.01	.01	-.10	-.03	.07	.10	.06	-.04	.03	-.07	-.10	.01	.06	.05	-.01	-.10	-.09	.03	-.01	-.04
Academic Self-Concept	.04	-.04	-.08	.07	.10	.03	.21	.12	-.09	-.13	-.09	.04	-.05	.01	.06	.04	.08	.04	.04	.15	.11	-.08	-.07	.01
Father's Education	.01	.03	.02	.05	.05	.00	.08	.01	-.07	-.05	-.07	-.02	-.02	-.04	-.02	.03	.15	.12	.04	.03	-.01	-.09	-.02	.07
Mother's Education	-.05	.01	.06	.09	.07	-.02	.08	.07	-.01	-.07	-.06	.01	-.04	-.05	-.01	.01	.09	.08	.04	.07	.03	-.08	-.04	.04
Mother Worked When R Young	-.08	-.09	-.01	.07	.03	-.04	-.13	-.16	-.03	.12	.22	.10	.00	-.03	-.03	.01	.01	.00	.04	-.05	-.09	-.09	-.06	.03
R's Political Beliefs	-.07	-.10	-.03	.11	.13	.02	-.02	-.10	-.08	.01	.10	.09	.04	.09	.05	.01	-.01	-.02	.06	.00	-.05	-.14	-.08	.06
Importance of Religion	.02	.13	.11	-.06	-.03	.03	.02	.05	.03	-.02	-.02	.00	-.07	-.08	-.01	.06	.11	.05	.01	.03	.02	.08	.15	.07
R's H.S. Grades	.05	-.07	-.12	.06	.12	.06	.20	.09	-.11	-.10	-.09	.01	-.05	-.07	-.02	.04	-.04	-.08	.07	.12	.05	-.15	-.07	.08
Hr/Per Week Worked During School	.07	.09	.02	-.05	.04	.09	.01	.08	.07	-.03	-.08	-.05	-.01	-.01	.00	.00	.11	.11	.00	.04	.04	.06	.06	.00
#Dates/Week School Yr.	.03	-.03	-.06	.00	-.03	-.03	.00	-.10	-.10	.05	.03	-.02	.01	-.01	-.02	-.03	.13	.16	-.01	-.04	-.01	.04	.02	-.02
R Will Attend 4 Yr. Coll.	.01	.05	.04	.09	.02	-.07	.18	.08	-.10	-.08	-.11	-.03	-.07	-.05	.02	.06	-.03	-.09	.05	.04	.01	-.13	-.14	-.02
#Cigs./Last 30 Days	-.02	-.01	.01	-.05	.02	.07	-.08	-.04	.04	.08	.10	.02	.04	.03	-.01	-.02	.01	.03	-.04	-.05	-.01	.05	.03	-.02
#Drinks/Last 30 Days	-.01	-.12	-.11	.06	.04	-.02	-.03	-.08	-.05	.06	.06	.00	.13	.08	-.05	-.08	-.01	.07	-.04	.01	.07	.04	.05	.01
#Marihuana-Hashish/ Last 30 Days	-.10	-.09	.01	.08	.00	-.07	-.05	-.09	-.04	.05	.08	.03	.10	.12	.02	-.06	-.05	.01	-.14	-.04	-.10	-.07	.02	.09

NOTE: Difference (d) = Correlation resulting from the Long Form data - Correlation resulting from the Monitoring the Future data.

Table 4 (Continued)

	Children Suffer With Working Mother			Working Mother as Warm Family Relationships as Non-Working			People Who Marry Have Fuller Lives			Husband Should Make All Important Decisions			Absolute Size of Difference				
	MtF	LF	d	MtF	LF	d	MtF	LF	d	MtF	LF	d	.00-.04	.05-.09	.10-.14	.15-.19	.20-.24
Race	-.20	-.06	.14	.13	.19	.06	-.06	-.05	.01	-.03	.09	.12	4	5	2	0	1
Marital Status	.03	-.06	-.09	-.03	.04	.07	.02	-.13	-.15	.03	-.07	-.10	4	5	2	1	0
Academic Self-Concept	.04	.06	-.02	-.01	-.04	-.03	.08	.00	-.08	-.07	-.16	-.09	6	4	1	1	0
Father's Education	-.01	-.00	.01	.01	.01	.00	-.01	.09	.10	-.06	-.02	.04	8	2	2	0	0
Mother's Education	-.06	-.03	.03	.05	.02	-.03	-.02	.16	.18	-.08	.00	.08	8	3	0	1	0
Mother Worked When R Young	-.16	-.17	-.01	.18	.18	.00	-.06	-.03	.03	-.05	.04	.09	9	2	1	0	0
R's Political Beliefs	-.09	-.04	.05	.06	.08	.02	-.22	-.09	.13	-.07	-.00	.07	4	7	1	0	0
Importance of Religion	.08	.11	.03	-.09	-.02	.07	.31	.19	-.12	.10	.03	-.07	6	4	2	0	0
R's H.S. Grades	-.00	.03	.03	.02	-.04	-.06	.10	.18	.08	-.12	-.05	.07	3	6	3	0	0
Hr/Per Week Worked During School	.05	.02	-.03	-.03	-.05	-.02	-.03	-.04	-.01	.04	.03	-.01	8	3	1	0	0
#Dates/Week School Yr.	.02	-.04	-.06	-.03	.02	.05	-.05	-.04	.01	-.01	-.01	.00	7	3	1	1	0
R Will Attend 4 Yr. Coll.	-.03	.00	.03	.03	-.03	-.06	.08	.11	.03	-.10	-.13	-.03	8	3	1	0	0
#Cig./Last 30 Days	.01	-.06	-.07	.01	.01	.00	-.16	-.09	.07	.07	.05	-.02	9	3	0	0	0
#Drinks/Last 30 Days	-.02	-.00	.02	.03	.04	.01	-.19	-.15	.04	.06	-.00	-.06	7	4	1	0	0
#Marihuana-Hashish/ Last 30 Days	-.08	-.00	.08	.09	.01	-.08	-.24	-.20	.04	.03	-.01	-.04	7	4	0	1	0

Table 5

Comparison Between the Long Form Respondents and the Monitoring the Future 1978 Sample: Correlations Between Background/Drug Use Variables and Sex Role Attitudes, for Females

	No Children Hus. Works Wife Doesn't			No Children Both Work Full Time			Pre-Schoolers Hus. Works Wife Doesn't			Pre-Schoolers Both Work Full Time			Hus. Works Wife Doesn't Wife All Child Care			Hus. Works Wife Doesn't Both Equal Child Care			Men and Women Equal Pay for Equal Work			Men-Work Women-Home		
	MtF	LF	d	MtF	LF	d	MtF	LF	d	MtF	LF	d	MtF	LF	d	MtF	LF	d	MtF	LF	d	MtF	LF	d
Race	-.06	-.13	-.07	-.10	-.03	.07	-.29	-.34	-.05	.25	.25	.00	.06	.02	-.04	-.08	-.09	-.01	-.06	-.13	-.07	-.01	.09	.10
Marital Status	.06	.04	-.02	-.03	.05	.08	.03	-.01	-.04	.03	.05	.02	.12	.04	-.08	.01	.00	-.01	-.08	.04	.12	-.07	.03	.10
Academic Self-Concept	-.06	-.07	-.01	.19	.10	-.09	.07	.10	.03	-.04	-.03	.01	-.04	-.13	-.04	.05	.07	.02	.03	.10	.07	-.09	-.16	-.07
Father's Education	-.07	.01	.08	.13	-.04	-.17	.06	.07	.01	-.09	-.05	.04	-.12	-.01	.11	.06	.07	.01	.07	.04	-.03	-.07	-.01	.06
Mother's Education	-.10	.03	.13	12	.06	-.06	.03	.07	.04	-.03	-.00	.03	-.10	-.05	.05	.06	.11	.05	.04	.06	.02	-.08	-.12	-.04
Mother Worked When R Young	-.10	-.04	-.06	.07	.07	.00	-.20	-.21	-.01	.20	.23	.03	.01	-.02	-.03	-.01	-.04	-.03	-.01	.06	.07	-.08	-.12	-.04
R's Political Beliefs	-.08	-.08	.00	.13	.05	-.08	-.11	-.12	-.01	.06	.08	.02	-.13	.05	.18	.06	.04	-.02	.01	.03	.02	-.16	-.13	.03
Importance of Religion	.08	.04	-.04	-.07	-.02	.05	.04	.05	.01	.02	.05	.03	.08	.04	-.04	-.10	-.04	.06	-.05	-.06	-.01	.14	.17	.03
R's H.S. Grades	-.01	-.04	-.03	.16	.09	-.07	.09	.02	-.07	-.06	-.01	.05	-.06	-.13	-.07	.05	.02	-.03	.04	.11	.07	-.06	-.17	-.11
Hr/Per Week Worked During School	-.03	.00	.03	.07	.01	-.06	.00	.08	.08	-.02	-.01	.01	.13	-.07	-.10	.02	.04	.02	-.03	.05	.08	-.11	-.14	-.01
#Dates/Week School Yr.	.01	.00	-.01	-.03	.08	.11	.03	.01	-.02	-.03	.07	.10	.05	-.04	-.09	-.01	-.02	-.01	-.01	.05	.06	.09	.01	-.08
R Will Attend 4 Yr. Coll.	-.13	-.09	.04	.18	.10	-.08	-.04	-.04	.00	.02	.08	.06	-.13	-.10	.03	.05	.05	.00	.10	-.00	-.10	-.17	-.17	.00
#Cigs./Last 30 Days	-.01	.04	.05	-.05	.07	.12	-.03	-.06	-.03	.02	.09	.07	-.00	-.01	-.01	-.03	-.05	-.02	.02	.05	.03	-.01	-.07	-.06
#Drinks Last 30 Days	-.04	.00	.04	.04	.09	.05	.03	.12	.09	-.03	-.10	-.07	-.11	-.08	-.01	.03	.04	.01	.04	.13	.09	-.06	-.14	-.08
#Marijuana/Hashish/ Last 30 Days	-.04	.04	.12	.02	-.00	-.02	-.02	.03	.05	.00	-.01	-.01	-.12	-.00	.04	.06	-.00	-.06	-.02	.11	.13	-.07	-.13	.04

NOTE: See note to Table 4.

Table 5 (Continued)

	Children Suffer With Working Mother			Working Mother as Warm Family Relationships as Non-Working			People Who Marry Have Fuller Lives			Husband Should Make All Important Decisions			Absolute Size of Difference				
	MtF	LF	d	MtF	LF	d	MtF	LF	d	MtF	LF	d	.00-.04	.05-.09	.10-.14	.15-.19	.20-.24
Race	-.15	.11	.26	.10	.22	.12	-.02	-.05	-.03	.01	.12	.11	4	4	3	0	1
Marital Status	.04	-.01	-.05	-.05	.01	.06	.07	.06	-.01	.06	-.02	-.08	5	6	1	0	0
Academic Self-Concept	.03	-.11	-.14	.02	.05	.03	.03	.04	.01	-.11	-.17	-.06	7	4	1	0	0
Father's Education	.01	-.03	-.04	-.01	.02	.03	.01	.02	.01	-.08	-.02	.06	7	3	1	1	0
Mother's Education	-.03	-.13	-.10	.01	.07	.06	.02	.02	.00	-.06	-.07	-.01	6	4	2	0	0
Mother Worked When R Young	-.18	-.24	-.06	.16	.22	.06	-.06	-.04	.02	.01	-.03	-.04	8	4	0	0	0
R's Political Beliefs	-.09	-.05	.04	.14	.13	-.01	-.15	-.16	-.01	-.08	-.10	-.02	10	1	0	1	0
Importance of Religion	.12	.13	.01	-.12	-.07	.05	.28	.21	-.07	.16	12	-.04	8	4	0	0	0
R's H.S. Grades	.02	-.10	-.12	-.02	.04	.06	.07	.02	-.05	-.08	-.14	-.06	2	8	2	0	0
Hr/Per Week Worked During School	.06	.01	-.05	-.06	-.05	-.01	-.10	.01	.11	.02	-.14	-.16	5	4	2	1	0
#Dates/Week School Yr.	.07	.02	-.05	-.06	-.04	.02	-.03	.00	.03	.05	-.02	-.07	5	5	2	0	0
R Will Attend 4 Yr. Coll.	-.11	-.10	.01	.10	.13	.03	.01	.01	.00	-.09	-.06	.03	9	2	1	0	0
#Cig./Last 30 Days	-.04	-.11	-.07	.03	.03	.00	-.11	-.21	-.10	-.01	-.00	.01	6	4	2	0	0
#Drinks/Last 30 Days	-.02	-.06	-.04	.06	-.03	-.09	-.22	-.19	.03	-.10	-.10	.00	6	6	0	0	0
#Marihuana-Hashish/ Last 30 Days	-.03	-.08	-.05	.04	.01	-.03	-.25	-.18	.07	-.07	-.00	.06	5	5	2	0	0

Table 6

Comparison Between the Long Form Respondents and the Monitoring the Future 1978 Sample: Differences Between Corresponding Correlations of Sex Role Attitudinal Items

	Absolute Size of Difference					
	.00-.094	.095-.104	.105-.114	.115-.124	.125-.134	.135+
Males	80% (258)	4% (14)	3% (8)	2% (5)	2% (5)	9% (28)
Females	78% (250)	3% (10)	4% (12)	3% (11)	3% (9)	9% (27)

NOTE: Difference = Correlation resulting from the Long Form data - Correlation resulting from the Monitoring the Future data.

Table 7

Comparison of Long and Short Questionnaires: Straight-Line Responding, Means, and Within-Set Correlations

	No. of items in set (A)	Location of Set: Long Form (B)	Location of Set: Short Form (C)	% Straight-line Responders: Long Form (D)	% Straight-line Responders: Short Form (E)	% Straight-line Responders: Diff. (F)	Average Diff. in Means[a] (G)	Average Within-set Correlations[b]: Long Form (H)	Average Within-set Correlations[b]: Short Form (I)	Average Within-set Correlations[b]: Diff. (J)
Satisfaction with various areas of life	14	9-22	F1: 9-22	0.1	0.1	0.0	.02	.32	.32	.00
Importance of life values	14	23-36	F1: 23-36	0.1	0.2	-0.1	.03	.19	.22	-.03
Mixed set of agree-disagree items	10	40-49	F1: 40-49	0.2	0.4	-0.2	.07	.12	.11	.01
Frequency of various activities	16	50-65	F2: 2-17	0.0	0.0	0.0	.07	.13	.10	.03
Honesty of various institutions	12	205-216	F2: 197-208	1.6	2.8	-1.2	.06	.48	.52	-.04
Competence of various institutions	12	301-312	F3: 48-59	4.3	1.0	3.3	.16	.43	.37	.06
Importance of various possessions	13	406-417	F3: 265-276	2.1	1.0	1.1	.05	.46	.42	.04
Mixed set of agree-disagree items	11	528-538	F4: 6-16	6.2	0.2	6.0	.18	.17	.06	.11
Importance of various job characteristics	21	540-562	F4: 18-40	4.0	0.7	3.3	.23	.30	.19	.11
Power of various institutions	10	588-597	F4: 68-77	6.7	1.5	5.2	.14	.51	.42	.09
Agreement with parents on various issues	15	657-671	F4: 214-228	2.4	1.4	1.0	.06	.48	.43	.05
Frequency of worrying about various social issues	11	703-713	F5: 3-13	6.5	0.6	5.9	.13	.42	.22	.20
Mixed set of agree-disagree items	14	744-757	F5: 45-58	5.5	0.2	5.3	.21	.14	.06	.08
Mixed set of personality characteristics	22	807-828	F5: 184-205	1.8	0.3	1.5	.15	.05	-.03	.08

Note: Only sets of ten or more items were included.

[a] For each of the last four items in a given set, the difference between the long form and the short form mean was divided by the short form standard deviation. The absolute values for these standardized differences were then averaged across the four items.

[b] Each entry in columns H and I is the mean of the six product-moment correlations for all pair-wise combinations of the last four items in the item set. The signs of the correlations (plus or minus) were retained in the computations of these averages (see text for rationale).

TABLE 8

Percentages of Respondents Answering with Identical or Nearly Identical Response Categories to an Entire Set of Items in the Long and the Short MtF Questionnaires

	Long Form	Short Form
All identical response categories	4.0%	0.7%
All-but-one identical response category	2.9%	0.6%
All-but-two identical response categories	2.6%	0.8%
All-but-three identical response categories	3.1%	1.0%
All-but-four identical response categories	4.0%	1.1%

NOTE: The analyses utilized the special weights discussed in the text. The set consists of 23 items on the importance of various job characteristics.

APPENDIX

Research Design and Procedures[10]

The basic research design involves annual data collections from high school seniors during the spring of each year, beginning with the class of 1975. Each data collection takes place in approximately 125-130 public and private high schools selected to provide an accurate cross section of high school seniors throughout the coterminous United States. The design also provides for the longitudinal study of a subsample from each class of participating seniors; but since the focus of the present analysis is exclusively on the data collected from seniors in 1978, the follow-up procedures will not be discussed here.

One limitation in the design is that it does not include in the target population those young men and women who drop out of high school before graduation (or before the last few months of the senior year, to be more precise). This excludes a relatively small proportion of each age cohort--between 15 and 20 percent (Golladay, 1976, 1977)--though not an unimportant segment, since we know that certain behaviors such as illicit drug use (Johnston, 1973) and delinquency (Bachman, O'Malley, and Johnston, 1978) tend to be higher than average in this group. For the purposes of estimating characteristics of the entire age group, the omission of high school dropouts does introduce certain biases; however, their small proportion sets outer limits on the bias.

Sampling Procedures. The procedure for securing a nationwide sample of high school seniors is a multi-stage one. Stage 1 is the selection of particular geographic areas, Stage 2 is the selection of one or more high schools in each area, and Stage 3 is the selection of seniors within each high school.

Stage 1: Geographic Areas. The geographic areas used in this study are the primary sampling units (PSUs) developed by the Sampling Section of the Survey Research Center for use in the Center's nationwide interview studies. These consist of 74 primary areas throughout the coterminous United States--including the 12 largest metropolitan areas, which contain about 30 percent of the nation's population. Of the 62 other primary areas, 10 are in the Northeast, 18 in the North Central area, 24 in the South, and 10 in the

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[10]A more extensive description of the research design and procedures may be found in Bachman and Johnston (1978).

West. Because these same PSUs are used for personal interview studies by the Survey Research Center (SRC), local field representatives can be assigned to administer the data collections in practically all schools.

Stage 2: Schools. In the major metropolitan areas more than one high school is often included in the sampling design; in most other sampling areas a single high school is sampled. In all cases, the selections of high schools are made such that the probability of drawing a school is proportionate to the size of its senior class. The larger the senior class (according to recent records), the higher the selection probability assigned to the high school. When a sampled school is unwilling to participate, a replacement school as similar to it as possible is selected from the same geographic area.

Stage 3: Students. Within each selected school, up to about 400 seniors may be included in the data collection. In schools with fewer than 400 seniors, the usual procedure is to include all of them in the data collection. In larger schools, a subset of seniors is selected either by randomly sampling classrooms or by some other random method that is convenient for the school and judged to be unbiased. Sample weights are assigned to each respondent so as to take account of variations in the sizes of samples from one school to another, as well as the (smaller) variations in selection probabilities occurring at the earlier stages of sampling.

The three-stage sampling procedure described above yielded the number of participating schools and students indicated in the table below.

Advance Contact with Teachers and Students. The local SRC representative is instructed to visit each participating school two weeks ahead of the actual date of administration. This visit serves as an occasion to meet the teachers whose classes will be affected and to provide them with a brochure describing the study, a brief set of guidelines about the questionnaire administration, and a supply of flyers to be distributed to the students a week to 10 days in advance of the questionnaire administration. The guidelines to the teachers include a suggested announcement to students at the time the flyers are distributed.

From the students' standpoint, the first information about the study usually consists of the teacher's announcement and the short descriptive flyer. In announcing the study, the teachers are asked to stress that the questionnaires used in the survey are not tests, and that there are no right or wrong answers. The flyer tells

Sample Sizes and Student Response Rates:
Senior Class of 1978

Number of Public Schools	111
Number of Private Schools	20
Total Number of Schools	131
Actual Number of Participating Students	18924
Number of Weighted Cases (Total)*	18924
Student Response Rates**	83%

*Sample weights are assigned to each respondent to correct for unequal probabilities of selection which arise in the multi-stage sampling procedure.

**The student response rate is derived by dividing the attained sample by the target sample (both based on weighted numbers of cases). The target sample is based upon listings provided by schools. Since such listings may fail to take account of recent student attrition, the actual response rate may be slightly underestimated.

students that they will be invited to participate in the study, points out that their participation is strictly voluntary, and stresses confidentiality (including a reference to the fact that the Monitoring the Future project has a special government grant of confidentiality which allows their answers to be protected). The flyer also serves as an informative document which the students can show to their parents.

Questionnaire Administrations. The questionnaire administration in each school is carried out by the local SRC representatives and their assistants, following standardized procedures detailed in a project instruction manual. The questionnaires are administered in classrooms during normal class periods whenever possible, although circumstances in some schools require the use of larger group administrations. Teachers are not asked to do anything more than introduce the SRC staff members and (in most cases) remain in the classroom to help guarantee an orderly atmosphere for the survey. Teachers are urged to avoid walking around the room, so that students may feel

free to write their answers without fear of being observed.

The actual process of completing the questionnaires is quite straightforward. Respondents are given sharpened pencils and asked to use them because the questionnaires are designed for automatic scanning. Most respondents can finish within a 45-minute class period; for those who cannot, an effort is made to provide a few minutes of additional time.

Procedures for Protecting Confidentiality. In any study that relies on voluntary reporting of drug use or other illegal acts, it is essential to develop procedures which guarantee the confidentiality of such reports. It is also desirable that these procedures be described adequately to respondents so that they are comfortable about providing honest answers.

We noted that the first information given to students about the survey consists of a descriptive flyer stressing confidentiality and voluntary participation. This theme is repeated at the start of the questionnaire administration. Each participating student is instructed to read the message on the cover of the questionnaire, which stresses the importance and value of the study, notes that answers will be kept strictly confidential, states that the study is completely voluntary, and tells the student "If there is any question you or your parents would find objectionable for any reason, just leave it blank." The instructions then point out that in a few months a summary of nationwide results will be mailed to all participants and also that a follow-up questionnaire will be sent to some students after a year. The cover message explains that these are the reasons for asking that name and address be written on a special form which will be removed from the questionnaire and handed in separately. The message also points out that the two different code numbers (one on the questionnaire and one on the tear-out form) cannot be matched except by a special computer tape at The University of Michigan.

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