DEVELOPMENT OF A MEASURE FOR OPEN-ENDED QUESTIONS

by

PATRICIA ANN WILSON

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Department of Anthropology & Sociology

The University of British Columbia
Vancouver 8, Canada

Date August 26, 1970

ABSTRACT

As a first focus of this study, a theoretical framework was formulated in which orientations were conceptualized as ideal points on a time dimension to be utilized in predicting second generational behavior.

As a second focus, a measurement of orientations was developed to provide not only means for testing the theoretical-ideas but also for developing new techniques for secondary analysis of questionnaire data. The measurement instrument, however, resulted in large experimental error.

Questionnaire data were collected from a Vancouver urban school population and a sample of parents from that population. Alternatives generated by open-ended questions and coded according to a set of rules representing the time dimension were utilized in measuring parental orientations. Statistical tests on the coding of responses as well as on factors of language, sex and education showed coding and language were critical to responses generating indicators of present orientations but that sex and education were not.

Testing by linear regression the behavior of the second generation against indicators of orientations of the first generation, as measured by this study, proved there is no predictive relationship between the two.

An evaluation of the study was used to indicate possible directions for further investigation along both theoretical and measurement lines.

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CHAPTER I

THE INTRODUCTION

A. Purpose of the Study

Survey data may be utilized to determine patterns of behavior. Such patterns do not necessarily allow the prediction of individual behaviors, but rather provide probabilities of some behavior characteristic appearing among a number of individuals. Much data in the social sciences have been collected by survey (interview and questionnaire techniques at large costs in time and money). The resulting specific-purposed analyses often do not maximize extraction of all possible information. Much of the data, while available, remain unused. In order to minimize research costs it appears useful to develop measurement techniques that would encourage secondary analyses of these large amounts of survey data. Particularly lacking are adequate systems for measuring general (often vaguely-worded) open-ended questions, measurements which would allow such questions to be submitted to parametric statistical analyses.

One means of developing a system for measuring open-ended questions might be to construct a set of theoretical ideas by making assumptions about what the answers to the questions imply rather than say. The purposes of this study

are to construct a theoretical framework which suggests a specific measurement and to subject this to some statistical tests using survey data previously collected with other intent.

B. Construction of an Hypothesis

In developing a theoretical framework, answers to open-ended questions may be assumed to represent references people use and to reflect the individual model persons use to handle stimuli -- a decision-making model.

Each individual must develop his own model for coping with the enormous amount of stimuli with which he is bombarded.[1] The model developed and used as a case in this thesis assumes that the individual organizes incoming stimuli by mapping them onto particular dimensions and that on each dimension the individual has an ideal point which exactly fits his preference,[2] hereafter referred to as an orientation. As psychological distance from the orientation increases there is increasingly less ability to discriminate among alternatives.[3]

At some point along the dimension a clustering of indiscriminable alternatives into some negatively evaluated and, therefore, not relevant category occurs. Only those stimuli or alternatives sufficiently close to his orientation, that is, within the critical neighbourhood, to be recognized as individual alternatives (rather than simply part

of a category) are considered relevant and utilized in any specific decision-making process. The individual's model is a means for handling stimuli using a rule which allows clustering of some alternatives into general evaluated categories for later quick sorting. Herein only the alternatives within the critical neighbourhood (i.e. those alternatives equivalent to what is often referred to as references) would be considered relevant and used in a particular decision-making process where the alternative closest to the orientation has the highest priority.

The development of an orientation is critical to the individual's model. Several assumptions can be made about the acquisition of an orientation, a major one being that influence travels through channels via evaluated alternatives. It may be assumed also that early behavior of an individual is influenced by persons with power to sanction his behavior. This provides an input of evaluated alternatives and in this state the individual may be referred to as a <u>receptor of information</u>.

In order to maximize influence by persons with authority to sanction behavior, persons are located in groups which are formally part of a social structure, that is, institutionalized situations such as the family and the school. In North America, family and schools are the foci

of child-rearing. The parents (G_1) are the main source of influence during the first six years of a child's (G_2) development.

It is further assumed for this study that generally the parents' orientations are reflected in their own behavior, which includes also sanctioning of the child's behavior. If a child is completely influenced by the parents, then the parents' orientations (O) will be reflected in the child's behaviors (B). The channels through which this occurs as a first effect may be set down as:

$$O_{G1} \longrightarrow B_{G1} \longrightarrow B_{G2}$$

As cognitive development begins, the child's primary orientations should be a reflection of its own reinforced (positively sanctioned) behaviors. This channel is represented by:

$$O_{G1} \longrightarrow B_{G1} \longrightarrow B_{G2} \longrightarrow O_{G2}$$

Once the G_2 orientation has been established it is possible for parental influence to travel different channels, such as:

$$O_{G1} \longrightarrow O_{G2} \longrightarrow B_{G2}$$

or

$$O_{G1} \longrightarrow B_{G1} \longrightarrow O_{G2} \longrightarrow B_{G2}$$

As a simple case, the obvious example of smoking patterns can be used for illustrating these channels. G_1's smoking

behaviors and verbal behaviors regarding smoking present alternatives collected and sorted by G_2. G_2's smoking behavior is based on selection from among these alternatives. For example, G_1 may be verbally against smoking, an alternative collected by G_2 but disregarded in favor of smoking since G_1 is observed smoking by G_2. At this point G_2 enters a state which might be labelled <u>generator of information</u>, because he is put in a position where he must select an alternative. This alternative, according to his model, will be located closest to the orientation.

As G_2's cognitive skills develop and/or conflicting influences appear, the above channels may be repeated with new sources of evaluated alternatives, such as:

$$O_{\substack{new\\source}} \longrightarrow B_{G2} \longrightarrow O_{G2}$$

or

$$O_{\substack{new\\source}} \longrightarrow O_{G2} \longrightarrow B_{G2}$$

The smoking case serves again here, where new influences may originate from exposure to peer behaviors and orientations. Later conflicting influences, however, must compete with orientations the child obtained from the first influence (usually the parent). In this there is an assumption of stability of orientations and transference from one situation to another.

An orientation may be modified under certain conditions. The mapping of incoming alternatives along a dimension and against an orientation serves G_2 as a basis for organization of references and the individual's model acts as mediator of ego's past behaviors and others' orientations. It is assumed that the orientation becomes modifiable when G_2 is involved in conflict situations as a generator of information. This state should be empirically locatable when G_2 sanctions others' behaviors. G_2 becomes aware he will be held responsible for his sanctioning powers and also aware that he may have been negatively sanctioned by authorities other than his parents for behaviors sanctioned positively by his parents. Thus, he is positioned in a decision-making situation arising out of conflict. G_2 becomes aware that he is a generator of information to self, as well as a source of influence to others, and this awareness may lead to modification of an orientation.

In summary, the theoretical notions generated here suggest that if the individual were exposed to only one source of influence and if the orientation of a dimension utilized by that source were known, and if the orientations and behaviors were consistent over time, then it would be possible to predict related behaviors of that individual. Specifically, this study hypothesizes that a direct relationship exists between G_1 orientations and G_2 behavior

as long as G_2 is located in institutionalized situations constraining him to act as a receptor of information. In addition, it is further hypothesized that the relationship is modified as G_2 is relocated in situations constraining him to act as a generator of information. Survey data collected for other purposes will be used to test this relationship, that is, to see if such a pattern exists among a number of individuals drawn from the North American population.

FOOTNOTES TO THE INTRODUCTION

[1]based on Simon's'principle of Bounded Rationality' which assumes that man tries to be rational and makes up a simplified model to cope with as many alternatives as he is capable of dealing with, the number being situationally determined. H.A. Simons, Models of Man: Social and Rational, New York, John Wiley and Sons, Inc., 1957, pp. 198-199.

[2]It is unclear in Coomb's writings whether the alternatives make the dimension or whether there is an underlying dimension onto which alternatives are mapped. It appears to be more productive to use the latter notion that the dimension and the ideal point are separate from the alternatives since this allows an ordering and re-ordering of alternatives without affecting the ideal point. C.H. Coombs, A Theory of Data, New York, John Wiley and Sons, Inc., 1964.

[3]based on Coomb's work which concerns individual preferential choice behavior. He found that although individuals, given several stimuli, show great variation in preference orderings, it is possible to discover one underlying dimension for each individual (Coomb's unfolding theory). Coombs claims this indicates that individuals perceive the stimuli as similar but have definite preference among them. He claims the individual has an exact preference which may be labelled 'ideal point on a dimension of a characteristic'. There is a psychological space along the dimension such that the perceived distance between stimuli varies among individuals. Stimuli with similar characteristics are seen nearer the ideal point and more positively than stimuli with increasingly different characteristics. Those stimuli to which the individual responds positively are considered to be within the critical neighbourhood. Discrimination among stimuli is possible only within this neighbourhood, so that outside the neighbourhood stimuli are indiscriminable and lumped together in one general category. C.H. Coombs, A Theory of Data, New York, John Wiley and Sons, Inc., 1964, pp. 8-12.

CHAPTER II

METHODOLOGY

A. Development of Measurements to Test the Hypothesis

The testing of an hypothesis demands explication of the measurements involved. The theoretical notions above are developed to demonstrate that not only is there a correlation between G_1 orientations and G_2 behavior but also a dependent relationship, that is, that there is a direct relationship between G_1 orientations and G_2 behavior given certain conditions. The above hypothesis will be tested using linear regression statistical techniques, thus making requisite interval scales for both the X and Y axes.

A first measurement required for the present purposes is an indicator of orientations. This study intends to test the hypothesis using one arbitrarily chosen dimension for orientation. It is recognized that there exists the possibility that other dimensions may also be relevant However, the dimension here considered most efficacious is a time dimension along which three broad areas are specified representing the past, present and future. In one of these time categories the individual's orientation is located -- a past or traditional orientation, a present orientation where concern is with present situational constraints and a future orientation where the concern is with expectations.

The critical neighbourhood, encompassing the orientation might be one time category or a combination of time categories depending on both the orientation's location on the dimension and the distance from the orientation to the limits of the critical neighbourhood. Since, according to the theoretical notions above, the alternatives closest to the orientation are given priority, it is assumed here that the references generated in answer to open-ended questions are the perceived alternatives with the highest priorities and that these references are thus indicators of the orientation.

The measurement used in this study is a count of the references per time category given in answer to open-ended attitudinal and behavioral questions; questions designed to give no cues as to categories in which to answer (see Appendix I).

References to rules, norms and institutions are considered to indicate traditional orientations since it is assumed that these are representative of modes of behavior originated by previous generations and passed on to the present generation.

References to present conditions within which the individual must act (situational constraints) and to specific persons, places, objects and activities are considered to indicate present orientations.

References to goals and changes in the status quo are designated representative of future orientations.

One check for reliability of these indicators is to form paired groups of references according to their source and test between these with a well-known test, such as the split-test method. This testing for possible introduction of bias by one kind of question as against another kind allows inference about whether the groups of references are indicators of the same thing, in this instance, orientations. Orientations assumed to be feedback from ego's behavior (that is, found in questions with reference to specific situations or personal experience) can be separated from those assumed to be more general or abstract (that is, found in attitude questions) see Appendix I. Statistical testing, starting with the analysis of variance test, could give evidence whether both kinds of references are the same, whether they differentiate parental groups and whether both are equally good predictors of G_2's behavior. Also, the reliability of the indicators can be determined by testing agreement among a number of judges.

A second critical measurement is that of behavior. Questions are required to indicate behaviors which are past, present or future oriented. Severe limitations were put on the testing of the hypothesis in this study as the questions available for analysis (see Appendix II) were

generated for other purposes and lent themselves to only one time category. Thus, this attempt at secondary analysis in terms of new theoretical notions had to be modified. The questions utilized for G_2 behavior were largely repeated from the Stinchcombe study[4]. The theoretical ideas as outlined above argue against some of the original Stinchcombe premises.

Stinchcombe is aware of the importance of time since he refers so often to the present and the future, but he sees this neither in terms of a continuous dimension nor a transference across institutions and generations. The main difficulty in Stinchcombe's work however, if his use of indicators. Wheeler questions his choice of items on the questionnaire for indicators,[5] but even more critical is his division of indicators into cause and effect. Stinchcombe selected three indicators of rebellion; flunking, skipping classes, being sent out of the classroom. He then used these indicators to predict various behaviors of which only a few will be considered by this study (his 'rule transgression' indicators)[6].

According to the above theoretical framework, there should be in Stinchcombe's study a high correlation between his indicators and the other behaviors he examines and this is ascertained by Stinchcombe's findings. However, the dependent relationship can be questioned, because his

indicators of both rebellion and expressive alienation (that is, 'rule transgression' behaviors) are actually indicators of 'expedient' or present-oriented behaviors which should be dependent upon and, therefore, predictable from G_1 present orientations (that is, where parents are concerned with situational constraints).

Stinchcombe also uses indicators designated 'age-grade orientations' which he tests against certain behaviors. The present study does not quarrel with his findings but finds it more convenient and precise to translate his work to the time dimension notion of orientations and time-oriented behaviors examined within one generation. Since Stinchcombe's indicators of adult orientation (O.K. for girls to marry young, do not disagree on smoking rights, agree car is necessary) are seen here as indicators of present orientations, because they show concern with expedient behavior and situational constraints, the high correlation with rebellious behavior, non-college preparatory behavior, lower grades, more dating (all directed toward present expediency and not future or traditional behaviors) in Stinchcombe's findings are thus seen as supporting the theoretical ideas of the present study. That is, Stinchcombe's indicators of age-grade orientations (e.g. adult-oriented, adolescent-oriented) which he claims are related

to rebellion may be translated into the terminology of this study where O_2 (present orientations) predicts B_2 (present-expedient behavior).

A Y-axis interval scale is simply a count from a set of questions regarding different behaviors (see Appendix II). A G_2 position on this scale is found by counting the number of questions demonstrating the presence of a behavior belonging to a certain time category.

It is expected that where G_2 is completely a receptor of information a straight-line relationship holds showing an increase in G_2's particular behavior as an increase in dominance of a particular time category of G_1 occurs.

The institutionalized situations, utilized for this study, where G_2 is assumed to be constrained to act as receptor of information are home and school. Peer group leadership evidenced by sociograms is assumed to indicate the switch to the new, and possibly conflict-creating, role of generator of information.

The socializing agents and institutionalized sources of influence associated with home and school are parents (referred to as G_1) and teachers.

B. Collection of the Data

The theoretical framework presented above was developed to utilize material from two questionnaires after one had been administered completely and the other partially. Thus, both questionnaires were designed for purposes other than to test the above theoretical notions and this study represents a secondary analysis.[7]

One of the questionnaires, a reproduction of Stinchcombe's, plus some additions, was administered in an urban high school. The particular school chosen was selected because the area in which it was located had great diversity of ethnic groups, because it was urban in contrast to Stinchcombe's non-urban school and because the researchers had access to the school through an interested teacher.

Before the questionnaire was composed, the researchers, a team of sociology students from the University of British Columbia, had taped interviews about their area of interest with several students in grades eleven and twelve chosen by the school counsellor. The questionnaire was then constructed, following which a discussion with the teachers of the school was held to stimulate and collect their ideas about the structure of the questionnaire and possible additions they perceived as useful for their own purposes.

The questionnaire was then examined by the principal of the school and the head of psychological testing at the school board and both gave the necessary authorization to proceed with the administration of the questionnaire.

On the day of administration, just before the Easter holidays began, the home-room period was extended. The instructions were announced over the public address system (as well as printed on the first page of the questionnaire). One student from each home-room picked up the papers which were administered by the home-room teacher. The papers were collected by the researchers and removed from the school on the same day.

The other questionnaire was designed to serve the needs of several persons including a geographer, a town-planner, and several sociology graduate students. The questionnaire was, therefore, the result of a composite of interests and theories. The questions themselves varied from demographic to attitudinal and from structured to non-structured. Again, some of the questions were taken from Stinchcombe's original questionnaire. The questionnaire was pre-tested, then redesigned and shortened to approximately three hours.

It was decided to administer the second questionnaire in the community where the students had already been tested with respect to the first questionnaire. This was done in order to allow-co-ordinated studies of the two questionnaires. Accordingly, the parents of all the students were selected as the population and these names were completely randomized by computer. The respondents were selected in order from the top of the list for interviewing, which was to be a continuous process as long as resources for interviewing were available. It is recognized that the whole Vancouver urban area is not represented and that the sample is biased by age, parenthood and residence.

An interviewing procedure was devised, seemingly complicated, but designed to reduce non-response and to standardize the method of interviewing in order to allow comparative results even though a large number of interviewers participated.[8]

The procedure involved four contacts with respondents. A letter was sent explaining that the undersigned persons would be calling, that university-sponsored research was underway and that buying and selling was definitely not involved.[9] A personal call was made a few days after the letter had been sent to arrange for an appointment. A second call was made for the interview itself. A thank-you

letter then concluded the contact with respondents.

A strategy seldom employed in survey studies was attempted.[10] A pair of interviewers visited the respondents' house and requested that the female question the wife while the male interviewer questioned the husband - at the same time but in different rooms. Thus, two sets of data were obtained from G_1 of each family allowing possibility of internal comparison, (as well as comparison with that of G_2 already obtained from the school study).

The questions were read off the questionnaire by the interviewers who were instructed to record verbatim the replies. Where structured questions presented alternatives for choice or rank ordering, cards were given to the respondent listing the alternatives, in an attempt to avoid simple memory problems. Unstructured questions with limited or no cues were just repeated unless a 'probe' was specified, whereupon interviewers noted the first response and their probe as well as the following response.

Over a two year period, the interviewers included first year sociology students, graduate students and persons outside the university interested in the study. Interviewers were given training to standardize the procedure and an interviewer information sheet was prepared to allow study and comparison of the different conditions resulting from the uncontrolled environments within which interviewing took place.

Discussions were held with groups of interviewers after their interviews had taken place, at which time efforts were made to discern discrepancies and variations from the prescribed procedure and their possible effects on the data. The large number of interviewers, the majority of which experienced their first interview, indeed had certain effects on the interview (e.g. some interviewers skipped questions) and perhaps also on the size of the non-response. That some were more committed than others became apparent in the discussions.

In addition, the time over which interviewing took place had effects but also brought out some interesting patterns. There were a large number of moves from the area (increasing non-response) in this two year period. Most noticeable was the movement of nearly all women on the sample who were without husbands. Another occurence during this time period which was felt to increase the number of refusals was the appearance (and disappearance) of a sales crew through the area, after which the interviewers were greeted with hostility and suspicion that they represented another sales gimmick - an attitude that was not apparent in the earlier period of interviewing. Another time effect was that some questions based on current events were not

remembered in detail. Wording of the questions, however, usually elicited a response.

The uncontrolled environments introduced variations to the procedures of interviewing, such as presence of other persons and the handling of language problems. In the latter situation often an older child in the family translated.[11]

It is recognized that the large number of interviewers, the long period of time involved, and the uncontrolled environments possibly intorudced large error factors, but it is felt that controls as stringent as possible were applied and that the data collected are representative of this sample.

FOOTNOTES TO THE METHODOLOGY

[4]A.L. Stinchcombe, Rebellion in a High School, Chicago, Quadrangle Books, 1964, pp. 214-230.

[5]S. Wheeler, book review of Rebellion in a High School by Arthur Stinchcombe, in American Sociological Review, vol. 32, (December 1967), no. 6, p. 1020.

[6]The selection of only part of Stinchcombe's work is to avoid being caught up in definitions or redefinitions of class structure which he uses extensively but which are outside the scope of this study.

[7]The source of the questionnaire designed to study the attitudes of high school students was Appendix II of A.L. Stinchcombe's Rebellion in a High School, Chicago, Quadrangle Books, 1964, pp. 214-230. Additional questions were incorporated into that study to meet further needs of the researchers and the teachers of the school. The questionnaire designed as a community study originated in a seminar group which met regularly under Professor Landauer's guidance.

[8]The use and development of both questionnaires and the training of interviewers were done under the auspices of Professor Landauer, Sociology Department, at the University of British Columbia, who maintains university research must also be a heuristic device as well as a research tool.

[9]During the two years that interviewing was done in the area, a number of salesmen went through the same area using techniques of selling which resulted in suspicion and hostility and certainly affected the reception and response the interviewers received. Where non-response had been almost nil, after the salesmen had been through the area the number of non-responses rose sharply.

[10]B.S. Phillips, Social Research: Strategy and Tactics, New York, The MacMillan Company, 1966, p. 127.

[11]Where translators were not available the interviews have not yet been obtained and thus have been lost from the sample for this particular study.

CHAPTER III

ANALYSIS OF THE DATA

A. Precision of the Instrument Used to Measure Orientations of G_1.

The aim of this study was to develop a measurement through secondary analysis of data, e.g. to produce a useful X-axis -- one which allowed scaling of parents' orientations against which children's behavior could be plotted. The use of the questionnaire technique to obtain these G_1 orientations introduced much imprecision. It was felt, however, that if much of the variability in the data could be accounted for and despite this variability the X-axis demonstrated utility regarding prediction within the theoretical framework above, then the use of open-ended survey questions was justified, and further, would indicate that secondary analysis of previously accumulated survey material might be more profitably utilized than it is at present.

The variability introduced by the interviewing technique and attempts at its control have already been noted. It was felt that analysis of the actual data to be used for the X-axis might reveal differences other than theorized variation, that is, the locating of orientations

differentially along a dimension by particular persons. Examination of the data for sources of variation caused by coding procedures, language difficulties including translator problems, differences inherent in the questions themselves and varied responses because of sex and/or differential educational levels was undertaken.

Several analysis of variance tests were carried out to locate the sources of variability which produced significant differences in the G_1 data. The first analysis of variance test was designed to check the differences in coding -- over time and by different persons. Five samples were selected:

Sample 1.	the first coding
Sample 2.	different coder - same time as sample 1
Sample 3.	coded two weeks after sample 1 - after ordering of rules giving priorities
Sample 4.	coded two weeks after sample 3
Sample 5.	coded one day after sample 4

From each of these samples, by using a random numbers table, eleven sets of data were chosen. The references reflecting present orientations, the main concern of the X-axis, were tabulated for each individual on all

seventeen orientation questions. The results of the test are shown in Table I.

TABLE I

ANALYSIS OF VARIANCE TEST FOR
VARIATION IN CODING AND REFERENCES

Source of Variation	SS	df	MS	F
Samples	961.576	4	240.394	21.8102**
Replications	1897.224	16	118.576	10.7581**
Error	706.424	64	11.022	
Total	3565.224	84		
	tabulated	F.05 (4,64) = 2.5252 (16,64)= 1.8364		
		F.01 (4,64) = 3.6491 (16,64)= 2.3523		

There appears to be two sources of variation which are highly significant. One source is among the samples which represent different coders and different times of coding. Another source is indicated by the highly significant differences among the replications which represent the seventeen orientation questions, suggesting that there might be justification for theoretically dividing the references into the two groups -- abstract references and references based on experience.

A Duncan's New Multiple Range Test was done on the means of the five samples. The results of this test are indicated in Table II.

TABLE II

DUNCAN'S NEW MULTIPLE RANGE TEST
FOR DIFFERENCES IN CODING

Sample	Mean	TV.05	SSR.05	D_1	D_2	D_3	D_4
4	15.352	3.14	2.52	9.235*	---	---	---
5	15.117	3.08	2.47	2.94*	9.00*	---	---
1	13.411	2.98	2.39	1.94	2.70*	7.29*	---
3	12.411	2.83	2.27	.235	1.70	1.00	6.29*
2	6.117						

EMS = 11.022 with 64 d.f.

4	5	1	3	2
15.352	15.117	13.411	12.411	6.117

* - significant
(Samples with shared lines are not significantly different)

Sample 2, the only one coded by an outside coder, is the only sample significantly different from all the other samples. This suggests that imprecision is introduced into the instrument by the use of different coders, that is, that

the translation from empirical data to rule categories by manual coders introduces subjectivity. (It is to be hoped the increasing use of computers for coding open-ended questions will reduce this problem.)

Duncan's test also showed that samples 4 and 5 were not significantly different from sample 1, and that sample 1 was not significantly different from sample 3. This suggests that variability among the samples was not explained by possible changes in coding occurring over time nor by changes which might have been introduced by giving priorities to the rules.

A belated Bartlett's Test for homogeneity of variances among the five samples was done. This test was undertaken to test the hypothesis that all the samples were drawn from the same population -- an assumption of homoscedasticity which requires fulfillment before parametric statistics, including the analysis of variance tests, may legitimately be used. The results of this test, as shown in Table III, with its very large X^2 indicated that the samples did not have the same variance and were, therefore, not drawn from the same population.

A second Bartlett's Test was done, after eliminating sample 2, that of the outside coder. The results are shown in Table IV.

TABLE III

BARTLETT'S TEST FOR HOMOSCEDASTICITY
AMONG THE FIVE CODING SAMPLES

Sample Number	SS	DF ν	$1/\nu$	S^2	log S^2	ν log S^2
1	580.118	16	1/16	36.25	1.55931	24.94896
2	39.765	16	1/16	2.48	.39533	6.32528
3	736.118	16	1/16	46.00	1.66276	26.60416
4	569.883	16	1/16	35.61	1.55157	24.82512
5	969.765	16	1/16	60.61	1.78254	28.52064
Sum			5/16			111.22416
Pooled	2895.649	80	1/80	36.195	1.55859	124.68720
Difference			3/10			13.46304

K = 2.3026 (13.46304) = 30.99995 L = .30/3(4) = .025

X^2= 30.99995/1.025 = 30.2434** with 4 df

tabulated X^2 .05 with 4 df = 9.48733

.01 with 4 df =11.1433

** - highly significant

TABLE IV

BARTLETT'S TEST FOR HOMOSCEDASTICITY
AMONG THE FOUR CODING SAMPLES

Sample Number	SS	DF ν	$1/\nu$	S^2	log S^2	ν log S^2
1	580.118	16	1/16	36.25	1.55931	24.94896
3	736.48	16	1/16	46.00	1.66276	26.60416
4	569.883	16	1/16	35.61	1.55157	24.82512
5	969.765	16	1/16	60.61	1.78254	28.52064
Sum			4/16=1/4			104.2987
Pooled	2865.884	64	1/64	44.7794	1.65099	105.6633
Difference			15/64=.234			1.3646

K = 2.3026 (1.3646) = 3.14212 L = .234/3(3) = .026

X^2= 3.14212/1.026 = $3.0624^{n.s.}$ with 3 df

tabulated X^2 .05 with 3 df = 7.81473

X^2 .01 with 3 df =11.3449

n.s. - non-significant

The X^2 was close to zero and certainly well outside the critical region, indicating similar variances, that is, that the four samples represented the same population of coded responses.

As a result of Duncan's and Bartlett's tests, the data from Sample 2 were considered unrepresentative of the same population as the other four samples due to coding by a different coder, and therefore, they were eliminated. The rest of the data was pooled for further testing.

After the data from the four samples were pooled, a factorial design was devised to test for variability of data among the factors of language, sex and references. The data were divided first into categories of persons born in English-speaking countries as against those born in non-English-speaking countries (the latter included persons born in English-speaking countries who emigrated as children and whose mother tongue was not English). A sample from the former category was drawn by using the random numbers table to equate the sample sizes. These two categories were each divided into male and female categories, which were then divided into abstract references and references based on experience. A count was again taken of present references and located in the eight cells. The results of the factorial analysis are shown in Table V.

TABLE V

A FACTORIAL DESIGN TO TEST
VARIATION CAUSED BY LANGUAGE, SEX DIFFERENCES
AND REFERENCES

Sources of Variation	df	SS	MS	F
Language	1	1161.62	1161.62	26.9730 **
Sex	1	27.38	27.38	.6357
References	1	343.22	343.22	7.9696 **
L x S	1	14.58	14.58	.3385
L x R	1	444.02	444.02	10.3102 **
S x R	1	44.18	44.18	1.0258
Error (Residual)	193	8311.78	43.066	
Total	199	10346.78		

tabulated $F_{(1,193)}.05 = 3,8415$

$F_{(1,193)}.01 = 6.6349$

** - highly significant

There was a highly significant interaction between language and references which disallowed drawing conclusions from the significant differences between means of the language and references main effects. This interaction suggested that language ability affected the answers obtained from the orientation questions. Examination of sources of this variability was necessary. Either some questions were more easily understood, perhaps affecting the total number of alternatives, or persons from other countries have differences in outlook which affect their present orientations.

A second conclusion drawn from this test was that there were no significant differences in responses between the two sexes. Also, there was neither interaction between sex and language nor between sex and references, that is, the sexes did not respond differently to the language situation or by references. Thus, there appeared no need for separation of the sexes during further testing.

Several analysis of variance tests were then done to discern whether language difficulties alone produced significant variation in the data or whether other factors such as education, ethnic origin or the use of translators could account for the variation in responses. One problem encountered at this point was the discrepancy among numbers of persons with particular years of education and language

origins. Thus by necessity, for making comparisons, different sample sizes were drawn from the available data for the different tests.

A first test was done to compare total responses of English-speaking persons, non-English-speaking persons (excluding Italians) and Italian immigrants at a given educational level (1 to 7 years of schooling). The results of that test are shown in Table VI.

TABLE VI

ANALYSIS OF VARIANCE TEST FOR VARIATION AMONG ENGLISH-SPEAKING, NON-ENGLISH-SPEAKING (EXCLUDING ITALIANS) AND ITALIAN-SPEAKING GROUPS

Source of Variation	df	SS	MS	F
Among groups	2	3825.389	1912.69	8.947 **
Error	34	7268.25	213.77	
Total	35	11093.639		

tabulated $F_{(2,34)}$ .05 = 3.1504
.01 = 4.9774

The highly significant differences among the groups indicates that despite similar educational levels there is a difference in the total alternatives generated in response to the questions.

A Duncan's New Multiple Range Test (Table VII) shows that the English-speaking persons and non-English-speaking persons excluding Italians are not significantly different but that both these groups responded differently from the Italian group to the questions.

A check on educational differences affecting total responses was made between English-speaking persons with 8 and 12 years of education. The table (Table VIII) demonstrates that there was no significant differences between

TABLE VII

DUNCAN'S NEW MULTIPLE RANGE TEST FOR DIFFERENCES AMONG ENGLISH-SPEAKING, NON-ENGLISH-SPEAKING (EXCLUDING ITALIANS) AND ITALIAN-SPEAKING GROUPS

Group	$\bar{y}$	$TV_{.05}$	$SSR_{.05}$	D_1	D_2
English-speaking	50.83	3.04	12.828	25.25 *	---
Non-Eng.-sp.(excl. Italians)	40.41	2.89	12.195	10.42	14.83 *
Italian-speaking	25.58				

with EMS = 213.77 and 34 df

Eng.-sp.	non-Eng.-sp. (excl. It.)	Italian

* - significant

TABLE VIII

ANALYSIS OF VARIANCE TEST FOR
EDUCATIONAL DIFFERENCES AFFECTING TOTAL RESPONSES
OF ENGLISH-SPEAKING GROUPS

Source of Variation	df	SS	MS	F
Between groups	1	258.781	258.781	$.513^{n.s.}$
Error	30	15133.179	504.439	
Total	31	15391.96		

$F_{(1,30)}$ .05 = 4.1709

the groups suggesting that education alone did not affect the amount of response to the open-ended questions on this survey.

A test, examining the differences in references indicative of present orientations, was designed noting the language of origin and years of education. Seven samples were used, as shown in Table IX, which resulted in only eight replications per sample. Unfortunately, there were no data available for Italians with an educational level above eight years to compare with the above groups. The results of the analysis of variance test which are shown in Table X indicate a highly significant difference in the present references among these groups.

TABLE IX

SAMPLES FOR ANALYSIS OF VARIANCE
BY LANGUAGE AND LEVEL OF EDUCATION

Sample	Language	Years Education
1	English-speaking	12 or more
2	English-speaking	12
3	English-speaking	9-11
4	English-speaking	0-8
5	non-English-speaking (excluding Italian)	9-12
6	non-English-speaking (excluding Italian)	0-8
7	Italian	0-8

A Duncan's New Multiple Range Test was done to find which groups contributed to the differences in references. The results are shown in Table XI.

The rank ordering of the means themselves indicated that present references are not necessarily a function of education. Except for the English-speaking group with 9-11 years of education, however, the English-speaking groups appear to be slightly more present-oriented than

TABLE X

ANALYSIS OF VARIANCE TEST FOR DIFFERENCES IN REFERENCES INDICATIVE OF PRESENT ORIENTATIONS AMONG LANGUAGE GROUPS WITH DIFFERENTIAL EDUCATION

Source of Variation	df	SS	MS	F
Among groups	6	869.054	144.842	3.867**
Error	105	3932.375	37.451	
Total	111	4801.429		

tabulated $F_{(6,60)}$ .05 = 2.2540

.01 = 3.1187

$F_{(6,120)}$ .05 = 2.1750

.01 = 2.9559

** - highly significant

TABLE XI

DUNCAN'S NEW MULTIPLE RANGE TEST FOR DIFFERENCES IN REFERENCES INDICATIVE OF PRESENT ORIENTATIONS AMONG LANGUAGE GROUPS WITH DIFFERENTIAL EDUCATION

Group	$\bar{y}$	TV_{05}	SSR_{05}	D_1	D_2	D_3	D_4	D_5	D_6
4	14.68	3.19	4.877	9.56*	---	---	---	---	---
1	12.62	3.15	4.816	5.62*	7.50*	---	---	---	---
2	11.37	3.09	4.724	4.93	3.56	6.25*	---	---	---
5	10.37	3.02	4.617	4.31	2.87	2.31	5.25*	---	---
6	9.75	2.92	4.464	3.31	2.25	1.62	1.31	4.65*	---
3	9.06	2.77	4.235	2.06	1.25	1.00	.62	.69	3.94
7	5.12								

with EMS = 37.451 and 105 df

Groups: 4 1 2 5 6 3 7

* - significant

non-English-speaking groups. According to the test, the English-speaking group with 0-8 years of education is significantly different from both the Italian group and the English-speaking group with 9-11 years of education. The latter two groups are not significantly different from each other. The remaining groups are significantly different from the Italian group, but not the English-speaking group with 9-11 years of schooling. It is difficult to suggest why the latter group should fall where it does since its mean is not noticeably below that of the higher means, whereas the mean of the Italian group is noticeably below all the others.

The effect of using translators (in the cases where this was necessary), usually bilingual teen-agers in the family being interviewed, as a source of variation in responses was examined. Two groups who used translators, Italian and non-Italian immigrants, were compared; first for differences in total alternatives, secondly for present references. Tables XII and XIII demonstrate that there is not only a significant difference between the two groups regarding total alternatives generated in response to the open-ended questions under discussion, but also a highly significant difference between the two groups regarding references indicative of present orientations. This difference is noticeable when the means of the two groups are

TABLE XII

ANALYSIS OF VARIANCE TEST FOR DIFFERENCES IN TOTAL ALTERNATIVES BETWEEN ITALIAN AND NON-ITALIAN IMMIGRANT GROUPS INTERVIEWED USING TRANSLATORS

Source of Variation	df	SS	MS	F
Between groups	1	640.03	640.03	5.78*
Error	24	2654.00	110.58	
Total	25	3294.03		

tabulated $F_{(1,24)}$ .05 = 4.2597

.01 = 7.8229

* - significant

TABLE XIII

ANALYSIS OF VARIANCE TEST FOR DIFFERENCES IN REFERENCES INDICATIVE OF PRESENT ORIENTATIONS BETWEEN ITALIAN AND NON-ITALIAN IMMIGRANT GROUPS INTERVIEWED USING TRANSLATORS

Source of Variation	df	SS	MS	F
Between groups	1	456.97	456.97	19.309**
Error	24	568.00	23.66	
Total	25	1024.97		

tabulated $F_{(1,24)}$ .05 = 4.2597

.01 = 7.8229

**- highly significant

compared as shown in Table XIV.

TABLE XIV

COMPARISON OF MEANS FOR
TWO GROUPS USING TRANSLATORS

	Italian Immigrants	Non-Italian Immigrants
Total References	21.84	31.76
Present References	6.84	15.2

The mean of the non-Italian immigrant group is more than double that of the Italian group but only for present references.

The testing for sources of variation inherent in the questions themselves proved more difficult. A further test examining the differences in present references among groups noting their language of origin and educational levels was devised - a test which included the division of present references into the two theoretical groups - those based on personal experience and those based on abstract notions. Five groups were included in this test (to increase the sample size) as described in Table XV.

TABLE XV

SAMPLES FOR ANALYSIS OF VARIANCE
BY LANGUAGE AND LEVEL OF EDUCATION

Sample	Language	Years Education
1	English-speaking	12
2	English-speaking	9-11
3	English-speaking	0-8
4	non-English-speaking (excluding Italian)	0-8
5	Italian	0-8

The results of the analysis of variance test, shown in Table XVI, indicated a highly significant interaction between groups and the orientation questions eliminating the drawing of conclusions about the significance of the main effects among groups and between the two kinds of references. An examination of the basic data showed that the four groups, excluding Italians, generated more present references for abstract questions than for the questions based on experience. In the Italian group the data showed the reverse. Thus, it appears the Italian group caused the interaction effect. The test was then redone, excluding the Italian sample. The results of this test are shown in Table XVII.

TABLE XVI

ANALYSIS OF VARIANCE TEST FOR DIFFERENCES IN THE TWO KINDS OF PRESENT REFERENCES AMONG GROUPS OF DIFFERENTIAL LANGUAGE ORIGINS AND DIFFERENTIAL EDUCATION

Source of Variation	df	SS	MS	F
Among groups	4	1219.46	304.865	
Replications	1	319.74	319.74	
Interaction	4	3972.433	993.108	50.342**
Error	140	2761.867	19.727	
Total	149	8273.5		

tabulated $(F_{(4,144)}$ .05 = 2.3719

.01 = 3.3192

tabulated $F_{(1,144)}$ .05 = 3.8415

.01 = 6.6349

** - highly significant

TABLE XVII

ANALYSIS OF VARIANCE TEST FOR DIFFERENCES IN THE TWO KINDS OF PRESENT REFERENCES AMONG GROUPS OF DIFFERENTIAL LANGUAGE ORIGINS AND DIFFERENTIAL EDUCATION EXCLUDING THE ITALIAN GROUP

Source of Variation	df	SS	MS	F
Among groups	3	231.3	77.1	1.622
Replications	1	537.633	537.633	11.315**
Interaction	3	967.433	322.477	6.786**
Error	112	5321.601	47.514	
Total	119	7057.967		

tabulated $F_{(3,60)}$ .05 = 2.7581
.01 = 4.1259

tabulated $F_{(1,60)}$ .05 = 4.0012
.01 = 7.0771

tabulated $F_{(3,120)}$ .05 = 2.6802
.01 = 3.9493

tabulated $F_{(1,120)}$ .05 = 3.4201
.01 = 6.8510

** - highly significant

There remains among the four groups a highly significant interaction between the groups and the questions, suggesting that removal of the Italian group reduced the interaction effect between respondents and the questions but not significantly. This also indicates that the theoretical division of questions into the two kinds of references does not account for variability in responses and that perhaps individual questions themselves elicit different amounts or kinds of responses.

B. The Test of the Hypothesis

Although the assumptions of linear regression require that X be measured without error, this is often not possible with empirical data and the analysis is executed accepting some error. It is recognized that in this study a large experimental error was present in the measurement of the X-axis used to test the hypothesis that there is a relation between G_1 orientations and G_2 behavior as long as G_2 is located in institutionalized situations contraining him to act as receptor of information; and that the relationship is modified as G_2 is relocated in situations constraining him to act as a generator of information.

Seventeen open-ended questions generated alternatives which were coded along a time-scale. A percentage

of reference indicative of present orientations per G_1 individual was used to locate that individual on the X-axis. Fifteen questions representing present or not-present oriented behavior taken from Stinchcombe's questionnaire were used to locate the G_2 individuals on the Y-axis.

The analysis was undertaken by computer and the results demonstrated conclusively no relationship whatsoever. The amount of variability explained by the regression line was very close to zero (R^2 = .0392 where F-probability = .1070 and the standard error of the estimate = 2.7391). The regression equation ($y = 4.376 + .049x$) indicated that the slope of the line was also close to zero.

Since the hypothesis was so completely rejected, it seemed trivial to examine the condition of leadership whereby an individual becomes empirically located in a generator of information situation to account for more of the variability about the regression line.

Two checks on the X-axis run through the computer showed almost negligible differences from the first results. First, an X-axis was derived from raw scores of present orientations. The result showed R^2 = .0989 where F = .0098 and the standard error of the estimate = 2.6526.

Secondly, an X-axis was derived from total alternatives generated by the family. The results showed R^2 = .0638 where F = .0386 and the standard error of the estimate = 2.7038.

A further check for confounding factors was done by separating factors and then plotting them. Such factors were:

1. boys/girls
2. Italians
3. immigrants excluding Italians
4. single parents/both parents
5. years of education - as the X-axis

In no case did any pattern present itself which would indicate a regression, that is, a linear relationship between X and Y.

CHAPTER IV

CONCLUSIONS

A. Regarding the Precision of the Instrument Used to Measure Orientations of G_1

Resulting from the analytical procedures used to examine the G_1 data several conclusions were drawn.

Coding of the open-ended questions on the G_1 questionnaire was more difficult than anticipated. The respondents had been asked to generate their own categories, but had not been probed for the references they used in generating these categories. Thus, the translation of the empirical data into time categories delineated by the first set of rules (see p. 10) and later expanded to account for more variation in answers (see Appendix III) proved problematic, in that the coder could not take phrases at face value but had to 'interpret' the phrases in terms of references. That this was being done was not immediately apparent, but an informal test on reproducibility using seven coders showed that a phrase was not taken literally but was given meaning by the coders. For example, a reply to question 102 (see Appendix I) stated,

"I'm all for more power".

Several arguments are possible; each supporting a different time category:

a) this requires change (a reference related to the future)

b) it implies acceptance of the authority structure (a traditional reference)

c) it implies a maintenance of the status quo (a present reference)

To handle ambiguous phrases, such as this example, the rules were ordered on a priority basis, that is, the phrase would be tested against each rule category (moving down the page) until one was selected as the correct one (see Appendix IV). It was recognized that the ordering was arbitrary and accounted only for increased precision of the instrument, not validity. It was also felt that a further increase in reliability could be obtained if the coding were done by computer, and that, in the future, as programs for coding open-ended questions become more sophisticated, this resource will be more generally available.[12]

The coding procedure also allowed a check on interviewer variability in a small number of cases. Where only one spouse was available (a result of change over the two-year period) and responses were recorded by two interviewers, both interviews were coded. One case showed similar totals of 31 and 33 alternatives generated, but due to the way they were committed to writing there were 11 differ-

ences in the coded categories.

Although coding of open-ended questions remains for the present a major problem, it is felt that, for the purposes of this study, a consistent measurement of references indicative of orientations has been attained.

The accounting for variability in responses arising from the questions themselves has not been satisfactory. Something more than the postulated theoretical division between abstract references and references basedoon experience affected the responses of respondents.

Differential response based on sex has not been shown to be significant. It was felt, therefore, there was no reason not to combine both parents' responses into a family total for delineation of the X-axis needed to test the hypothesis.

Differential response based on varied educational level also has not been demonstrated as a significant factor regarding orientations on a time dimension. Thus, in the derivation of the X-axis education was not considered.

Regarding demonstrated differential response as a result of language and translation problems, it was felt that these were not the cause of variability _per se_. The Italian immigrants appeared to be a group distinctive from all other (analytical) groups, but as a conclusion from

the above tests, it did not seem justified to ascribe their divergence to language, education or the use of translators. It was felt that although the Italians represented a distinct group, their dissimilarity was a result of their orientations indicated by a lack of present references, and that they, therefore, belonged on the X-axis which would be used in testing whether or not the orientations of G_1 predicted the behavior of G_2.

In terms of the specific aim of this study to develop a general measurement for open-ended questions, whatever was measured and analyzed had the serendipitous result of demonstrating patterns of behavior which produced a descriptive study of the Italian community. The analysis of variance tests regarding language (Table VI) and education (Table XI) suggest that the Italian group appears distinctly different from groups with both language problems and similar education and can be identified as a group for more reasons than language alone. Table XIV demonstrates that the Italians are a group distinctive from the other groups particularly in their lack of references indicative of present orientations. Thus, it can be concluded that the measurement generated for this study had definite utility for discriminating among groups.

B. Conclusions Regarding the Test of the Hypothesis

The hypothesis of a linear relationship between G_1 orientations and G_2 behavior, providing G_2 is located in institutionalized situations constraining G_2 to act as a receptor of information has been decisively rejected by the present methods of testing. No predictability of B_{G2} from O_{G1} appeared as based on a time scale here represented by present references. It must be emphasized that the hypothesis was conclusively rejected, that is, that the results ($r = .19$) did not define a range that could have been reached by chance alone ($r \simeq .50$). Thus, despite the problems of measuring the X and Y axes the measurements used had utility in that they allowed a definite conclusion to be reached. The test of the hypothesis indicated that the theoretical ideas and the model generated above are suspect. However, the notion of a general measurement for open-ended questions found substantial encouragement.

FOOTNOTES TO THE CONCLUSIONS

[12] B. Frisbie and S. Sudman, "The Use of Computers in Coding Free Responses, "Public Opinion Quarterly," vol. 32 (Summer, 1968), no. 2, pp. 216-232.

CHAPTER V

CRITIQUE

The study attempted to develop a measurement for analyzing previously-collected survey data and it seems valuable to examine some weaknesses (which became apparent during the execution of the study) inherent in both the measurement and the theoretical framework used in constructing an hypothesis, and to suggest possible ways of handling these problems.

The endeavor to develop a means for measuring the X-axis was a main source of experimental error. It appears there are several confounding factors. One obvious factor was that data were taken from questionnaires developed for other theoretical purposes and this limited the range for testing the hypothesis. Another factor contributing to large error was the inexperience of the student interviewers. It seems clear from discussions held after the interviews were completed that the training sessions were very critical. However, the actual sessions were found to be insufficient in that the questions which were discussed in general groups (e.g. structured, unstructured) should have been discussed individually prior to the interview.

The recording of verbatim replies is an issue not yet adequately handled. As mentioned earlier, it is possible for the same response to be written down entirely differently by two interviewers although each might claim to have written exactly what the respondent said. (The use of tape recorders had been considered as a means of eliminating this problem, but the cost proved prohibitive.) A useful study might be undertaken in the small groups laboratory where many persons record replies of a single respondent followed by analysis on sources of error. Means for handling timing and length of responses might be developed and patterns of interviewer elimination or rewording of phraseology might be noted and hopefully corrected in training sessions for interviewers. For feasibility of secondary analysis, the development of a code to record original answers during the interview is not a sufficient solution to this problem of recording answers since only the original theorists who devise the code benefit.

Coding itself proved to be a greater problem than anticipated. It was felt that the notion of underlying dimensions would avoid the problems of truth and degrees of intensity of feeling reflected in responses to open-ended questions. Specifically, the time dimension was felt to be generally applicable to all types of open-ended

questions and easily coded. However, it now appears that what possibly happened during the coding process was a two-step translation from answer to coded response. For example, the phrase "be more strict" could be interpreted first as a reference to discipline which would then be coded in terms of past, present and future. A two-step procedure allows more possibility for introduction of error than a one-step coding procedure. Coding error is not easily eliminated and remains the basic problem encountered in this study.

The unstructured questions on the G_1 questionnaire, were designed to discover what categories the respondents would generate given no cues as to the kinds of references they should utilize. Perhaps the original problem of whether persons differentiate themselves in this situation needs priority in any further examination. That persons responded with 'typical' answers was noted during the analysis of the data. This paper contends that persons answering unstructured questions did not differentiate themselves according to their orientations on the time scale, that is, similar answers appeared again and again. Perhaps this results from a lack of differentiation among the basic kinds of categories generated. Several types of investigation are suggested for examination of this problem. The first is a re-analysis of the responses to open-ended

questions for the kinds and numbers of categories generated. (These might be examined against different properties of persons). A re-analysis might result in a dictionary of stereotyped answers which could then be used by researchers for developing codes useful in computer analysis of open-ended questions. Secondly, if categories generated do prove limited and stereotyped, perhaps a particular question which elicits standard but opposing categories might be used to differentiate persons along some dimension. For example, question #29 asks,

> "What sorts of things do you expect of your children's teachers?"

If most answers are in terms of 'more discipline' <u>versus</u> 'understanding, and drawing the most out of the children' these categories might be used alone as indicators of orientations to test against G_2 behavior. Thirdly, further tests need to be done where orientations derived from open-ended questions are tested against orientations derived from structured questions as well as G_2's behavior.

Validity, regarding the measurement of orientations in this study, is still very much in question. Tests were done to check reliability. Further testing, such as suggested above, is required for succeeding stages of investigation. That the G_2 data restricted this study to the categories of present and not-present orientations,

perhaps increased problems of validity since present orientations sometimes represented a residual category for alternatives that were definitely neither traditional nor future. It is possible the same study done with traditional or future orientations along the X-axis would include less error.

An unexamined factor of experimental error was the possibility of the questions programming the respondent into responses within a particular time category. Testing the three time categories against the orientation questions through an analysis of variance test might indicate the presence or absence of this factor.

It seems clear from examining the weaknesses of the experimental method and testing used for the present study, that it is unwarranted to discard at this point the whole notion on measurement of orientations. This author believes that there is definite value in investing in the further work required for refining the measurement instruments.

Another source of experimental error appears to be located in the hypothesis in that it is inexact and does not set definite limits for testing. It seems the confusion rests with the 'receptor of information' and 'generator of information" conceptual formulations. These

concepts need more specific definition in order to distinguish between the two terms clearly, and to locate persons in these states empirically. It was assumed for this study that persons in school were entirely receptors of information except for those in leadership positions. This assumption needs extension for example, to account for the possible influence of non-leaders (such as deviants) on others' behaviors.

It is also necessary to define more precisely the relationship between generator of information and source of influence. This might indicate the degree of importance of each to decision-making by self and/or others. Other points might then become relevant, such as whether it is necessary to distinguish between institutionalized and non-institutionalized or legitimate and non-legitimate sources of influence.

There is also need to be more specific about sanctioning of behavior - all possible effects of rewards and penalties per situation and across situations and also effects of penalties associated with alternatives closest to an orientation.

Perhaps it would be worthwhile to consider whether different channels from O_1 to B_2 differentiate themselves

regarding the behavior of G_2. Examination of the G_1 data suggests use of the present data for a descriptive study of theoretical channels of influence. The discussion of the travel and selection of alternatives was presented via a hypothetical example of smoking (p. 4). Parallel situations worth examining were indicated by the data. For instance, question #69 asks,

> "What major events in your life have caused changes in your style of life or level of living?"

and #25 asks,

> "When you stopped your schooling, what were the reasons?"

(see Appendix I). The G_1 data indicate the sample group was greatly affected by the economic conditions of a particular period (e.g. the depression). The behavior of G_1 since that time may not reflect G_1's orientations and G_2 may be exposed to both G_1's orientations and conflicting behaviors. Since the data have indicated what should be looked at, no testing is possible using these data but their use to examine the notion of conflict regarding channels might result in a worthwhile descriptive study.

Consideration of the notion that orientations never change and that changes in behavior may be shifts on the dimension as a result of more alternatives becoming available including alternatives closer to the orientation,

may also have value.

It appears that the best means for clarifying these and other problems would be to formalize the theoretical ideas. This formalization would have to make explicit the implicit assumptions used to construct the present hypothesis. In particular, it would be necessary to state the conditions for maintenance and modification of orientations, the conditions regarding direction of channels and the conditions about the change from receptor to generator states. It is hoped that new and useful hypotheses would result from the elaboration of the theoretical framework.

None of the issues in this critique have at present been elaborated to the point where further testing is possible. This discussion was intended to indicate the weaknesses found in the present study and to indicate how further avenues of exploration have been generated. The author intends to pursue several of these courses of investigation and remains excited by the numerous possibilities provoked by the present study in both the theoretical and measurement fields. Meanwhile, it is felt that the study has been of value in supporting the contention that measurements can be developed for general open-ended questions, thus resulting in a reduction of research costs by secondary analysis of data.

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APPENDIX I

ORIENTATION QUESTIONS - G_1

A number with (CARD) printed after it indicates that the interviewer was given that question both verbally and printed on a card.

A. abstract (from attitude questions)

78. If you asked yourself who you are, how would you describe yourself?

97. (CARD) Young people are said to be gathering in the Kitsilano area. They are often called "hippies". An increase in the number of these young people in that area is expected. What do you make of this situation? (PROBE FOR OPINIONS ON: DRESS: "BE-INs"; "LOVE-INS")

98. (CARD) A high school student in Vancouver wrote a poem criticizing one of his teachers. He was suspended from school. Several Simon Fraser University students went to an area near the school and protested this action by the school authorities. The police came. There followed much activity. What did you make of that situation?

99. (CARD) The United States is engaged in a war in Viet Nam. There have been various Canadian reactions to it and activities in Vancouver concerning it. What do you make of these activities? (PROBE FOR: OPINIONS ON DEMONSTRATIONS: PEOPLE AVOIDING THE DRAFT BY COMING TO CANADA; RELATIONS BETWEEN BIG AND LITTLE COUNTRIES: RELATIONS BETWEEN GOVERNMENTS AND PERSONS).

100. (CARD) On Halloween evening, 1966, many youngsters gathered in a North Vancouver shopping centre. Certain activities began which the police sought to control. What did you make of that situation?

101. (CARD) During the thalidomide crisis a woman from Arizona went to Sweden (under much publicity) to have a legal abortion. Abortion is illegal in Canada and the U.S.A. What did you make of that situation?

102. (CARD) The chief of police of Vancouver supported a brief requesting more powers for the police force to aid in solving crime. What did you make of that situation? (PROBE FOR: BUGGING: CENSORSHIP: POLICE POWER).

APPENDIX II

BEHAVIOR QUESTIONS - G_2

The first nine questions are reproduced from Stinchcombe's study except that the computer code numbers on the right hand side differ from Stinchcombe's. The last six questions are from the questions added to Stinchcombe's for the local urban study.

The code developed for the present study follows the questions.

Present-oriented behavior — Not present-oriented behavior

#15. Have you definitely decided whether or not to go to college or university?

Definitely decided to go..... _____ -1
Definitely decided not to go..... _____ -2
Not decided..... _____ -3
Don't know..... _____ -4

#16. (If you are not decided, or don't know, answer this question.) What do you think you probably will do, go to college or university or not?

Probably will go..... _____ -1
Probably will not go..... _____ -2
Don't know..... _____ -3

#18. If you could be any of these things you wanted, which would you most want to be? (Answer only if male.)

Jet pilot..... _____ -1
Nationally famous athlete..... _____ -2
Missionary..... _____ -3
Atomic Scientist..... _____ -4

#19. How many of your subjects this year would you say were pretty boring?

All boring..... _____ -1
Only one or two interesting..... _____ -2
About half and half..... _____ -3
Only one or two boring..... _____ -4
All interesting..... _____ -5
Varies too much to say..... _____ -6
Don't know..... _____ -7

Appendix II (cont'd)

#21. How much time, on the average, do you spend doing homework outside school?

None or almost none..... _____ -1
Less than ½ hour a day..... _____ -2
About ½ hour a day..... _____ -3
About 1 hour a day..... _____ -4
About 1-1½ hours a day..... _____ -5
About 2 hours a day..... _____ -6
3 or more hours a day..... _____ -7

#25. How important would you say your grades were to your own satisfaction?

Very important..... _____ -1
Quite important..... _____ -2
Somewhat important..... _____ -3
Not very important..... _____ -4
No importance at all..... _____ -5
Don't know..... _____ -6

#47. When a new clothing style comes out, how soon do you change to the new style?

1. I'm usually one of the first in my group to change..... _____ -1
2. I change about the same time that most other people in my group change..... _____ -2
3. I usually don't change until most of my friends have changed..... _____ -3
4. I don't follow the change at all..... _____ -4
5. Clothing styles don't matter to me..... _____ -5

Appendix II (cont'd)

#48-#52. Rank the five items below in terms of their importance to you on a job.
Rank all items from 1 (least important) to 5 (most important).

The security of steady work_____-57
The opportunity for a rapid rise_____-58
The enjoyment of the work itself_____-59
Friendly people to work with_____-60
A high income_____-61

#58. What age would you say was the earliest age at which a girl ought to consider getting married, supposing that she had been asked by a man she would like to marry?

Any time_____-1
She should be at least 16_____-2
At least 18_____-3
At least 20_____-4
At least 22_____-5
Over 22_____-6
No opinion_____-7

#4. Different people strive for different things. Here are some things that you have probably thought about. Among the things you strive for during your high school days, just how important is each of these? (Rank from 1 to 4, 1 = most important, 4 = least important).

Pleasing my parents_____-36
Learning as much as possible at school_____-37
Living up to my principles_____-38
Being accepted and liked by other students___

#5. Now rank the following four items in terms of their importance for you: (Rank from 1 to 4, 1 = most im= portant, 4 = least important).

Groups and activities outside school_____-39
Activities associated with school_____-40
Having a good time_____-41
A good reputation_____

#6. If school were not compulsory, and it were completely up to you, would you

Stay in school until graduation_____-1
Leave school before graduating_____-2
Don't know_____-3

#7. If you had a hundred dollars, and you were completely free to do with it whatever you wanted, what would you do with it?

Spend it all _____ -1
Spend most of it _____ -2
Save most of it _____ -3
Save it all _____ -4

#15. Among the items below, what does it take for a fellow in your grade to be popular and looked up to by the other fellows in your grade?
(Rank from 1 to 6; 1 is the most important, etc.)

Coming from the right family _____ -51
Leader in activities _____ -52
Having a nice car _____ -53
High grades _____ -54
Being an athletic star _____

#17. Among the items below, what does it take for a girl in your grade to be popular and looked up to by the other girls in your grade?
(Rank from 1 to 4; 1 is most important, etc.)

Coming from the right family _____ -59
Leader in activities _____ -60
High grades _____ -61
Poise, "being able to handle herself in different situations" _____ -62
Friendly, good personality _____ -63
Keeps up with new clothing styles _____

CODING FOR G_2 BEHAVIOR QUESTIONS

(number in box refers to dash and number following each alternative)

	Present-oriented Behavior				Not Present-oriented Behavior			
#15	2	3	4		1			
#16		2	3		1			
#18		1	2		3	4		
#19	1	2	6	7	3	4	5	
#21		1	2	3	4	5	6	7
#25		4	5	6	1	2	3	
#47		1			2	3	4	5
#48-#52		59	60	61		57	58	
#58	1	2	3	7		4	5	6
#4		37	38	*		36		
#5		39	40	41		*		
#6			2	3		1		
#7			1	2		3	4	
#15		52	53	*		51	54	
#17	60	62	63	*		59	61	

* no code number for space on questionnaire

APPENDIX III

RULES FOR CODING OPEN-ENDED QUESTIONS INTO 'ORIENTATION' CATEGORIES ON A TIME DIMENSION

(The unit to be coded (i.e., the reference) is each thought). This may necessitate reducing a sentence to phrases. In the case of lists, each item is to be considered a separate reference.

Present	Not-Present		No Response
	Traditional	Future	
ref. to:	ref. to:	ref. to:	
situational constraints	rules	change	
	norms	need for change	
conditions under which one operates	institutions	goals	
- the way things are	status quo (i.e. ref. to society's values)	way things should by (implying needed change from past or present to something else)	
specific persons - by name - through personal contact	way things should be - re in terms of past ways of doing things	aspirations	
specific places	(includes value judgments - implicit comparison)		
specific objects			
specific activities			
alternatives	persons - by position or role (i.e. place in society) (policeman)		
security notions - maintenance of the status quo (e.g. financial concerns			
	authority (the police)		
	knowing one's place		

APPENDIX IV

RULES FOR CODING OPEN-ENDED QUESTIONS INTO 'ORIENTATION' CATEGORIES ON A TIME DIMENSION (ORDERED)

	Present	Not-Present		No Response
		Traditional	Future	
1			aspirations goals consequences	
2		values -value judgements -implicit comparisons -rules -norms		
3		authority structure -indication of acceptance of authority str.		
4			-indication of non-acceptance of authority str. (i.e. that it must be changed - not just increase or decrease of powers -but revamped)	
5		persons: by position or role or their place in society		
6	alternatives			

.....

Appendix IV (cont'd)

	Present	Not Present		No Response
		Traditional	Future	
7			need for change - not in intensity but reorganization	
8	conditions under which one operates -the way things are (includes descriptive statements) -status quo and maintenance of the status quo (security notions e.g. financial, health)			
9		self: knowing one's place		
10	specific persons, places, objects, activities			