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A COMPARISON OF THE ATTITUDES OF AIR FORCE PERSONNEL
AND THE COMMUNITY AT LARGE TOWARD LOCAL BUSINESS
IN GREAT FALLS, MONTANA

By

Daniel J. O'Connor

B.A., Miami University, 1967

Presented in partial fulfillment of the requirements
for the degree of

Master of Business Administration

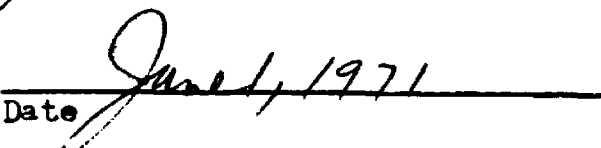
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CHAPTER I

INTRODUCTION

THE TITLE DEFINED

For the purposes of this study, "Air Force personnel" will be defined as members of the United States Air Force and the dependents of those members who are stationed at Malmstrom Air Force Base and who are living in the Great Falls, Montana, area. The "community at large" includes those individuals and the families of those individuals who are listed in the Great Falls, Montana, telephone directory and who do not fit the definition of "Air Force personnel."

Indeed, the latter definition is a bit restrictive in that it omits a substantial portion of the local population simply because they are not telephone subscribers or because they are telephone subscribers but have an unlisted telephone number. In Great Falls it has been estimated by local telephone company officials that the percentage of households owning at least one telephone is eighty-five percent and that the percentage of telephone subscribers having an unlisted number is five percent.¹

The justification for this omission lies in the fact that the telephone directory provided the most complete listing of

¹David Jacklin, private interview with the commercial representative of Mountain Bell Telephone Company, Great Falls, Montana, April, 1971.

local names and addresses for the survey that it was possible to acquire, considering the time and financial limitations on the project.

No evidence was discovered which would tend to indicate that the use of a broader definition for the "community at large" would have substantially altered the results of the project.

RESEARCH OBJECTIVES

The primary objective of this study was to test the hypothesis that Air Force personnel do not have the same attitudes toward local business as does the community at large. In addition, as a by-product of the survey process, it was hoped that specific problem areas confronting local business from the standpoint of the consumer would be identified in order that they might be dealt with by other researchers and interested parties in the future.

There are at least three good reasons for suspecting that the above hypothesis is true. First of all, many Air Force personnel have lived in more cosmopolitan areas of the country at one time or another. Consequently, they are likely to have seen business conducted in a highly proficient manner. Thus, they are more apt to be critical of the practices taking place in the relatively small and isolated community of Great Falls, Montana--more so than the more permanent resident without this base of exposure.

Secondly, Air Force personnel are likely to have different sociological profiles than members of the community at large. Differences in education level, income level, age, and so forth might well tend to be reflected in divergent attitudes between the two groups.

Thirdly, since Air Force personnel are generally considered to be transient they may expect and/or receive less favorable treatment by local merchants than is tendered the more permanent resident. To the extent that this type of situation was perceived by the customer, it would in turn tend to shape his attitude toward the business in question. Hence, this would be another plausible theory which could be tendered to explain differences in attitude between the two groups studied.

NEED FOR THE STUDY

Regardless of the conceivable reasons for any differences in the attitudes of the two groups toward local business, it is quite important that they be recognized if they do indeed exist. This would primarily serve three ends.

In the first place, Air Force personnel represent a very important potential dollar volume of sales to the local merchant. For that reason a wise businessman will want to recognize their different points of view, regardless of why they are held, so that he may cater to them as much as possible.

In 1969, for example, the base payroll for its military

personnel was \$40,516,200.² This does not include the additional income earned locally by the dependents of military personnel nor that earned by the members themselves during their off duty hours. Of course, it is intuitively obvious that the discretionary portion of this amount, which is no doubt substantial, is in part spent locally and in part saved for future use elsewhere. Furthermore, the attitudes which these personnel possess toward local business must play a large role in the extent to which each of these alternatives is followed.

The sheer number of people qualifying under the definition of Air Force personnel also serves as a reminder of their economic importance to the local community. It has been estimated that Malmstrom Air Force Base military personnel and their dependents total 20,600, which represents almost one-third of the people who shop in the Great Falls area.³

In addition many individuals who fit the definition of Air Force personnel are in a position to determine whether the Air Force itself purchases certain of its products locally instead of through national channels. Again, their attitudes toward local business would largely determine the extent to which each option is followed. In 1969, local base procurement

²Economic Impact 1968-69 (an unpublished study by the Management Analysis Branch of the Comptroller Division, Malmstrom Air Force Base, Montana), Great Falls, Montana, April, 1970, p.12.

³Joseph Caldwell, private interview with head of Management Analysis Branch of Comptroller Division, Malmstrom Air Force Base, Great Falls, Montana, April, 1971.

figures totaled \$13,032,800.⁴

To summarize this first point regarding the importance of this study, it can best be said "because attitudes exert a strong influence on behavior, attitude research offers a potentially useful device for explaining and predicting consumer behavior."⁵

In the second place, a better understanding of the disparities between the attitudes of the two groups would likely lead to better harmony between the Air Force and the community. Air Force personnel may find that in some respects they are expecting too much from this relatively small and isolated metropolis of the Northwest and become more reasonable in their demands, thus reducing at least a portion of any pre-existing tension between them. Or, in the alternative, if it is shown that there is no difference in attitudes between the two groups, a greater sense of unity may emerge.

Thirdly, Air Force personnel may have some legitimate objections to the way business is conducted in Great Falls that may not have occurred to most of the members of the other group. By virtue of their exposure to business elsewhere, Air Force personnel are in a good position to make ready observations by way of comparison that could lead to valuable corrective criticisms that may not have occurred to the businessman himself.

⁴Economic Impact, p.12.

⁵Udell, "Can Attitude Measurement Predict Consumer Behavior," Journal of Marketing, October, 1965, p.46.

This in turn would promote better service to everyone; hence, both the businessman and the customer would benefit.

SIMILAR STUDIES

To the author's knowledge, no comparison has ever been made of the attitudes of Air Force personnel with those of the local community in Great Falls, Montana, on any issue.

There has been at least one other study, however, in which military and civilian attitudes were compared. This was in a 1966 dissertation in which the attitudes of members of the General Staff at Fort Carson, Colorado, were compared with those of teachers and civilian parents on the subject of education. The chi-square statistical test was applied to the results, and "it was concluded that there was general agreement among the groups as to the purposes and goals of public education, indicating a common perspective and common educational expectations.⁶" As a matter of fact, "there was slightly more agreement between the school board and the military parents than existed between the board and the civilian population who elected it."⁷

There has also been a great deal of work presented in which the attitudes of two distinct groups have been compared. A particularly enlightening work along these lines was "A Comparison

⁶J.H. Holcomb, "Military, Civilian, and Teacher Attitudes Toward Education," Dissertation Abstracts, 1966, XXVII, 2321-A.

⁷Ibid., 2322-A.

of Japanese and American Attitudes Toward Foreign Products" by Akira Nagashima.⁸ He used the semantic differential scale to measure the varying attitudes between the two groups toward the qualities of U.S., Japanese, French, English, and German products. This was a quite similar approach to that used in the development of this paper.

Other similar studies include "A Comparison of the Attitudes of Parents and Elementary Teachers Toward Elementary School Problems" by Dorothy L. Bladt, "The Measurement of School Personnel Attitudes with the Semantic Differential" by Donald H. Wykoff, and a "Comparison of the Attitudes of Outstanding College Teachers and a Non-Selected Group Toward Four Psychological Variables" by Barbara J. Andrew.⁹

The primary impact of these studies on my research lies in the demonstrated use of the semantic differential scale for attitude measurement and in the chi-square technique for analyzing the results.

Though these studies lend a great deal of implication as to how this study should be conducted, they in no way hint as to the

⁸Nagashima, "A Comparison of Japanese and U.S. Attitudes Toward Foreign Products," Journal of Marketing, January, 1970, p.68.

⁹D.L. Bladt, "A Comparison of the Attitudes of Parents and Elementary Teachers Toward Elementary School Problems," Dissertation Abstracts, 1969, XXIX, 2429-A; D.H. Wykoff, "The Measurement of School Personnel Attitudes with the Semantic Differential," Dissertation Abstracts, 1967, XXVIII, 3473-A; B.J. Andrew, "Comparison of the Attitudes of Outstanding College Teachers and a Non-Selected Group Toward Four Psychological Variables," Dissertation Abstracts International, XXI, 2122-A.

anticipated results. As a matter of fact, comparing military and civilian attitudes on any subject seems to be a rather novel undertaking at present, as are any group attitude comparisons on other than the subject of education. Hence, this project would appear to be quite original in subject matter if not in design.

CHAPTER II

DEVELOPMENT OF THE QUESTIONNAIRE

ALTERNATIVE METHODS OF ATTITUDE MEASUREMENT

Before commencing an analysis of the various methods for attitude measurement, it would be well to define that which we are seeking to measure. This author finds Louis L. Thurstone's impression of the meaning of the word "attitude" and the related concept of "opinion" to be quite acceptable. He stated in the American Journal of Sociology that:

The concept "attitude" will be used here to denote the sum total of a man's inclinations and feelings, prejudice or bias, preconceived notions, ideas, fears, threats, and convictions about any specified topic. Thus a man's attitude about pacifism means here all that he feels and thinks about peace and war. It is admittedly a subjective and personal affair.

The concept "opinion" will here mean a verbal expression of attitude.¹

With this definition in mind, one is now prepared for an evaluation of the various techniques for attitude measurement.

The Guttman Scale

"The basic notion of the Guttman or cumulative scale is that an internal relationship exists among the items forming the scale such that a person who endorses or agrees with an

¹L.L. Thurstone, "Attitudes Can Be Measured," Attitude Measurement, ed. by Gene F. Summers (Chicago: Rand McNally and Company, 1970), p.128.

item of a given scale position will endorse all items below it in the scale.²

Thus, the researcher has compiled a series of questions in advance and has attempted to arrange them in an order such that the point at which the respondent's replies shift from "agree" to "undecided" to "disagree" serves as a scalar indication of his opinion's intensity and direction on a particular issue.³

The technique can therefore be termed unidimensional in that it measures only a single variable.

The Guttman scale was not selected for this research project due to both the complexity of its application and its lack of proven internal consistency on attempts to reproduce its results.⁴

The Thurstone Scale

"The Thurstone method grew out of the efforts of psychophysicists of the late nineteenth and early twentieth centuries to relate psychological judgments to physical continua, using the method of paired comparisons.⁵"

Thurstone, himself, best explains the technique:

²Louis E. Dotson and Gene F. Summers, "Elaboration of Guttman Scaling Techniques," ibid., p. 204.

³Louis Guttman, "The Cornell Technique for Scale and Intensity Analysis," ibid., p.202.

⁴Dotson and Summers, "Elaboration of Guttman," ibid., p.207.

⁵Lauren H. Seiler and Richard L. Hough, "Empirical Comparisons of the Thurstone and Likert Techniques," ibid., p.159.

The only way in which we can identify the different attitudes (points on the base line) is to use a set of opinions as landmarks, as it were, for the different parts or steps of the scale. The final scale will then consist of a series of statements of opinion, each of which is allocated to a particular point on the base line. If we start with enough statements, we may be able to select a list of twenty or thirty evenly graduated series of attitudes. The separation between successive statements of opinion would then be uniform, but the scale can be constructed with a series of opinions allocated on the base line even though their base line separations are not uniform. For the purpose of drawing frequency distributions it will be convenient, however, to have the statements so chosen that the steps between them are uniform throughout the whole range of the scale.⁶

Due to the time consuming task of compiling a reliable Thurstone scale and the fact that it is probably no more reliable than the results obtained from other more simple techniques, it was not used in this study.

The Likert Scale

Leonard W. Ferguson of the University of Connecticut, Department of Psychology quite succinctly defines the Likert scale for attitude measurement. In doing so, he also contrasts it with the Thurstone scale and further develops the shortcomings of the latter technique.

He makes the following statement in the Journal of Social Psychology:

In 1929 Thurstone and Chave presented a method involving the equal appearing interval procedure for scaling items in an attitude scale. As they outline the method, a rather large number of judges are required to sort statements into piles of equal appearing intervals along the continuum being investigated.

Attempting to shorten this apparently laborious procedure, Likert in 1932 presented a technique which according to him

⁶Thurstone, "Attitudes Can Be Measured," ibid., p.133.

did away with the need for a judging group. His procedure is to extract from the responses of a group of subjects indicating their own attitudes the sigma values to be assigned each response. A simpler method of assigning arbitrary values, 1,2,3,4,5 to the degrees of agreement and disagreement with each statement has also been suggested. This latter method is the more practical since total scores secured on such a basis correlate +.99 with those secured upon the basis of the sigma scoring technique.⁷

Despite the tremendous appeal of this particular technique to the author, it was not selected for the study because of the difficulty in selecting questions in equal proportion on both sides of the issue so as to not bias the questionnaire itself.

The Semantic Differential Scale

"The technique involves the judgment of a concept or concepts on a series of evaluative scales. Each of the scales is defined by a pair of polar adjectives on a seven-point continuum similar to this: good ___:___:___:___:___:___:___ bad
Progressing from left to right on the scale, the positions are described to the subjects as representing 'very good,' 'quite good,' 'slightly good,' 'neither good nor bad,' or 'equally good and bad,' 'slightly bad,' 'quite bad,' and 'very bad'.⁸

Due to the ease of application of this particular technique both from the standpoint of the required survey and the statistical point of view, it was thought to be desirable for use in this study.

⁷Ferguson, "A Study of the Likert Technique of Attitude Scale Construction," The Journal of Social Psychology, 1941, 13, 51-57.

⁸Mindak, "A New Technique for Measuring Advertising Effectiveness," Journal of Marketing, 1956, 368.

Mindak points out that "it would appear the mean judgments on the semantic differential were extremely reliable.⁹" This conclusion was based on extensive tests designed to check the methods reliability in assessing the Evaluative, Potency, and Activity dimensions of attitude.

It was soon realized, however, that due to the difficulty in explaining the use of the scale to the respondents of a mail panel survey some modified version of the technique would have to be devised.

A Modified Semantic Differential Scale

Instead of charging the respondent with the task of summarily indicating in which of seven equally spaced niches between two extremes his attitude was to be found, the same scale was used but with each nitch labeled. Hence, a typical series of answers to a survey question would appear as follows:

- A. Extremely good
- B. Quite good
- C. Fairly good
- D. Neutral
- E. Moderately bad
- F. Quite bad
- G. Extremely bad

The labels for these niches were carefully selected from an index of the semantic properties of selected adjectives prepared by Joseph A. DeBell of the University of Southern

⁹Ibid., 374.

California.¹⁰ He painstakingly made an ordered list (from most favorable to least favorable connotation) of adjectives commonly used in marketing surveys. He also assigned a point value to each of these adjectives according to the psychological impact which each had on a typical respondent. In addition he included in his index the standard deviation to be expected from these point values as an indication of their relative reliability. Hence, the adjectives chosen for the questionnaire were selected as a best estimate of markers for equal intervals along a continuum of possible attitudes.

One of the significant contributions of DeBell's study in devising the index was a recognition of the fact that such terms as "fairly good" and "fairly bad" do not lie equidistant from the neutral point in connotative psychological value as might commonly be expected.¹¹

It is only fair to mention, however, that there are at least two shortcomings concerning the index. First of all, it was based on the psychological impact that the adjectives considered had on housewives, businessmen, and students (i.e., not the public in general) in the Los Angeles area. Secondly, because of the time and expense involved in DeBell's study, he took more elaborate steps to ensure the accuracy of the data from the group

¹⁰James H. Myers and W. Gregory Warner, "Semantic Properties of Selected Evaluation Adjectives," Journal of Marketing Research, November, 1968, 411.

¹¹Ibid.

of housewives than from the other groups.¹² Thus, the adjectives used for this study were selected from the housewife data. This should not distort the survey results, however, for two reasons. Mail panel surveys, such as the one used in this study, are usually answered primarily by housewives anyway.¹³ In addition, the answers appeared alternately in ascending or descending order of connotation, which should have had an educational effect on the respondent as to their intended relative meanings.

One of the significant advantages of using this modified technique over the typical bi-polar, single-word version of the semantic differential lies in the fact that the use of a two-word description of a niche on the scale of attitudes gives the adverb member a multiplier effect, thus improving the precision of the connotation expressed. Norman Cliff of Princeton University did a study on this premise and concluded that it was eminently more helpful in gleaning the opinions of a respondent to supply him with a selection of adverbs to use in conjunction with the single-word adjectives in expressing his attitudes toward various issues, rather than simply to ask the respondent to assign a numerical value (or in the case of the classic semantic differential to pick a space) to a phenomenon's degree of "goodness" or "badness."

¹²Ibid., 410.

¹³O'Dell, "Personal Interviews or Mail Panels," Journal of Marketing, October, 1962, 35.

Unfortunately, there is also one major disadvantage to using this modified version of the semantic differential. Mindak recognizes this when he says:

Other researchers have even experimented with the differential in mail questionnaires, although this means obviates most of the projective qualities of this test. Respondents have too much time to deliberate over their judgments and have too much control over their ratings. Personal supervision is necessary to assure speed and "top of the mind" responses.¹⁴

Nonetheless, on the whole, this modified semantic differential was finally selected as the scale to be used in this study. Given that a mail panel survey was dictated by circumstances which will be discussed later, it still appeared to be the most appropriate scaling device available.

INITIAL OPEN-END SURVEY

In order to ascertain the qualities of local business which were most significant to the typical resident, whether he be military or civilian, an open-end survey was distributed to members of each group during the month of February, 1971. Variations of the same basic question were phrased in a slightly different manner in the form of nine sentence completion exercises and two discussion questions. That basic question was: "As a customer what do you expect most from a local business?"

The somewhat tenuous assumption was made that the elements of business practice most often referred to by respondents were

¹⁴Mindak, "Fitting the Semantic Differential to the Marketing Problem," Journal of Marketing, April, 1961, 30.

also the most important qualities to him or at least that they were the ones about which he was most sensitive. Justification for the fact that more laborious and precise means were not used for a determination of these elements lies in the fact that their precise determination was not essential to the outcome of the project. For example, it was believed that if the attitudes of the two groups under study varied significantly on the eight or ten attributes of business which were most important to them, it would be quite likely that their attitudes would show a quite similar divergence on the next eight or ten also.

The number of questionnaires in which various key-words or phrases were used was thus tabulated, and the results of that tabulation appear in Table 1.

TABLE 1

NUMBER OF QUESTIONNAIRES ON WHICH THE
FOLLOWING KEY-WORDS WERE USED

Key-Words	Total Questionnaires on Which Mentioned (n=40)	Air Force Questionnaires on Which Mentioned (n=20)	Community Questionnaires on Which Mentioned (n=20)
1. Prices	30	15	15
2. Selection	28	16	12
3. Quality	22	8	14
4. Courtesy	21	13	8
5. Service	21	11	10

TABLE 1--Continued

Key-Words	Total Questionnaires on Which Mentioned (n=40)	Air Force Questionnaires on Which Mentioned (n=20)	Community Questionnaires on Which Mentioned (n=20)
6. Friendliness	20	8	12
7. Accessibility	16	5	11
8. Honesty	11	7	4
9. Pushy	9	3	6
10. Helpfulness	9	7	2
11. Product Knowledge	9	6	3
12. Clean	7	2	5
13. Uncrowded	5	3	2

Source: Initial open-end survey of military and civilian residents of Great Falls, Montana, February, 1971.

The method of sample selection may also be of interest to the reader. Again in view of the fact that extreme accuracy in determining which elements of business practice were most important to the typical customer was not considered essential to the outcome of the study and because an appreciation of these elements may not vary a great deal from one individual to another anyway, a non-random method of sample selection was used.

A conveniently located four block area was selected and fifty questionnaires were distributed to members of the community at large. Twenty of these were promptly returned and served to provide one-half of the results listed in Table 1.

Fifty questionnaires were also distributed to Air Force officers, who were also graduate students of the University of Montana. It was found, however, that an additional fifteen questionnaires had to be passed out to gain the necessary response of twenty needed to give equal weight to their responses with those of the members of the other group. Admittedly, the exclusive use of officers tended to detract from the representativeness of this sample. However, the moderate degree of accuracy required along with the ease of gathering the results served to mollify this disadvantage.

This, then, served as the basis upon which the qualities of local business about which attitudes were to be tested was determined.

THE PILOT STUDY

The next step in the development of the questionnaire was to conduct a pilot survey. This was done to discover any changes which might be required in the format of the questionnaire, as well as to test the lines of communication to be used. To facilitate these objectives, an extra question was included at the end which asked the respondent to indicate what improvements or corrections might be made to the questionnaire. (See Appendix II.)

Fifty of these questionnaires were then mailed to members of the U.S. Air Force, selected in a semi-random manner from the base personnel roster. Fifty questionnaires were also mailed to

members of the community at large. As in the case of all surveys connected with this study, a self-addressed, stamped envelope was provided. Roughly one-third of the pilot study questionnaires were returned.

Significant information which proved helpful in the final survey included the following. It was found that military members who were not listed in the telephone directory and therefore had no ascertainable address (since the author was denied access to the base locator files) could be reached simply by addressing them "Malmstrom Air Force Base, Montana 59409" preceded, of course, by the individual's name.

Several respondents commented that the question which asked for an opinion of the availability of "parking facilities" was not broad enough to cover enough of the problems encountered in traveling to a local business establishment; therefore, the final survey instead asked about the entire problem of "accessibility."

Another change which was brought about by the pilot was a correction of the simple mistake that asked military members for their rank and then listed "Airman Second Class" as an alternative. The author was informed that this rank has not been in existence since 1957.

One other change was made for the final questionnaire at the advice of Dr. Connole of the University of Montana, Department of Business Administration. For the final questionnaire pica type was used, rather than elite, to improve the readability of the

survey device.

One other legitimate criticism was offered, but for reasons listed below, it was not acted upon. It was said by many respondents that the questions were too general in nature. They appeared quite eager to indict certain businesses or even certain categories of business, but when confronted with the need for a generalization of opinion about all local business, they were forced to neutralize their responses. The reason that their advice was not followed is based on the fact that the very purpose of this project was to look for generalized views about local business as a whole and to compare them. To break this project into specifics and then to rebuild it into generalizations would have been a cumbersome and needless task.

THE FINAL QUESTIONNAIRE

Although the survey instrument itself appears in Appendix III, its following features should be noted. It consists of twenty-two questions. The first ten of these address themselves to the various qualities of business which were determined to be important by the open-end survey described earlier. An eleventh question was added which was intended to be used as a catch-all and asked for an evaluation of all qualities of local business simultaneously. It was upon these first eleven questions that the statistical analysis was performed and the results of the study are based.

The next nine questions are either classification or

qualification questions. The classification questions were asked because of the ease with which the data could be acquired and because of its potential value in explaining the results.

A respondent could be disqualified for three reasons. If he had lived in the Great Falls area for a period of less than six months, it was felt that he would not likely have yet formulated legitimate generalizations about business as a whole. A respondent who indicated that someone in his household owned or managed a local business was disqualified in view of possible prejudice which he might add to the sample. Finally, if it was found that a questionnaire directed to a member of the community at large was answered by a member of the Air Force, or vice-versa, it was disqualified to maintain the integrity of the two populations.

Question number twenty-one asked members of each group how they felt that they were being treated by local merchants relative to the way that members of the other group were being treated. This question was included to substantiate in part or to refute the theory previously introduced that because Air Force personnel are transient they are likely to be treated less favorably than members of the community at large and that at least a suspicion of this is reflected in their attitudes.

The final question was open-end in nature and sought general ideas for the improvement of local business practices and facilities. This was done in order that the study might have a constructive, rather than critical, tone.

Two other elements of the questionnaire that are worthy of note are the facts that the answers to the evaluative questions were systematically rotated (from most favorable to most unfavorable reply) from question to question and from questionnaire to questionnaire and that a different page number four was attached to a questionnaire depending on whether it was directed to a member of the community at large or a member of the Air Force. This was done to increase the value of the information, since it was known in advance with a high degree of reliability by which group the questionnaire would be received.

It may also be noted that a brief cover letter was included in the package. It introduced the student, gave a brief idea as to the purpose of the survey, and included a short list of instructions for completing and returning the questionnaire. (See Appendix III.)

CHAPTER III

THE SAMPLING TECHNIQUE AND THE SAMPLE

ALTERNATIVE TECHNIQUES

It may be said at the outset that the basis upon which the decision to use particular survey techniques as opposed to others was made hinged more upon the constraints involved than upon the relative merits of each.

The Personal Interview

When using the semantic differential in its pristine form, there is no better survey device than the personal interview. Mindak points out that the presence of an interviewer serves not only to educate the respondent in the use of the differential, but also as a check against the respondent deliberating too much over his answers. The use of the personal interview for this study was impossible, however, due to the limited resources of the author.

The Telephone Survey

The attributes of the telephone interview are summed up well in the following passage from Marketing Research by Ferber, Blankertz, and Hollander:

Where telephone interviews are applicable, they are likely to be the most efficient method of direct data collection. This is because the population is given virtually by

definition, so that the sample selection is generally a routine affair. Also, the interviews are the least expensive of all, except if many long-distance calls are to be made. Even then, however, surveys of select populations, such as top business executives, may be carried out economically in this way.

A third principal advantage is that the data are quickly obtainable, certainly more quickly than by either personal interview or by mail questionnaire. Finally, various sources of sample bias are more easily controlled. Thus, innumerable callbacks can be made with a minimum of additional expense.¹

Despite all of these unquestionable advantages, the telephone interview was not used in this particular study, except as a follow-up device for non-respondents. Several of the peculiar aspects of this study, along with a few of the inherent limitations of the telephone interview appeared to rule it out.

Explaining the use of the semantic differential over the telephone would be nearly impossible. Therefore, the modified version would have had to be used anyway, and its adaptation to telephone use is not without its drawbacks.

Many of the Air Force personnel are lower ranking and unmarried Airmen who live in the barracks. Due to stringent Air Force policy on the release of information of this type, finding out in which barracks an individual resided would be an extremely difficult task; then, even if that were known, reaching the individual by phone could be an almost insurmountable task since the vast majority of these individuals do not own their own phones, and the desk phones often ring unanswered for extended

¹Robert Ferber, Donald F. Blankertz, and Sidney Hollander, Jr., Marketing Research (New York: The Ronald Press Company, 1964), p. 243.

periods of time. Fortunately, these persons are much easier to contact by mail.

Another drawback of the telephone survey relative to a mail panel lies in the fact that it demands more of the interviewers time than does the printing and mailing of questionnaires.

In addition, although not essential to the outcome of the project, is the fact that several of the classification questions could be embarrassing to the respondents when asked verbally, whereas they would not as likely be so under the more impersonal nature of the mail panel. Questions which would fall into this category would be such items as: "How much gross income did, or will, your household report on its 1970 income tax return(s)?" For this reason, that particular question was omitted from the telephone follow-up.

Another consideration upon which the decision not to use the telephone interview for the primary survey was based was the fact that it is much more susceptible to the introduction of interviewer bias than the mail panel.

The Mail Panel

Many of the reasons for the selection of the mail panel as the primary instrument for data collection in this study have already been mentioned by way of contrast with the telephone interview. However, there are a series of disadvantages to the use of the device which should be mentioned. Again, quoting Marketing Research, mail panel surveys have the following

defects:

1. Time consuming.
2. Danger of sample bias: returns may not be representative of the population.
3. Questionnaire must be relatively short.
4. Questions must be simple and easily answered. Open-end questions not very effective.
5. No assurance that the person addressed is the one who replies.
6. Certain segments of the population excluded, such as illiterates.
7. Follow-ups necessary to interpret omissions and detect non-response bias.
8. Replies conforming to a predesignated question sequence cannot be assured.²

Nonetheless, it was felt that the aforementioned advantages of the mail panel, along with the following, more than offset the disadvantages:

1. Economical, though sometimes nullified by very low rates of response.
2. Wide geographic distribution, if this is desirable.
3. Elimination of interviewer bias.
4. Possible greater frankness of response on questions that might prove embarrassing in a personal interview.
5. Certain segments of the population, such as higher income groups are more easily contacted.³

Of course, there are certain features and gimmicks which can be used to improve the effectiveness of a mail questionnaire.

These are as follows and were adhered to as much as possible:

1. A brief covering letter should be enclosed explaining clearly and in simple language the purpose of the survey, why the individual is being asked to cooperate, and why it is important for him to return the questionnaire.
2. The questionnaire itself should be clear and simply worded.
3. The layout of the questionnaire should be simple and attractive.
4. As a rule, a deadline date should be provided on the questionnaire or in the covering letter.

²Ibid., p.254. ³Ibid., p. 253.

5. Arrangements should be made for follow-up of non-respondents. A general practice is to mail follow-up letters, with additional copies of the questionnaire, two to three weeks after the first mailing. The hard core of non-respondents is then subsampled either by telephone or by personal interview to secure some basis for adjusting the replies of the respondents for possible differences.

6. Various "gimmicks" have been found useful over the years in increasing responses to mail questionnaires. Thus, stamps, rather than metered postage is preferred. . . .⁴

Another gimmick used was the printing of the questionnaires on colored, rather than white, paper.

Thus, in spite of its obvious limitations, the mail panel technique was selected for use in this survey, since it appeared to be the best adaptable to the circumstances surrounding this particular study.

METHOD OF SAMPLE SELECTION

In contrast with the definition of the members of the "community at large," the population from which the sample of "Air Force personnel" was drawn was quite current and complete. The author was permitted access to the base personnel roster which contained extremely accurate and timely information as to the enrollment of military personnel on Malmstrom Air Force Base.

The roster consisted of 102 pages with 41 names to a page. In order to achieve absolute randomness of selection, the following technique was used to select the sample. A random number from 1 to 102 was selected from a table of random

⁴Ibid., p.254.

numbers⁵ and was paired with a number similarly selected between 1 and 41. These numbers obviously corresponded with a name on the roster. If the roster indicated that the individual was currently residing in the Great Falls area (i.e., not on temporary duty elsewhere, enroute to Malmstrom to commence an initial assignment, or a member of the radar detachment at Billings), he was selected as part of the sample.

An identical technique was used for selection of a sample of civilian counterparts based upon the pages, columns, and lines in the telephone directory--except that the basis for disqualification from that sample was the appearance of a military rank along with the individual's name, or the appearance of the name of a business rather than that of an individual in the space selected.

For either group, the consequence of the selection of a non-qualifying respondent resulted in the selection of the next random number, and the process was repeated. In addition, certain respondents were disqualified after the receipt of their completed questionnaires as was explained earlier in this report.

THE SAMPLE SIZE

In order to ensure a conclusive trend in returns, it was determined that the number of questionnaires to be mailed to each group would be 250. This enabled a mail follow-up of all

⁵C.R.C. Standard Mathematical Tables, ed. by Robert C. Weast, Twelfth Edition (Cleveland: The Chemical Rubber Publishing Company, 1964), p.237.

first-round non-respondents. At the same time, it was also decided--somewhat arbitrarily, somewhat intuitively--that in any case the number of qualifying respondents for each group would not be permitted to total less than 100.

THE FIRST MAILING

In the first wave, a total of 375 questionnaires were entered as Third Class Mail at the Great Falls, Montana, post office and 125 questionnaires (which would ultimately have to be forwarded by Malmstrom Air Force Base locator personnel) were entered as First Class Mail. Only twelve of this latter group were returned to the sender for lack of a forwarding address. These were ignored due to their small number and because of the trend in responses, which became conclusive soon after the first mailing.

After two weeks, 175 of these questionnaires had been returned or otherwise accounted for. Unfortunately, a few of the questionnaires, i.e. four, were returned blank and interpreted as "refusals." By this time a definite tapering off of the returns had been noted, and the next step in the survey process was commenced.

FOLLOW-UP OF NON-RESPONDENTS

Two weeks after the "first mailing" a follow-up survey was mailed to all non-respondents. A few minor changes were initiated at this time--both in the process and in the questionnaire itself.

The second group were all mailed First Class. Although this meant a one-third increase in postage rates for those surveys affected, it was hoped that this would pay for itself in increased returns. It did in fact, since at the end of a two week period after this mailing, 80 of the additional 334 questionnaires had been completed and returned. In addition 10 from the community at large were returned to sender for "moved, left no forwarding address." This latter courtesy, of course, is not extended under Third Class Mail.

Another change in tactics was the fact that the follow-ups were mailed at a time which would ensure Monday delivery, whereas the first group may well have been delivered on a Friday or Saturday. It was thought that this alteration in delivery schedule might well induce those with a different activity pattern to answer.

A new cover letter was devised for this second mailing. It made allusion to the fact that the receiver had been identified as a non-respondent and further prodded him to reply. It was felt that the additional pressure to answer thus applied more than offset the harmful effects which may have been caused by raising suspicion as to the veracity of the anonymity guarantee.

The only other change in the follow-up over the "first mailing" was the fact that the follow-ups were coded rather than numbered as were the original questionnaires. No major problem had appeared to occur as a result of the numbering. However, a

few of the respondents, i.e. six, had torn the numbers off their questionnaires, thus making them unidentifiable and causing unnecessary follow-up activity. Due to the relative ease of coding the surveys, it appeared to be worth the effort to implement this measure for the second phase.

The questionnaires were coded by creasing various combinations of the corners, and by alternating the staple positions from questionnaire to questionnaire. Unfortunately, after completing this operation, the author was informed that one could number them with lemon juice and then see the number by steaming the questionnaires upon their return. This would have been a much simpler process. There was, however, no problem in identifying the returned questionnaires--coded as they were.

SECOND FOLLOW-UP OF HARD CORE NON-RESPONDENTS

Two weeks after the second mailing, a telephone survey of a sample of "hard core" non-respondents was conducted. It was decided in advance that enough individuals would be called so that the telephone response would be thirty from each group. This number was selected since it is a traditional break-off point between a small and a large sample.

Actually, the biggest difference between the telephone survey and the mail panel was in the rate of response. Of sixty-seven individuals contacted by telephone only seven, or slightly over ten percent, refused to cooperate.

At first, a pure form of the semantic differential was tried

CHAPTER IV

STATISTICAL ANALYSIS

MEAN SCORES

The first phase of the statistical process was to compute the mean scores for each group based upon the objective questions which pertained to business practices and/or facilities (i.e., the first eleven). The results of that effort appear in Table 2.

TABLE 2

MEAN SCORES

Quality	Community at Large n	Air Force Personnel n ¹	Community at Large mean	Air Force Personnel mean
1. Prices	119	139	2.26	2.65
2. Selection	121	140	4.93	4.52
3. Courtesy	120	140	5.05	5.09
4. Service	116	137	4.82	4.69
5. Accessibility	116	135	4.12	4.44
6. Friendliness	120	140	5.12	5.13
7. Honesty	117	131	5.10	4.95
8. Pushiness	116	135	4.29	4.77
9. Helpfulness	119	138	5.01	4.95

TABLE 2--Continued

MEAN SCORES

Quality	Community at Large n	Air Force Personnel n ¹	Community at Large mean	Air Force Personnel mean
10. Quality of Goods	120	137	4.25	4.95
11. Overall Evaluation	121	140	4.97	4.65

Source: Personal survey conducted in Great Falls, Montana, in the Spring of 1971.

As the reader will hopefully recall, the mean judgments on the semantic differential are highly reliable.²

GROUP PROFILES

The next step in the statistical evaluation was to plot "group profiles" for the data in Table 2. That was the extent of the statistical analysis in the study by Akira Nagashima, which was referred to earlier in this paper.³

It should be mentioned at the outset that the lines on Figure I are not intended to suggest a continuum of attitude range; the points are indeed discrete. Their purpose, and the

¹The reader may wonder why "n" is not the same in all cases for each group. The reason is because a "no opinion" response to a specific question did not eliminate the questionnaire, but, of course, could not be counted for the purposes of averaging.

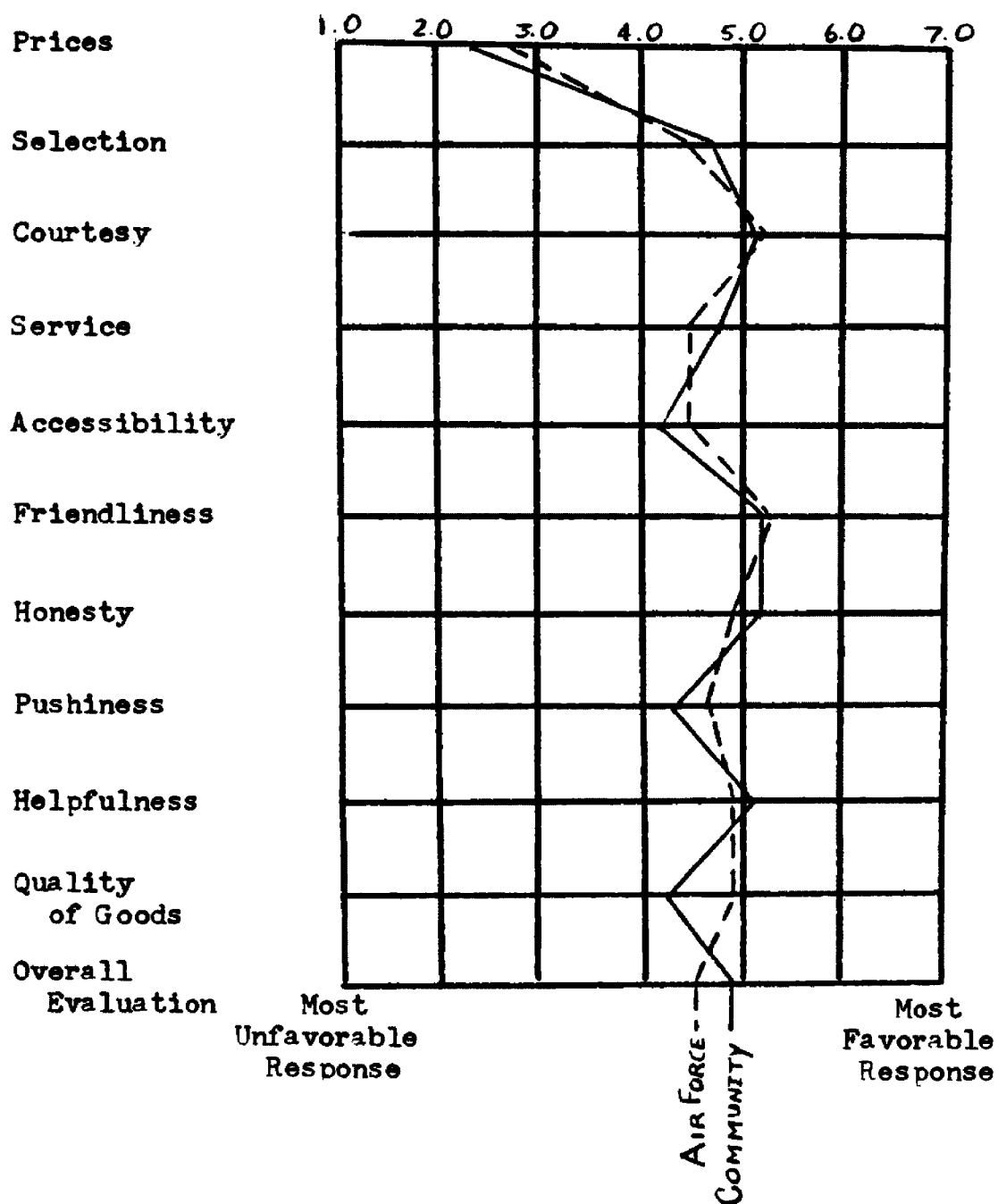
²Mindak, "A New Technique," p. 374.

³Nagashima, "A Comparison," p. 68.

purpose of the profile, is to give the researcher a ready visual observation of the relative positions of the attitudes of the two groups.

FIGURE I

GROUP PROFILES
AIR FORCE PERSONNEL vs. COMMUNITY AT LARGE



CHI-SQUARE TEST OF HYPOTHESIS

Although the results of the study may now appear obvious from the "group profiles," they do not become conclusive until tested mathematically. An appropriate way to do this would be with the chi-square test.

Perhaps a brief description of this statistical technique would be in order before its implementation. Neter and Wasserman handle this task quite succinctly in their text entitled Fundamental Statistics for Business and Economics. They sum up the significance of the tool by saying: "Statistical theory indicates that if the simple random sample size is large [i.e., greater than or equal to thirty], the distribution of the test statistic . . . is approximately a χ^2 (read: chi-square) distribution⁴ⁿ"

They go on to elaborate upon the nature of the technique in the following passage:

Chi-square probability distributions are a family of distributions that are continuous, unimodal, and skewed to the right. A chi-square random variable can take on any value between zero and plus infinity. The chi-square distribution has one parameter, called degrees of freedom, which we will denote by the Greek delta δ . The mean of any chi-square distribution is equal to the degrees of freedom Note that as δ increases, the distributions move to the right, and the skewness becomes less marked.

As with other continuous probability distributions, the area under a chi-square distribution indicates probability. . . . there is a different chi-square distribution for each value of δ⁵

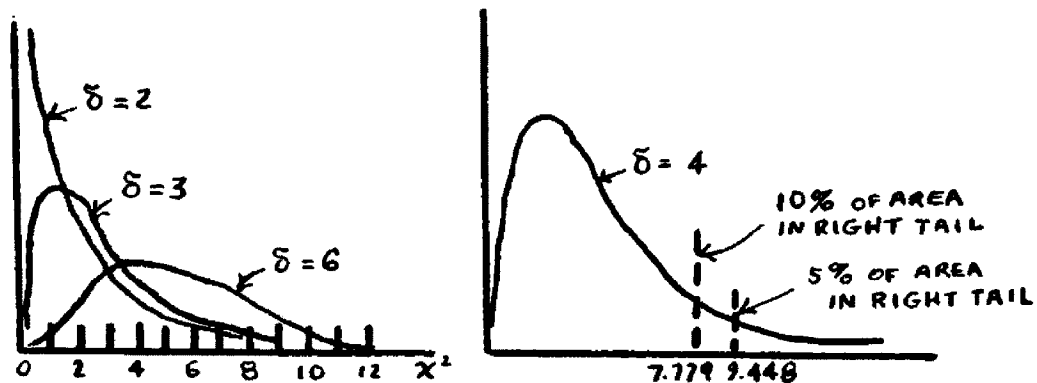
⁴John Neter and William Wasserman, Fundamental Statistics for Business and Economics, Third Edition (Boston: Allyn and Bacon, Inc., 1966), p.476.

⁵Ibid.

Perhaps the verbiage in the preceding passage can best be understood with the help of a few sample illustrations of chi-square curves. Several of these appear in Figure II.

FIGURE II⁶

SAMPLE CHI-SQUARE DISTRIBUTIONS



With this grasp of the chi-square distribution, it is now time to introduce the formula which was used to analyze the data gained in this study. That formula is

$$\chi^2 = \sum \frac{(o-e)^2}{e}, \text{ where } o = \text{observed trait} = \text{mean of}$$

attitudes of the community at large, and e = expected trait = mean of attitudes of Air Force personnel.⁷

The data was analyzed with ten degrees of freedom (i.e., $\delta = 10$). This was determined by solving the equation "n-1," where "n" is the number of paired variates being compared. The

⁶Ibid.

⁷Frederick E. Croxton, Dufley J. Cowden, and Sidney Klein, Applied General Statistics, Third Edition (Englewood Cliffs, N.J.: Prentice-Hall, Inc., 1967), p.586.

reader will recall that there were eleven questions upon which the results of this study were based.

To make it easier for the reader to follow the computations involved in reaching the ultimate conclusion for this study, they were all placed in tabular form and appear in Table 3.

TABLE 3

CHI-SQUARE TEST OF HYPOTHESIS

(o)	(e)	(o-e)	(o-e) ²	$\frac{(o-e)^2}{e}$
2.26	2.65	-.39	.1521	.057
4.93	4.52	+.41	.1681	.037
5.05	5.09	-.04	.0016	.000
4.82	4.69	+.13	.0169	.004
4.12	4.44	-.32	.1024	.024
5.12	5.13	-.01	.0001	.000
5.10	4.95	+.15	.0225	.005
4.29	4.77	-.48	.2304	.048
5.01	4.95	+.06	.0036	.001
4.25	4.95	-.70	.4900	.099
4.97	4.65	+.32	.1024	.022

Source: Personal survey conducted in Great Falls, Montana in the Spring of 1971. $\sum \frac{(o-e)^2}{e} = .297$

$$\chi^2_{.05} = 18.307^8$$

⁸C.R.C., p.252.

TABLE 4

CHI-SQUARE TEST FOR NON-RESPONSE BIAS
IN THE SAMPLE OF THE COMMUNITY AT LARGE

(o)	(e) ⁹	(o-e)	(o-e) ²	$\frac{(o-e)^2}{e}$
2.39	2.22	+ .17	.0289	.057
5.15	4.91	+ .24	.0576	.012
5.17	5.02	+ .15	.0225	.004
4.52	4.90	- .38	.1444	.029
5.30	4.03	+1.27	1.6129	.410
4.85	5.16	- .31	.0961	.019
4.97	5.12	- .15	.0225	.004
3.87	4.34	- .47	.2209	.051
5.26	4.94	+ .32	.1024	.021
4.74	4.18	+ .56	.3136	.075
4.81	5.04	- .23	.0529	.011

Source: Personal survey conducted in Great Falls, Montana, in the Spring of 1971.

$$\sum \frac{(o-e)^2}{e} = .649$$

$$\chi^2_{.05} = 18.307$$

The null hypothesis in this instance is that telephone respondents had the same attitudes toward local business as did mail panel respondents selected from the community at large. Since $\sum \frac{(o-e)^2}{e} < \chi^2_{.05}$, we accept the null hypothesis and conclude that no

⁹Explanation of symbols: o = thirty = telephone respondents from the community at large sample. e = mail panel respondents from the same group.

non-response bias entered the community at large sample.

TABLE 5

CHI-SQUARE TEST FOR NON-RESPONSE BIAS
IN THE SAMPLE OF AIR FORCE PERSONNEL

(o)	(e) ¹⁰	(o-e)	(o-e) ²	$\frac{(o-e)^2}{e}$
2.87	2.59	+.28	.0784	.033
4.19	4.56	-.37	.1369	.030
4.90	5.13	-.23	.0529	.010
5.23	4.54	+.69	.4761	.148
5.25	4.36	+.89	.7921	.182
5.31	5.10	+.21	.0441	.009
4.38	5.01	-.63	.3969	.079
2.81	4.98	-2.17	4.7089	.945
4.82	4.99	-.07	.0049	.010
4.76	5.01	-.25	.0625	.013
4.22	4.81	-.65	.4225	.048

Source: Personal survey conducted in Great Falls, Montana, in the Spring of 1971.

$$\sum \frac{(o-e)^2}{e} = 1.507$$

$$\chi^2_{.05} = 18.307$$

Here the null hypothesis is that telephone respondents had the same attitudes toward local business as did mail panel

¹⁰Explanation of symbols: o = thirty = telephone respondents from the sample of Air Force personnel. e = mail panel respondents from the same group.

respondents selected from among Air Force personnel. Since $\sum \frac{(o-e)^2}{e} < \chi_{.05}^2$, we accept the null hypothesis and conclude that no non-response bias entered the sample of Air Force personnel.

At this point the reader may be musing at the fact that there was a wider disparity between the segments of the populations from each group than there was between the two groups. The explanation for this lies in the fact that there was apparently more error introduced by the relatively small sample of telephone respondents than there was a true difference in attitudes between the community at large and Air Force personnel. It should be understood, however, that the sample size of thirty telephone respondents was adequate for the purposes of this phase of the study, since extreme accuracy was not required.

Thus, it has been demonstrated that no significant non-response bias entered the results by way of the mail panel questionnaire.

CONCLUSIONS

It may seem anti-climactic at this point to state the results of the statistical analysis, which must appear rather obvious. The conclusion, of course, is that there is no difference in attitudes between Air Force personnel and the community at large toward local business in Great Falls, Montana. That can be said with a great deal of confidence by virtue of the remarkably small difference in mean scores on each of the qualities evaluated and also by virtue of the vast margin by which the null hypothesis passed the chi-square test.

Looking at the scores in absolute terms, the only quality which got other than a neutral or slightly above neutral rating was "local prices." It was the general consensus of both groups that local prices ranged between "fairly high" and "quite high." This, however, is merely a symptom of conditions throughout the United States. This becomes quite clear when one considers that "prices in 1970 climbed 5.3%, a substantially higher rate than 1969's 4.7%, and the steepest annual rise since 1951's 6% leap."¹¹

At any rate this perception of high prices does not reflect unfavorably upon the practices of local merchants. They are no doubt acting quite soundly in keeping pace with the rest of the nation and in pricing their goods at what the traffic will bear.

The only change or improvement which this recognition of high prices might suggest is that, since the local populace is apparently so aware and sensitive to high prices, the firm which could justify lower prices through a high volume would certainly be rewarded with patronage. There is already one major discount store in the Great Falls area, and there may well be room for another on the other side of town.

A general approach will be used to cover the realizations made through the other evaluative questions. Overall, the responses were all neutral or slightly above neutral. This would tend to suggest two things. First of all, none of the attitudes were probably anything but neutral. This is said because we are all taught to say something positive about our neighbors if at all

¹¹Facts on File, January 27, 1971, 49.

possible. Thus, if we asked the average person to evaluate a business or product upon which he had very little information or feelings, he would most likely say it was "fairly good."

Secondly, the highly neutral attitudes reflect the general nature of the questions. Many of the respondents were eager to indict certain specific businesses, or even certain categories of local businesses, but when asked for a generalization as to their opinions about all local business, they could give none other than a neutral answer.¹²

The initial speculation as to the fact that Air Force personnel may feel that they are treated less favorably than the community at large appears to have been true, although its degree is slight. Oddly enough, the community at large concurred in this assessment by saying that they were treated more favorably than Air Force personnel, although again only slightly. Figure III depicts this fact.

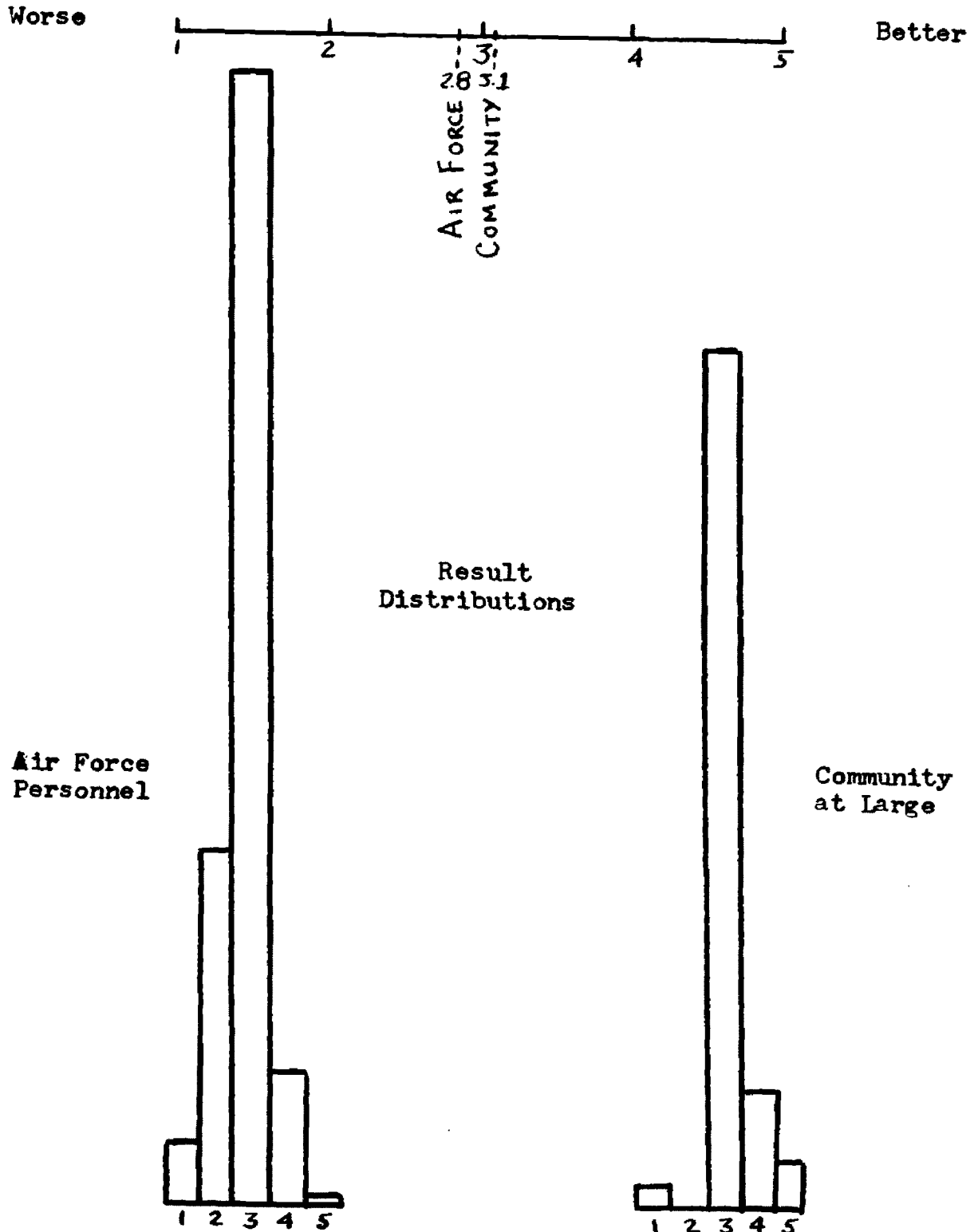
In addition, initial speculation as to the differences in sociological profiles of the two groups was correct. However, this obviously did not reflect itself in divergent attitudes toward local business. (See Appendix VII.)

The final, and perhaps the most significant, finding of the entire study arose from the final open-end question: "What could

¹²The justification for using highly generalized questions lies in the nature of the hypothesis. Certainly, attitudes about the whole spectrum of "local business" must be highly generalized, and hence, the comparison of the attitudes of the two groups on this issue must be based on generalities.

FIGURE III

SUSPECTED TREATMENT BY MERCHANTS
RELATIVE TO THE OTHER GROUP



Result
Distributions

Air Force
Personnel

Community
at Large

Worse

Better

28 3.1
AIR FORCE
COMMUNITY

1 2 3 4 5

1 2 3 4 5

be done by local merchants that would improve your opinion of their practices and/or facilities?"

An overwhelming number responding adamantly insisted that the downtown area is in dire need of improved parking facilities. It is unfortunate that a question was not included to quantify opinions on this issue.

CHAPTER V

SUMMARY AND RECOMMENDATIONS

SUMMARY

Based upon the tacit assumptions that because Air Force personnel (including their dependents) have different sociological profiles, different bases of exposure, and are less permanent members of the community of Great Falls, Montana, than the community at large, it was supposed that they likely would possess different attitudes toward local business than the latter group. This study was designed to test that hypothesis.

In order to decide upon which attributes of business were most significant to the typical customer, an open-end questionnaire was distributed to over fifty members of each group in February, 1971. A pilot study questionnaire was then devised, based upon the number of questionnaires on which certain key-words were used.

The pilot was then printed and distributed to test the reader's understanding as well as the lines of communication. A few minor changes were made after the pilot; thus, an objective questionnaire designed to evaluate attitudes toward ten qualities of local business emerged. The questionnaire also included one question asking for an overall impression of local business, a series of questions to gather classification data, and a final question which asked the respondent to describe in his own words

some ways in which local merchants could strive to improve their image. The objective questions were designed to measure attitudes by way of a modified version of the semantic differential scale.

Later in the Spring of 1971, 250 of these questionnaires (a total of 500) were mailed to a random sample of each group. Two weeks after that, a wave totaling 334 questionnaires were mailed to all non-respondents. Then, two weeks later, thirty non-respondents were selected at random from each group and surveyed by telephone, using the same questionnaire as a basic format. There were 121 members of the community at large, and 142 Air Force personnel, who comprised the final sample upon which the results of this study were based. A total of 330 questionnaires were returned in all, but a number of these (i.e., 67) were disqualified due to certain criteria which might have caused the sample to be biased or because they were returned blank.

Finally, the results were evaluated under the chi-square statistical test, and it was determined with a high degree of confidence that no measurable differences in attitude existed between the two groups toward local business in Great Falls, Montana.

RECOMMENDATIONS

In view of the results, only two recommendations will be made concerning the improvement of local business practices and/or facilities. In addition, however, two recommendations will also be made for others who will do similar research projects in

the future.

The first of these recommendations, which concerns local business facilities, has already been mentioned. Restated, it would be that local merchants (especially those situated downtown) should seriously consider supporting the erection of some type of major offstreet parking garage.

The second recommendation concerns local business practices. A generous supply of questionnaires were returned with a statement to the effect that merchants always seemed to be out of the particular product desired at the particular time that it was desired. A cursory evaluation of typical inventory techniques divulged a most archaic approach on the part of many. To wit, the typical merchant waits until he has run completely out of an item before re-ordering. Not only that, but he usually has to be notified by a customer desiring the product that he is out before he even notices it. This results in lost sales to the merchant, loss of customer goodwill, and inconvenience to the customer. The most unfortunate aspect is that this practice could be corrected at little or no expense. Therefore, it is recommended that merchants do a little remedial reading in the area of inventory control.

Two major mistakes were made in this research project, and these are at the root of the suggestions to future researchers. It became apparent during the final follow-up of non-respondents that it would have been a much more feasible approach to do the

entire survey process via telephone. The primary reason is because the only expense involved is time, whereas there was a substantial expense involved in doing the mail panel portion. (See Appendix VIII.) Two other good reasons for favoring use of the telephone over the mail panel are 1) response is immediate, rather than drawn out over several weeks and 2) the percentage of respondents is substantially greater via the telephone.

The second mistake was in demanding over 200 qualified respondents, when the results became apparent after about the first 60 returns. This might not be true on other projects where the outcome is not so decisive. Nonetheless, on any project the returns should be checked periodically in order that an unequivocal trend might be discovered early in the survey process. The penalty for not doing this is the possibility of wasting valuable time and money.

SUGGESTIONS FOR FURTHER RESEARCH

Two areas, each of which has already been mentioned, present themselves as promising avenues for future research. For one project, it would be a good idea for some enterprising student to select a local business firm, examine its inventory control system, and to develop ideas for its improvement.

An even more promising project would be for someone to evaluate the feasibility of locating a major parking facility in or near the downtown area. There appears to be a tremendous latent demand for such a facility, so much so that the author

would be quite interested in participating in such an enterprise if it were to be developed.

APPENDIX I

INITIAL OPEN-END QUESTIONNAIRE¹

NAME (Optional) _____

AGE _____ OCCUPATION (Give rank, if military) _____

HOMETOWN _____

STUDENT SURVEY

Sentence Completion

1. I prefer to shop at certain stores, because

2. I dislike shopping at certain stores, because

3. What I expect most from a merchant* is

4. Merchants in the Great Falls area are

5. Merchants in my hometown are

6. Doing business in Great Falls is

*NOTE: As used in this survey, "merchant" means any businessman or employee who deals directly with the public. However, it DOES NOT include those engaged in "on base" or government sponsored transactions.

¹This was printed on white duplicator paper with a blue ditto master.

7. The biggest problem that I find when doing business in Great Falls is

8. The thing that I like best about doing business in Great Falls is

9. If I could make one change in local business practices it would be

Discussion Questions (Use back, if necessary)

10. Give a brief description of your overall impression of local business practices in Great Falls.

11. What are some of the things that you, as a customer, most hope to find in a well conducted business operation?

Thank you!

APPENDIX II

PILOT STUDY QUESTIONNAIRE
AND COVER LETTER²

March, 1971

Dear Sir or Madam,

Hello! I am a graduate student at the University of Montana, and the enclosed is a survey which, when filled in by any member of your household, will help me to complete the requirements for my Master's Degree.

The survey is intended to measure your impression of business practices and conditions in the Great Falls area. It will only take about ten minutes to complete and your answers will remain anonymous.

Thank you for your cooperation!

Very truly yours,
A Grateful Student

INSTRUCTIONS

1. Preferably, the questionnaire should be completed by the head of household, or spouse.
2. Circle the response which you feel best expresses your opinion or experience, or fill in the blanks, as applicable.
3. Try to answer every question that applies to you. There are no right or wrong answers.
4. Keep in mind that all questions are intended to measure your impression of "local" business. This does NOT include any

²The cover letter appeared on a single page of white duplicator paper, while the survey itself was on yellow duplicator paper. Both were dittoed with blue masters.

"on base," nor government sponsored transactions, nor businesses located outside the Great Falls area.

5. As used in this questionnaire, "merchant" means any businessman or employee who deals directly with the public. He may be a repairman, real estate agent, waitress, clerk, salesman, filling station attendant, or virtually anyone with whom you come in contact when doing business locally.
6. When you have completed the questionnaire, place it in the enclosed, self-addressed, stamped envelope, and mail it as promptly as possible.
7. SPECIAL INSTRUCTION: This questionnaire is a forerunner to future surveys. Please feel free to comment, in your own words, on any questions or instructions that are difficult to understand, or could be improved in any way.

STUDENT SURVEY

1. What is your opinion of local prices?
 - A. Extremely high
 - B. Quite high
 - C. Fairly high
 - D. Neutral
 - E. Moderately low
 - F. Quite low
 - G. Extremely low
 - H. No opinion

2. How do you find the selection of local goods?
 - A. Extremely good
 - B. Quite good
 - C. Fairly good
 - D. Neutral
 - E. Moderately poor
 - F. Quite poor
 - G. Extremely poor
 - H. No opinion

3. In your opinion, how courteous is the average local merchant?
 - A. Extremely discourteous
 - B. Quite discourteous
 - C. Moderately discourteous
 - D. Neutral
 - E. Fairly courteous
 - F. Quite courteous
 - G. Extremely courteous
 - H. No opinion

4. How do you find the service locally?
 - A. Extremely good
 - B. Quite good
 - C. Fairly good
 - D. Neutral
 - E. Moderately poor
 - F. Quite poor
 - G. Extremely poor
 - H. No opinion

5. What is your opinion of the parking facilities near local businesses?
 - A. Extremely poor
 - B. Quite poor
 - C. Moderately poor
 - D. Neutral
 - E. Fairly good
 - F. Quite good
 - G. Extremely good
 - H. No opinion

6. In your opinion, how friendly is the average local merchant?
 - A. Extremely friendly
 - B. Quite friendly
 - C. Fairly friendly
 - D. Neutral
 - E. Moderately unfriendly
 - F. Quite unfriendly
 - G. Extremely unfriendly
 - H. No opinion

7. In your opinion, how honest is the average local merchant?
 - A. Extremely dishonest
 - B. Quite dishonest
 - C. Moderately dishonest
 - D. Neutral
 - E. Fairly honest
 - F. Quite honest
 - G. Extremely honest
 - H. No opinion

8. How pushy do you find the average local merchant?
 - A. Extremely unpushy
 - B. Quite unpushy
 - C. Fairly unpushy
 - D. Neutral
 - E. Moderately pushy
 - F. Quite pushy
 - G. Extremely pushy
 - H. No opinion

9. How helpful do you find the average local merchant?
- Extremely unhelpful
 - Quite unhelpful
 - Moderately unhelpful
 - Neutral
 - Fairly helpful
 - Quite helpful
 - Extremely helpful
 - No opinion
10. How do you find the quality of local goods?
- Extremely good
 - Quite good
 - Fairly good
 - Neutral
 - Moderately poor
 - Quite poor
 - Extremely poor
 - No opinion
11. As a customer, what is your OVERALL impression of business as conducted in Great Falls, Montana?
- Extremely poor
 - Quite poor
 - Moderately poor
 - Neutral
 - Fairly good
 - Quite good
 - Extremely good
 - No opinion

The following questions are to be used for classification purposes only; they are optional, but I urge you to answer them, as they will make your answers to the previous questions more significant.

12. Circle your sex: Male Female

13. Circle your highest grade of education completed:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
 18 19 20 21 more than 21

14. What was your age at your last birthday? _____
15. What is your hometown? _____
16. How long have you lived in the Great Falls area?
A. Less than 6 months
B. Over 6 months, but not more than 1 year
C. Over 1 year, but not more than 2 years
D. Over 2 years, but not more than 5 years
E. Over 5 years, but not more than 15 years
F. Over 15 years
17. Does anyone in your household own or manage a local business?
A. Yes
B. No
18. How much gross income did, or will, your household report on its 1970 income tax return(s)?
A. Under \$5,000
B. \$5,001 to \$10,000
C. \$10,001 to \$20,000
D. \$20,001 to \$50,000
E. Over \$50,000
F. No income to be reported

19. Is any member of your household in the United States Air Force, AND currently stationed at Malmstrom Air Force Base, Montana?
- A. Yes
 - B. No

If your answer to Question #19 was NO, please answer the following two questions, otherwise proceed to Question #22.

20. If your answer to Question #19 was NO, what is your occupation?
-

21. If your answer to Question #19 was NO, how do you feel that you are treated by local merchants as compared to the way they treat military personnel?
- A. Much more favorably
 - B. Somewhat more favorably
 - C. About the same
 - D. Somewhat less favorably
 - E. Much less favorably
 - F. No opinion

22. Comments on both the questionnaire and the subject under consideration (use back, if necessary):

³This page was attached only to those questionnaires sent to members of the community at large.

19. Is any member of your household in the United States Air Force, AND currently stationed at Malmstrom Air Force Base, Montana?
 A. Yes
 B. No

If your answer to Question #19 was YES, please answer the following two questions, otherwise proceed to Question #22.

20. If your answer to Question #19 was YES, please circle the member's rank:

AB A2C A1C SGT SSGT TSGT MSGT SMSGT CMSGT WO1 WO2 WO3 WO4
 2/Lt 1/Lt Capt Maj L/Col Col BG MG

21. If your answer to Question #19 was YES, how do you feel that you are treated by local merchants as compared to the way they treat NON-military personnel?
 A. Much more favorably
 B. Somewhat more favorably
 C. About the same
 D. Somewhat less favorably
 E. Much less favorably
 F. No opinion

22. Comments on both the questionnaire and the subject under consideration (use back, if necessary):

⁴This page was attached only to those questionnaires sent to Air Force personnel.

APPENDIX III

MAIN SURVEY QUESTIONNAIRE
AND COVER LETTER⁵

Spring, 1971

Dear Sir or Madam,

Hello! I am a graduate student at the University of Montana, and the enclosed is a survey which, when filled in by any member of your household, will help me to complete the requirements for my Master's Degree.

The survey is intended to measure your impression of business practices and facilities in the Great Falls area. It will only take about ten minutes to complete and your answers will remain anonymous.

Thank you for your cooperation!

Very truly yours,
A Grateful Student

INSTRUCTIONS

1. Preferably, the questionnaire should be completed by the head of household, or spouse.
2. Circle the response which you feel best expresses your opinion or experience, or fill in the blanks, as applicable.
3. Try to answer every question that applies to you. There are no right nor wrong answers.
4. Keep in mind that all questions are intended to measure your

⁵The cover letter appeared on a single page of white duplicator paper, while the survey itself appeared alternately on yellow or pink duplicator paper. Both were dittoed with blue masters, and the type used was pica.

impression of "local" business. This does NOT include any "on base," nor government sponsored transactions, nor businesses located outside the Great Falls area.

5. As used in this questionnaire, "merchant" means any businessman or employee who deals directly with the public. He may be a repairman, real estate agent, waitress, clerk, salesman, filling station attendant, or virtually anyone with whom you come in contact when doing business locally.
6. When you have completed the questionnaire, place it in the enclosed, self-addressed, stamped envelope, and mail it as promptly as possible.

STUDENT SURVEY

1. What is your opinion of local prices?
 - A. Extremely high⁷
 - B. Quite high
 - C. Fairly high
 - D. Neutral
 - E. Moderately low
 - F. Quite low
 - G. Extremely low
 - H. No opinion

2. How do you find the selection of local goods?
 - A. Extremely good
 - B. Quite good
 - C. Fairly good
 - D. Neutral
 - E. Moderately poor
 - F. Quite poor
 - G. Extremely poor
 - H. No opinion

3. In your opinion, how courteous is the average local merchant?
 - A. Extremely discourteous
 - B. Quite discourteous
 - C. Moderately discourteous
 - D. Neutral
 - E. Fairly courteous
 - F. Quite courteous
 - G. Extremely courteous
 - H. No opinion

⁶This is the author's Air Force survey control number. It served no useful purpose other than to comply with Air Force Regulation 171-2 to which the author was subject by virtue of his affiliation with that organization. In addition, the questionnaires addressed to non-military personnel did not carry the control number, but were signed and mailed by a member of the University of Montana faculty as a further Air Force restriction.

⁷The answers to this and all other evaluative questions appeared in reverse order on one-half of the questionnaires.

4. How do you find the service locally?
- A. Extremely good
 - B. Quite good
 - C. Fairly good
 - D. Neutral
 - E. Moderately poor
 - F. Quite poor
 - G. Extremely poor
 - H. No opinion
5. How accessible do you find the average local business establishment?
- A. Extremely inaccessible
 - B. Quite inaccessible
 - C. Moderately inaccessible
 - D. Neutral
 - E. Fairly accessible
 - F. Quite accessible
 - G. Extremely accessible
 - H. No opinion
6. In your opinion, how friendly is the average local merchant?
- A. Extremely friendly
 - B. Quite friendly
 - C. Fairly friendly
 - D. Neutral
 - E. Moderately unfriendly
 - F. Quite unfriendly
 - G. Extremely unfriendly
 - H. No opinion
7. In your opinion, how honest is the average local merchant?
- A. Extremely dishonest
 - B. Quite dishonest
 - C. Moderately dishonest
 - D. Neutral
 - E. Fairly honest
 - F. Quite honest
 - G. Extremely honest
 - H. No opinion

8. How pushy do you find the average local merchant?
- A. Extremely unpushy
 - B. Quite unpushy
 - C. Moderately unpushy
 - D. Neutral
 - E. Fairly pushy
 - F. Quite pushy
 - G. Extremely pushy
 - H. No opinion
9. How helpful do you find the average local merchant?
- A. Extremely unhelpful
 - B. Quite unhelpful
 - C. Moderately unhelpful
 - D. Neutral
 - E. Fairly helpful
 - F. Quite helpful
 - G. Extremely helpful
 - H. No opinion
10. How do you find the quality of local goods?
- A. Extremely good
 - B. Quite good
 - C. Fairly good
 - D. Neutral
 - E. Moderately poor
 - F. Quite poor
 - G. Extremely poor
 - H. No opinion
11. As a customer, what is your OVERALL impression of business as conducted in Great Falls, Montana?
- A. Extremely poor
 - B. Quite poor
 - C. Moderately poor
 - D. Neutral
 - E. Fairly good
 - F. Quite good
 - G. Extremely good
 - H. No opinion

The following questions are to be used for classification purposes only; they are optional, but I urge you to answer them, as they will make your answers to the previous questions more significant.

12. Circle your sex: Male Female

13. Circle your highest grade of education completed:

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
19 more than 19

14. What is your hometown? _____

15. How long have you lived in the Great Falls area?

- A. Less than 6 months
- B. Over 6 months, but not more than 1 year
- C. Over 1 year, but not more than 2 years
- D. Over 2 years, but not more than 5 years
- E. Over 5 years, but not more than 15 years
- F. Over 15 years

16. What was your age at your last birthday? _____

17. Does anyone in your household own or manage a local business?

- A. Yes
- B. No

18. How much gross income did, or will, your household report on its 1970 income tax return(s)?

- A. Under \$5,000
- B. \$5,001 to \$10,000
- C. \$10,001 to \$20,000
- D. \$20,001 to \$50,000
- E. Over \$50,000
- F. No income to be reported

19. Is any member of your household in the United States Air Force, AND currently stationed at Malmstrom Air Force Base, Montana?
- A. Yes
 - B. No

If your answer to Question #19 was NO, please answer the following two questions, otherwise proceed to Question #22.

20. If your answer to Question #19 was NO, what is your occupation?

21. If your answer to Question #19 was NO, how do you feel that you are treated by local merchants as compared to the way they treat military personnel?
- A. Much more favorably
 - B. Somewhat more favorably
 - C. About the same
 - D. Somewhat less favorably
 - E. Much less favorably
 - F. No opinion

22. What could be done by local merchants that would improve your opinion of their practices and/or facilities?

-Use back if necessary.-

⁸This page was attached only to those questionnaires sent to members of the community at large.

19. Is any member of your household in the United States Air Force, AND currently stationed at Malmstrom Air Force Base, Montana?
- A. Yes
B. No

If your answer to Question #19 was YES, please answer the following two questions, otherwise proceed to Question #22.

20. If your answer to Question #19 was YES, please circle the member's rank:

AB A1C SGT SSGT TSGT MSGT SMSGT CMSGT WO1 WO2 WO3 WO4
2/Lt 1/Lt Capt Maj L/Col Col

21. If your answer to Question #19 was YES, how do you feel that you are treated by local merchants as compared to the way they treat NON-military personnel?
- A. Much more favorably
B. Somewhat more favorably
C. About the same
D. Somewhat less favorably
E. Much less favorably
F. No opinion

22. What could be done by local merchants that would improve your opinion of their practices and/or facilities?

-Use back if necessary.-

⁹This page was attached only to those questionnaires sent to Air Force personnel.

APPENDIX IV

FIRST FOLLOW-UP COVER LETTER¹⁰

Spring, 1971

Dear Sir or Madam,

Hello again! My records indicate that you did not return the first survey which I sent to you. Since I believe that your opinion is just as worthwhile as that of those who did answer, I have sent you another copy. Won't you please take the ten minutes, or so, that it takes and complete it. You will be helping yourself by voicing an opinion that may serve to reshape local business practices and facilities, and you will be helping me by enabling me to complete the requirements for my Master's Degree at the University of Montana. I assure you that your answers will remain anonymous.

Thank you for your cooperation!

Very truly yours,
A Grateful Student

INSTRUCTIONS

1. If you DID complete the survey which I sent to you last month and returned it, then DO NOT return this one.
2. Preferably, the questionnaire should be completed by the head of household, or spouse.
3. Circle the response which you feel best expresses your opinion or experience, or fill in the blanks, as applicable.

¹⁰The cover letter was printed on a single page with a red ditto master on white paper, while the survey itself was identical with that used for the "main survey."

4. Try to answer every question that applies to you. There are no right nor wrong answers.
5. Keep in mind that all questions are intended to measure your impression of "local" business. This DOES NOT include any "on base," nor government sponsored transactions, nor businesses located outside the Great Falls area.
6. As used in this questionnaire, "merchant" means any businessman or employee who deals directly with the public. He may be a repairman, real estate agent, waitress, clerk, salesman, or virtually anyone with whom you come in contact when doing business locally.
7. When you have completed the questionnaire, place it in the enclosed, self-addressed, stamped envelope, and mail it as promptly as possible.

APPENDIX V

TELEPHONE FOLLOW-UP INTRODUCTION

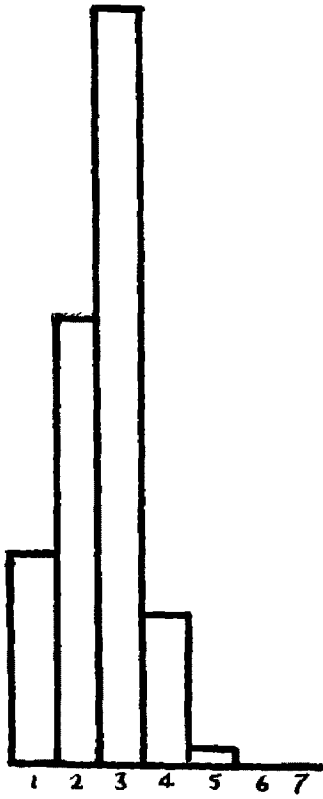
"Hello! I am a graduate student at the University of Montana, and I'm doing a survey on local business. Would you be willing to answer a few questions on this topic?

"[If yes,] here are the instructions. All but one of the questions is multiple choice. I will read each question and all of the answers. Next, I would like for you to indicate your response. Then, we will go on to the next question."

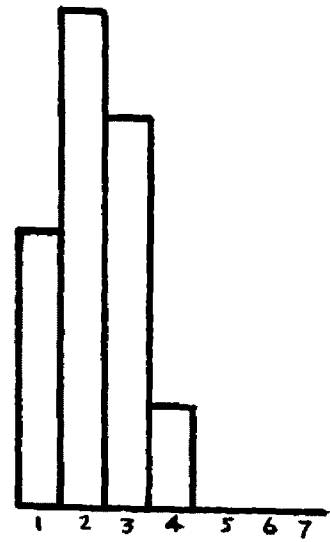
APPENDIX VI

DISTRIBUTION OF RESULTS
BY QUESTION

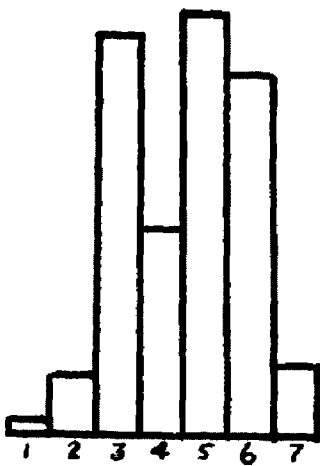
FIGURE IV



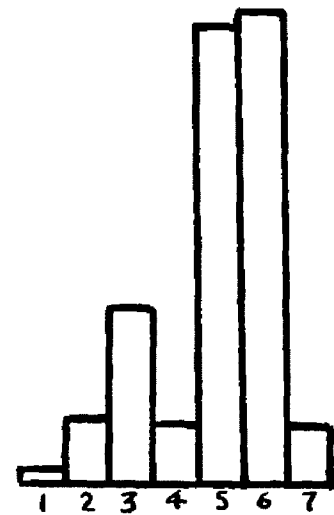
Air Force Personnel
on "Prices"



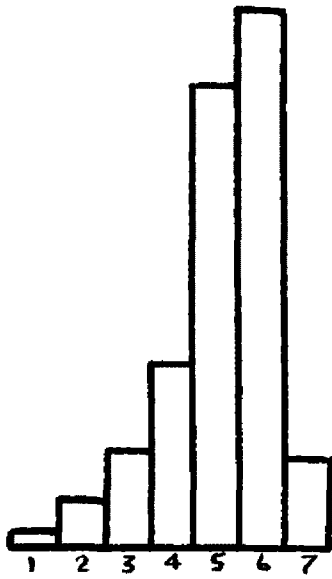
Community at Large
on "Prices"



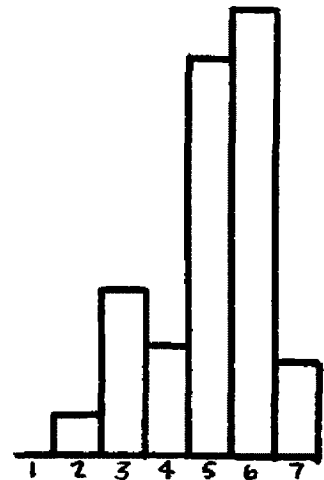
Air Force Personnel
on "Selection"



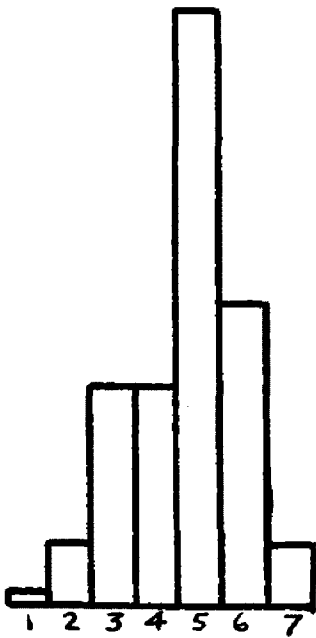
Community at Large
on "Selection"



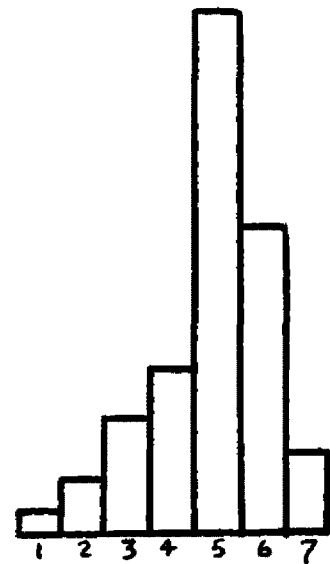
Air Force Personnel
on "Courtesy"



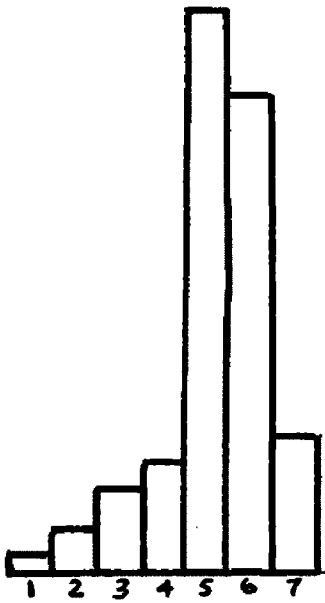
Community at Large
on "Courtesy"



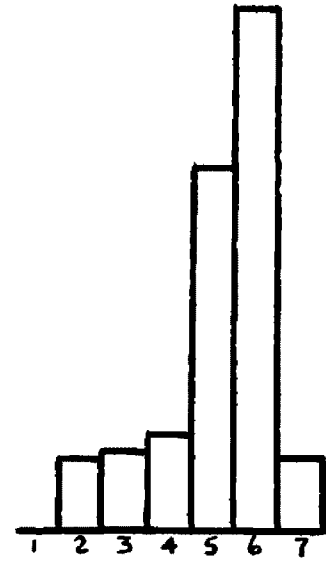
Air Force Personnel
on "Service"



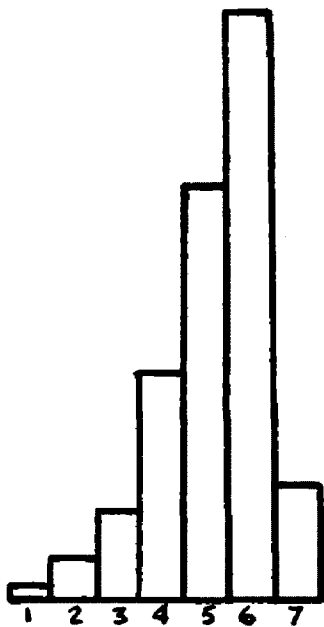
Community at Large
on "Service"



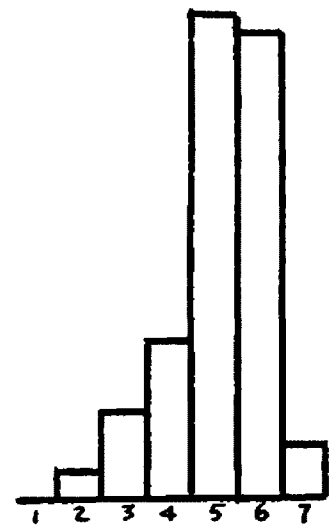
Air Force Personnel
on "Accessibility"



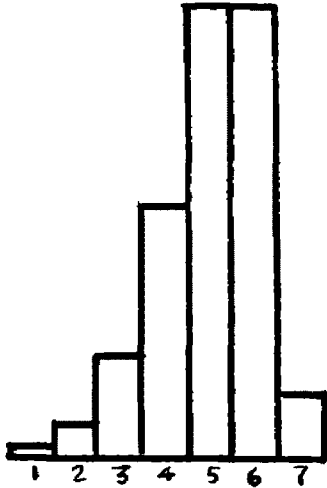
Community at Large
on "Accessibility"



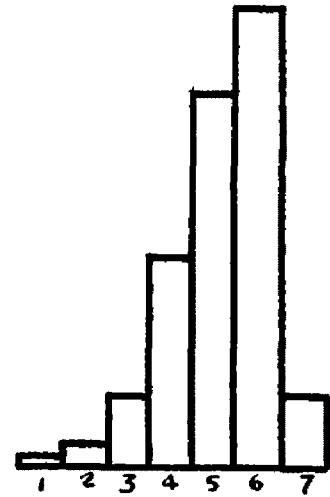
Air Force Personnel
on "Friendliness"



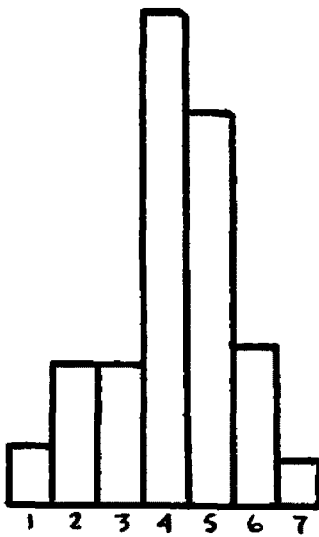
Community at Large
on "Friendliness"



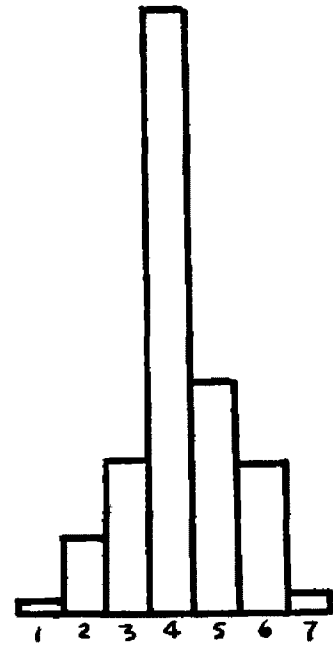
Air Force Personnel
on "Honesty"



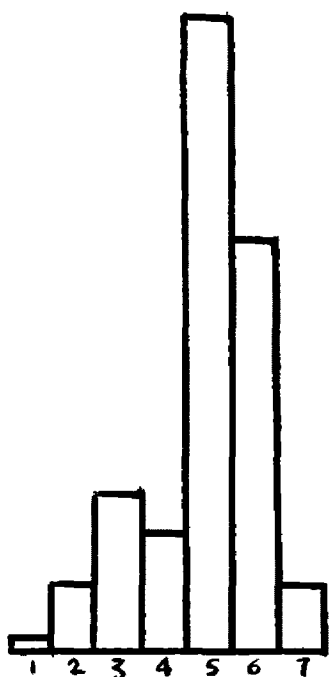
Community at Large
on "Honesty"



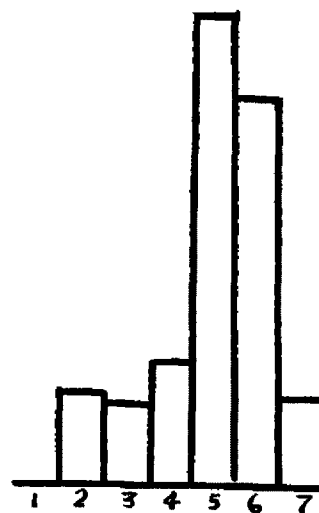
Air Force Personnel
on "Pushiness"



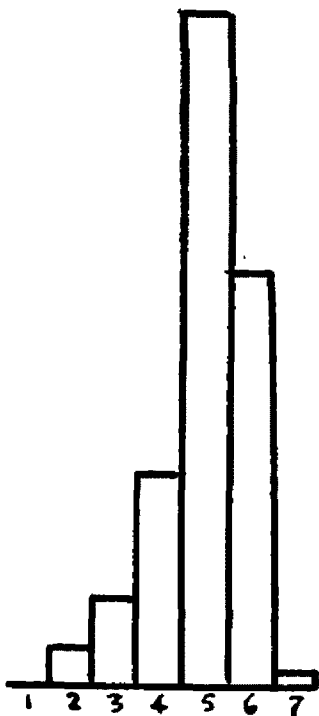
Community at Large
on "Pushiness"



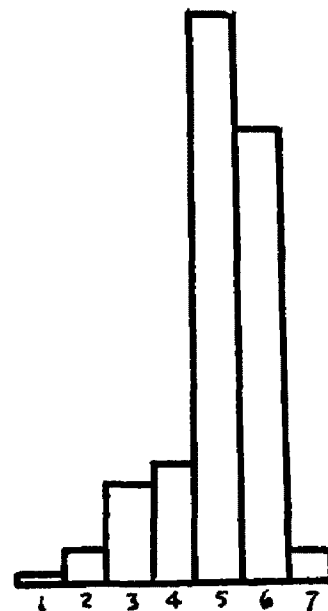
Air Force Personnel
on "Helpfulness"



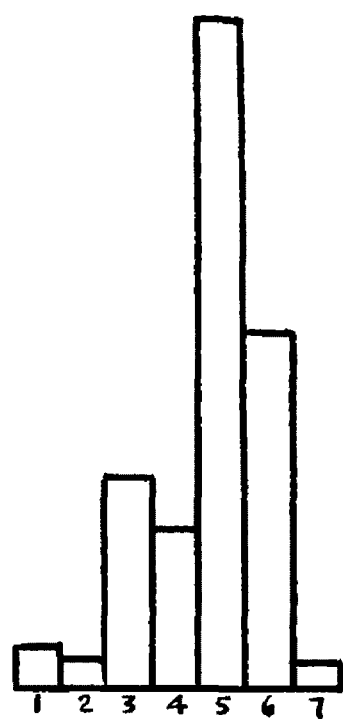
Community at Large
on "Helpfulness"



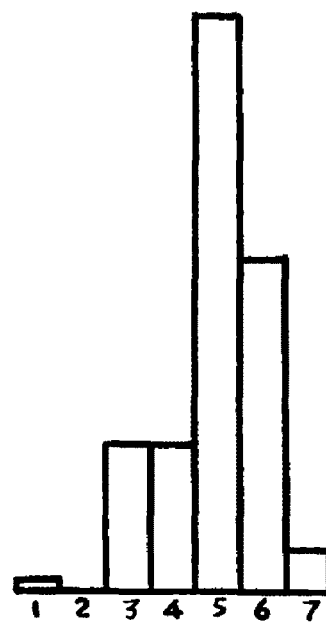
Air Force Personnel
on "Quality"



Community at Large
on "Quality"



Air Force Personnel
"Overall"



Community at Large
"Overall"

APPENDIX VII

SOCIOLOGICAL PROFILE
OF RESPONDENTS

TABLE 6

	Air Force Personnel	Community at Large
Males	71.2%	43.3%
Females	28.8%	56.7%
Average Year of Education Completed	14.2	13.9
Average Hometown Population	76,331	48,194
Resided in Great Falls:		
>6 months ≤ 1 year	30.0%	6.6%
>1 year ≤ 2 years	29.1%	7.7%
>2 years ≤ 5 years	35.5%	6.6%
>5 years ≤ 15 years	4.5%	16.5%
>15 years	.9%	62.6%
Average Age	29.5	43.7
Gross Income (1970)		
\$1-5,000	23.6%	12.9%
\$5,001-10,000	47.2%	29.9%
\$10,001-20,000	25.4%	35.9%
\$20,001-50,000	2.8%	6.4%
over \$50,000	.0%	1.3%
no income	.0%	13.6%
Military Rank		
AB-SGT	26.0%	N/A
SSGT-TSGT	30.8%	
MSGT-CMSGT	9.6%	
2/LT-CAPT	28.9%	
MAJ-COL	4.7%	

Source: Personal survey conducted in Great Falls, Montana, in the Spring of 1971.

APPENDIX VIII

COST OF PROJECT

TABLE 7

Date	Item	Expense	Total
1/25/71	Lodging in Missoula	\$ 8.00	
1/25/71	Gas to Missoula	3.10	
1/25/71	Xerox Proposal	1.20	
2/20/71	Mimeograph Paper & Stencils	2.30	
2/20/71	Envelopes	1.12	
2/22/71	Stamps for Open-end Survey	3.00	
2/25/71	Phone Calls to Missoula	11.98	
3/8/71	Gas to Missoula	4.70	
3/8/71	Lodging in Missoula	8.15	
3/10/71	Mimeograph Paper & Dittos	4.00	
3/10/71	Post Office Box Rental	4.80	
3/10/71	Rubber Address Stamp	2.90	
3/13/71	Postage Stamps	18.00	
3/16/71	Typewriter Ribbon	3.00	
3/20/71	Envelopes & Dittos	11.40	
3/22/71	Postage Stamps	90.00	
3/22/71	Ditto Paper	14.20	
3/31/71	Ditto Paper & Envelopes	12.61	

TABLE 7--Continued

Date	Item	Expense	Total
3/31/71	Ditto Masters	\$ 1.00	
3/31/71	Phone Calls to Missoula	6.50	
3/31/71	Ditto Paper	8.00	
4/3/71	Typewriter Rent	4.00	
4/9/71	Postage Stamps	35.00	
4/17/71	Drawing Pens & India Ink	3.25	
4/19/71	Typing Paper	3.75	
5/3/71	Phone Calls to Missoula	8.03	
5/5/71	Xerox Committee Draft	6.90	
5/5/71	Mail Draft & Reference Material to Missoula	1.47	
5/12/71	Typing Paper	3.95	
5/21/71	University Binding Fee	3.50	
5/21/71	Xerox Professional Paper (4 copies)	18.00	
			\$307.81 ¹¹

Source: Personal record of expenses during the project period.

¹¹This figure includes all expenses except for May phone calls.

APPENDIX IX

AIR FORCE SURVEY APPROVAL LETTER

DEPARTMENT OF THE AIR FORCE
DETACHMENT 5, AFIT (AU)
MALMSTROM AIR FORCE BASE, MONTANA 59402



REPLY TO
ATTN OF: AFIT, Detachment #5

10 May 1971

SUBJECT: Approval of Survey Request

TO: Lt Daniel A. O'Connor
4244 Central Avenue, #2
Great Falls, Montana 59405

1. Per telecon with Lt Colonel Ivan Ware, CIE, Wright-Patterson Air Force Base, be informed that Air Force has approved your request for survey, with one stipulation. It is requested that the school, or a representative, conduct the "portion" of the survey which would deal with the non federal people.
2. Your control number for the survey is: USAF-SCN 71-43. The paper work from the approving agency will be following this notice.


RICHARD E. LAKEY, Major, USAF
Commander

cc: Dr. B. J. Bowlen

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