

South Dakota State University  
**Open PRAIRIE: Open Public Research Access Institutional  
Repository and Information Exchange**

---

Bulletins

South Dakota State University Agricultural  
Experiment Station

---

5-1-1975

## Snowmobile Innovators: Their Characteristics and Sources of Information

R. H. Anson

Follow this and additional works at: [http://openprairie.sdstate.edu/agexperimentsta\\_bulletins](http://openprairie.sdstate.edu/agexperimentsta_bulletins)

---

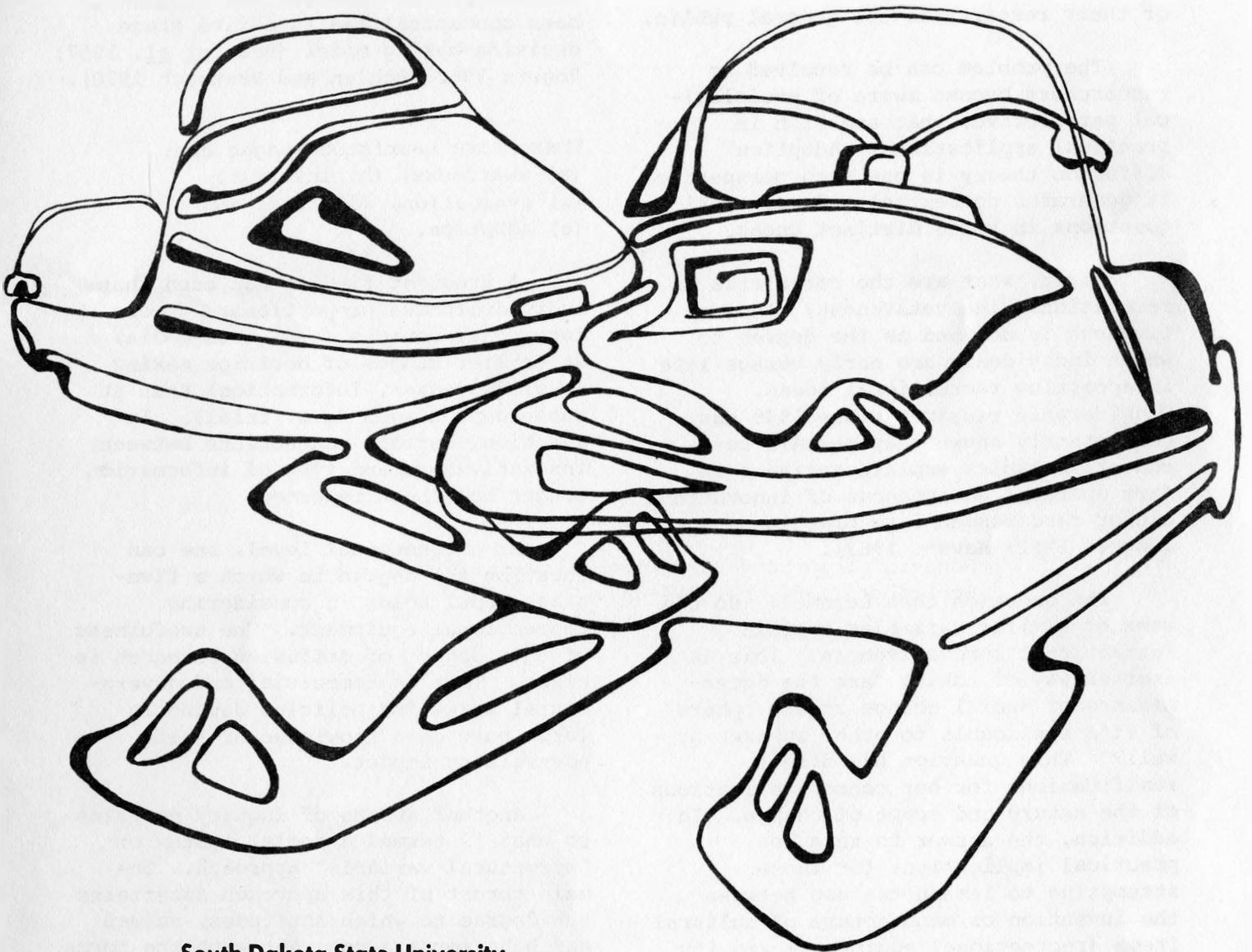
### Recommended Citation

Anson, R. H., "Snowmobile Innovators: Their Characteristics and Sources of Information" (1975). *Bulletins*. Paper 646.  
[http://openprairie.sdstate.edu/agexperimentsta\\_bulletins/646](http://openprairie.sdstate.edu/agexperimentsta_bulletins/646)

This Bulletin is brought to you for free and open access by the South Dakota State University Agricultural Experiment Station at Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. It has been accepted for inclusion in Bulletins by an authorized administrator of Open PRAIRIE: Open Public Research Access Institutional Repository and Information Exchange. For more information, please contact [michael.biondo@sdstate.edu](mailto:michael.biondo@sdstate.edu).

# **Snowmobile Innovators: *Their Characteristics and Sources of Information***

---



**South Dakota State University  
Agricultural Experiment Station  
Brookings, South Dakota**

# Snowmobile Innovators: Their Characteristics and Sources of Information

---

## Introduction

Many sociologists engaged in research of leisure and recreation face the problem of convincing colleagues that their research is meaningful, while trying to convey the practicality of their research to the general public.

The problem can be resolved as researchers become aware of sociological perspectives that are rich in practical applications. Adoption diffusion theory is one such perspective. It generates conceptual and practical questions in three distinct areas.

First, what are the correlates of recreational innovativeness? Innovativeness is defined as the degree to which individuals are early versus late in accepting recreational ideas. Considerable research since 1949 has consistently shown that certain antecedent variables explain variance in farm operator acceptances of innovations and/or recommended farm practices (Rogers 1962; Havens 1962).

The question then becomes: do the same or similar variables explain recreational innovativeness? This is another way of asking "are the determinants of social change in one sphere of life applicable to other spheres as well?" This question has direct ramifications for our conceptualizations of the nature and scope of change. In addition, the answer to this has practical implications for those attempting to lessen the gap between the invention or manufacture of cultural items (recreational equipment) and its dissemination and consumption in a societal grouping.

A second focus emerging in a diffusion approach is the information sources used in recreational decision-making. Social scientists assume that man differs from lower organisms in his ability to think abstractly (self indications). The ability to abstract has frequently been conceptualized as a five stage decision-making model (Beal *et al.* 1957; Rogers 1962; Bohlen and Bretnach 1970).

These five heuristic stages are:

- (a) awareness, (b) interest,
- (c) evaluation, (d) trial and
- (e) adoption.

A frequent finding has been that individuals use proportionately more impersonal sources (e.g. mass media) at earlier stages of decision making (e.g. awareness, information) than at subsequent stages (e.g. trial). In addition, certain connections between innovativeness and type of information sought have been reported.

At a conceptual level, one can question the degree to which a five-stage model holds in considering recreational equipment. The usefulness of this aspect of diffusion research is clear. That is commercial and governmental marketing policies depend in large part on a knowledge of their advertising impact.

Another avenue of inquiry pertains to what is termed a social system or "structural variable" approach. The main thrust of this approach ascertains the degree to which attitudes, values and behavior are coherent with the norms and values of a more holistic super structure. In a nutshell, structural

influences are demonstrated by the following procedure (Blau 1960; Flinn 1970).

- (1) Obtain an empirical measure (X) of a characteristic of individual group members that theoretically has bearing upon the members' relations to each other.
- (2) Obtaining group score of index ( $X_1$ ) for each group from the response of group members.
- (3) Determining the relationship between the group attribute ( $X_1$ ) and the dependent variable (innovativeness) while partialling for the effects of (X).

Flinn has reported that after controls are brought to bear on individual characteristics (age, education, farm size, etc.) relationships remain between perceived community values and individual innovativeness. This aspect of diffusion research is perhaps the most stimulating, since it may transcend purely psychological explanations of recreational innovativeness.

### Statement of Purpose

The first goal of this report is to determine individual personal characteristics associated with an early acceptance of the snowmobile by South Dakota state residents.

The second purpose of this report is to transcend limitations of past research by exploring the adoption of recreational equipment and the information-seeking behavior involved in the decision-making process for this type of innovation.

### Methodology

This portion of the study will present a discussion of the methodological procedures used to investigate snow-

mobile innovativeness. Included in this discussion are the universe, sample, operationalization, scale construction and statistical techniques.

### The Universe

The hypothetical population for this study is all South Dakota private snowmobile owners who registered their snowmobiles in 1974. The population frame was obtained from the Central Data Processing Unit of the Department of Public Safety. A total of 14,800 privately registered snowmobile owners were on record as of fall 1974.

### Sample and Design

A procedure used to partial out the effects of extreme sampling variability brought about by extraneous factors is the stratified random sampling technique. Briefly, stratification may be used to minimize the effects of education, income, sex and any other possible predictor of the dependent variable, which is snowmobiler innovativeness. Data pertaining to these factors do not exist on an individual basis. Therefore, a proportional random sample was drawn based on the percentage of the state's snowmobile owners residing in each county.

Four hundred and two owners were selected from all counties using a table of random numbers. This is 2.7 percent of the population. Mailing expenses precluded use of a larger sample. Respondents were mailed a questionnaire which contained questions relating to snowmobile facilities, user preference and personal data.

Mail-out questionnaires as a research design are often hampered by low response rates. For example, Kerlinger (1973; p. 414) observes, "Return of less than 40 to 50 percent are common. Higher percentages are rare; at best, the researcher must content himself with returns as low as 50 to 60 percent."

Two procedures helped to lessen the problem of low response rates. Letters were sent to the Executive Director of the State Snowmobile Association and the president of all 27 local clubs asking for cooperation from their members. Second, the mail-out technique was executed in three stages, the original mailing and two follow-up contacts (also by mail).

The data in Table 1 reveal the number of completed, refused and undeliverable questionnaires by sampling stage. The data indicates that 16, or 4 percent of the respondents were no longer residing at the address listed on the population frame. The data also indicates that 7, or almost 2 percent of the sample, returned the questionnaire but refused to complete the questions. Of the total deliverable questionnaires, 239 were usable; this represents a total response rate of 62 percent (based on usable returns of delivered questionnaires). Previous snowmobile studies have reported return rates ranging from 39.5 to 72 percent (Chubb, 1971).

While the absolute response rate compares favorably with similar snowmobile studies, there may be systematic error variance due to disproportionate return rates among respondents of various income and education levels.

The data in Table 2 represents selected aspects of respondent socio-economic status. Snowmobile owners responding to the first, second and third mail-outs were compared on each of these attributes. Table 2 shows no significant differences among individuals in the three response statuses on mean (a) number of organizations participated in, (b) occupational prestige, (c) age or (d) number of years of formal education.

## Reliability Analysis

Items used to construct the physical fitness and leisure value orientation

scales are presented in the Appendix (may be obtained by contacting the Rural Sociology Department at South Dakota State University). The data in Table 3 represents a reliability analysis of the physical fitness orientation scale. The item-total correlation coefficients may be used as a quasi-test of linearity. Each coefficient should exceed  $\sqrt{1/n}$  where  $n$  = number of items in the scale. Items which exceed this value contribute significantly to the total variation within the scale. Cronbach's coefficient alpha ( $\alpha = .81$ ) is interpreted as the average of all possible split half correlation coefficients, and therefore indicates that the items are internally consistent. The inter-item correlation coefficients are presented in Table 4. The data indicate that the average inter-item correlation ( $r_{it}$ ) equals .416 and is additional evidence that the scale items "hang together."

The data in Table 5 represents a reliability analysis of the leisure orientation scale. Cronbach's coefficient alpha ( $\alpha = .73$ ) indicates that the scale is internally consistent. Each item-total correlation should exceed .27. Six items (83, 99, 100, 103, 104, and 108) fail to achieve the criterion value. This finding is reflected in Table 6 which presents the intercorrelations between all 15 scale items. The six items which fail to indicate linearity also correlate negatively or to a low positive degree with other scale items. These six items are kept in the scale because they appear to have "face validity." Furthermore, the overall reliability coefficient (coefficient alpha) would not increase significantly if one or more items were deleted.

## Binary Scale Construction

The past recreational activity scale is nominal in level. (See Supplement) An appropriate technique for examining nominal or binary scales is Guttman Scale Analysis, which pivots on the attribute of unidimensionality. Unidimensional scales refer to the

prediction of individual response patterns on separate items from a knowledge of the same individual's total score.

The data in Table 7 represents a Guttman Scalogram Analysis for the past recreational activity scale. The Coefficient of Reproducibility equals .912 and is interpreted to mean that the four items together measure the same underlying construct.

In Table 8 are the items totals and intercorrelation coefficients for each item in the past recreational activity scale. Each correlation coefficient is in the form of Yule's Q Coefficient for binary variables. The data indicate that all items together are moderately intercorrelated and therefore are internally consistent.

### Measuring Innovativeness

A review of the literature reveals several alternate mapping rules for measuring innovativeness. Recently, many researchers have reported composite or multipractice scales as operationalizations of the generalized concept of "innovativeness." Chattopadhyay and Pareek (1967) present an "adoption quotient" which accounts for: the extent of adoption for any particular practice, the practices, the weight to be given to each practice, the time of the inquiry, and the specific time each practice was introduced into the community. Presser (1969) advocates a geometrical weighting system which gives higher scores for all who were innovators twice than for anyone who was never an innovator. The weighted score is based on halving the weights for each half standard deviation after 2.0 standard deviations before the mean. Bose (1962) has reported an "adoption index" composed of the total number of years a farmer has used Extension recommended farm practices.

A problem with additive innovativeness scales is the presence or absence of error variance. As mentioned,

composite scales may or may not be reliable indexes of a generalized quality of innovativeness. Moreover, empirical indication of unidimensionality does not, in and of itself, eliminate the problem of masked relationships between individual scale items and selected antecedent variables.

Recent evidence has indicated for example that composite scales may conceal more than they reveal. Von Fleckenstein (1974; pp. 259-260) reports that "by treating innovations individually, it was possible to determine relationships that would have been masked by a composite measure." He further notes "in many cases, variables significantly relate to early adoption of a particular innovation, such as information sources or yields, would have been meaningless. In other cases, variables significantly related to early adoption of a particular type of innovation would have been unrelated to an additive scale containing all innovations."

This research avoids constructing a composite scale of recreational innovativeness and instead uses a single practice score. Each respondent was asked, "In what year did you first purchase a snowmobile?" The raw years were converted into innovativeness scores by use of the Rogers, Havens and Cartano (1962) "sten score" technique. Briefly, this technique converts raw scores into standard scores ranging from 0 to 9. Those receiving a score of 9 are the earliest adopters while those receiving 0 are the latest adopters of a practice. The data in Table 9 represents the numbers and percents of snowmobile owners at each sten score. The data indicate a relatively symmetrical distribution approaching the normal curve.

### Findings

The general findings of this report will be divided into two parts. The first part will present data pertaining to the social psychological and demographic correlates of snowmobiler innovativeness. The second will present

data pertaining to the information sources used by snowmobile owners in deciding to accept the snowmobile.

Data will also be presented which examine the presence or absence of a relationship between selected personal characteristics of snowmobile owners and information sources used at each of the three stages of decision-making.

## Correlates of Innovativeness:

### A Multivariate Approach

The data in Table 10 presents the relationship between each independent variable and innovativeness scores. The relationships are described by use of three statistical coefficients: zero order correlation coefficient, regression coefficient and path coefficient.

Zero order correlation indicates the degree of association between independent and dependent variables. The data indicates that perceived recreational opportunity ( $X_2$ ), peer group ownership ( $X_9$ ), number of snowmobiles in the household ( $X_{12}$ ), number of family members using the snowmobile ( $X_{13}$ ), social participation ( $X_{17}$ ), years in the area ( $X_{19}$ ), years in the state ( $X_{20}$ ) and age ( $X_{22}$ ) are positively associated with innovativeness scores ( $P \leq .05$ ).

The data in Table 10 also indicates that owner satisfaction ( $X_{15}$ ), contact with manufacturers ( $X_{16}$ ), size of hometown ( $X_{18}$ ) and physical fitness value orientation ( $X_{27}$ ) are significantly related ( $P \leq .05$ ) to innovativeness although negative in polarity.

The results of simple correlation analysis may be misleading, since the procedure does not partial or hold constant each of the other independent variables. Hence, the connections observed between each of the independent variables and the innovativeness scores may be spurious because of co-variance with other antecedent variables in the analysis.

The results of regressing innovativeness scores on the independent variables ( $X_1$  through  $X_{27}$ ) are also presented in Table 10. The path coefficients are equivalent to standardized partial regression coefficients ( $b^*$ ) and indicate that past outdoor recreational activities ( $X_{11}$ ), satisfaction ( $X_{15}$ ) and size of hometown ( $X_{18}$ ) exert direct negative effects on individual innovativeness scores. The coefficient of determination ( $R^2 = .42$ ;  $F = 1.92$ ;  $P \leq .05$ ) indicates that all 27 variables, taken together, explain 42 percent of the total variance in the dependent variable. The null hypothesis that the total regression model does not explain individual innovativeness is therefore refuted at the five percent level of significance.

Standard and unstandardized partial regression analysis examine the effects of all independent variables on the dependent variable simultaneously. Draper and Smith (1966) suggest that an appropriate statistical procedure for model building is forward solution regression analysis. The term "model building" refers to the idea that researchers can obtain the best least-squares predictive equation for a given criterion variable while controlling the number of independent variables in the analysis.

The data in Table 11 represents the final step of forward regression analysis. The procedure was terminated after 20 steps, since the addition of independent variables after 20 steps contributed negligible explanatory power to the overall regression model.

The data reveal that the most important predictor of snowmobiler innovativeness is the number of years the owner has resided in the area (+). The data indicate that this variable alone explains fifteen percent ( $R^2 = .15$ ;  $F = 17.81$ ;  $P \leq .01$ ) of the total variance in respondent innovativeness scores.

The second most important predictor is the number of snowmobiles owned (+).

The data indicate that as there are increases in snowmobiles owned, there are increases in attendant innovativeness scores. This variable alone contributes approximately four percent ( $R^2 = .04$ ) to the explained variance in the dependent variable.

The third most important variable is the degree to which owners perceive opportunity for recreation and leisure (+). The regression coefficient ( $b = .37$ ) indicates that the relationship is positive and reduces unexplained variance in the dependent variable by approximately three percent ( $R^2 = .35$ ;  $F = 5.019$ ;  $P \leq .01$ ). The null hypothesis that these eight variables together do not explain snowmobiler innovativeness may be rejected at the one percent level of significance. The remaining 19 independent variables together only account for an additional seven percent variance in sten scores and, hence, are relatively unimportant to explanations of innovativeness.

### Summary and Discussion

Forward regression analysis revealed that certain antecedent variables are relatively more important than others in explaining innovative behavior for a proportional random sample of South Dakota snowmobile owners. In some cases, the direction of relationship between each variable and individual sten scores was contrary to expectations. The eight most important predictors, their direction of relationship and order of importance are presented below:

- |                                       |   |
|---------------------------------------|---|
| 1. Years resided in the area          | + |
| 2. Number of snowmobiles owned        | + |
| 3. Perceived recreational opportunity | + |
| 4. Years resided in South Dakota      | + |
| 5. Childhood outdoor activity         | - |
| 6. Perceived snowmobile satisfaction  | - |

- |                                  |   |
|----------------------------------|---|
| 7. Size of hometown              | - |
| 8. Perceived self innovativeness | + |

The research described in this section of the bulletin cannot be considered definitive. For one reason, the research is solely exploratory and relates to snowmobiler innovativeness. Additional research is needed to replicate and cross-validate these findings.

In addition, this research focuses on the acceptance of a tangible or material innovation. Future studies might examine the correlates of individual acceptance of ideational innovations which have no physical referent. These limitations notwithstanding, the findings presented here seem to advance the conclusion that the same or similar variables found to explain farm operator innovativeness may be extended to explanations of recreational innovativeness.

In many cases, however, the direction of relationship between each independent variable and innovativeness reverses when examined in a recreational setting. For example, childhood recreational activity was observed to vary negatively with snowmobiler innovativeness after partialing for other independent variables (see path coefficients in Table 10). Likewise, a reexamination of Table 10 indicates that physical fitness value orientation has a negative connection to innovativeness sten scores. The correlation between childhood recreational activity and physical fitness score is positive ( $r = +.18$ ;  $P \leq .05$ ). These data together may be taken to mean that the snowmobile innovator is not the "rugged outdoorsman" hypothesized. Rather, his personal profile runs counter to this commonly held stereotype.

A negative association was also observed between perceived snowmobile satisfaction and innovativeness (see path coefficients). This finding may

be partially explained by the imperfections of early snowmobile models. Since innovators are relatively early in accepting new ideas, they experience mechanical defects associated with the invention stage of these technologies.

Size of hometown was observed to be an important demographic correlate of innovativeness scores. The data indicated that individuals with high scores came from relatively small hometowns. This datum can be explained by the fact that rural townships and areas contain more spatial area and, hence, afford more opportunity for snowmobiling and outdoor related activities.

Manufacturers and distributors of snowmobiles frequently encounter various publics which may be potential adopters of their products. A common assumption held by many commercial dealers is that income or ability to pay has an impact on consumer acceptance or nonacceptance of these projects. The data presented here refute this assumption. Efforts to increase or in some way modify the acceptance of snowmobiles should not be directed toward high income groups. Rather, advertising and promotional programs should, in some way, be coherent with the idea that innovators tend to come from small towns, have longer community residence, and perceive greater recreational opportunity than individuals less innovative.

### Information Sources

In this section of the bulletin, information sources used by snowmobile owners at each of three stages of the adoption model are examined. Attention will also be directed toward the personal characteristics of owners as they relate to type of information sought at each of the stages.

The data in Table 12 represents the numbers, percents and rankings of sources of information mentioned by respondents at the awareness, information and evaluation stages of decision-making. The data indicate that the

most important source of information at the awareness stage is "friends and neighbors" which is mentioned by slightly over one-half the total sample. The second most important source of information is "newspapers and magazines" and is mentioned by over 15 percent of the sample.

At the information stage, however, commercial dealers obtain primacy followed by "friends and neighbors" and "other people." Rankings are stable when the information and evaluation stages are compared.

The data in Table 12 is ordinal in nature. Kendall's Coefficient of Concordance ( $W = .87$ ;  $P \leq .01$ ) was calculated to indicate the degree of relationship between the three rankings of information at the awareness, information and evaluation sources. The coefficient is significant at the one percent level and indicates that the null hypothesis of no relationship between information sources at all stages is refuted. This in turn is interpreted to mean that information sources do not vary between stages of decision-making.

Some distinct trends in the data are noteworthy. First, the data is somewhat consistent with past diffusion research in that impersonal sources of information such as newspapers, magazines, radio and television are relatively more important at the awareness stages. Research has shown that the influence of impersonal sources of information increase in importance at later stages of decision-making (Beal *et al.*, 1957; Rogers, 1962). This data is in sharp contrast to this observation.

Personal sources such as "friends and neighbors" have a lessened importance at subsequent stages of decision-making. This trend may be explained by the influence of "commercial dealers" in the decision-making process. "Commercial dealers" increase in importance from initial exposure to the idea of snowmobiles to the final decision to purchase. This may be due to the fact

that "commercial dealers" have greater technical expertise when applied to snowmobiles than do the friends and neighbors of potential adopters.

In Table 13 are the data relating snowmobile owner characteristics with information sources mentioned at each stage of the adoption model. Sources such as "friends and neighbors," "self," "relatives" and "others" are combined under the general category of "Personal." Snowmobile owners mentioning "mass media," "newspapers," "magazines," "radio," and "TV" were combined and labelled as "Impersonal."

The "t" test of difference between sample means for independent samples was calculated. Three of 15 comparisons were observed to be statistically significant. At the awareness stage, there is a significant difference in age between those using personal and impersonal sources of information ( $t = 2.66$ ;  $d.f. = 2.15$ ,  $P \leq .01$ ). The sample means indicate that snowmobile owners mentioning impersonal sources are older ( $X = 42.9$ ) than those using more personal sources ( $X = 37.9$ ). At the information stage, owners mentioning impersonal sources have more friends who own snowmobiles ( $X = 48.8$ ) than those reporting personal sources ( $X = 27.1$ ). Moreover the difference in sample means is significant at the one percent level ( $t = 2.80$ ;  $d.f. = 2.11$ ;  $P \leq .01$ ). Finally, at the evaluation stage, there is a significant difference in age between those using personal and impersonal sources ( $t = 2.36$ ;  $d.f. = 205$ ;  $P \leq .02$ ).

The sample means indicate that snowmobile owners mentioning impersonal sources are relatively older ( $X = 45.2$ ) than those reporting more personal sources ( $X = 38.6$ ). The difference between sample means is significant at the two percent level.

The data in Table 14 describes the relationship between income and type of information used at each of the three stages of the adoption process. Income levels were combined into low, medium

and high categories. A chi-square test of independence was calculated for each stage separately. At the awareness stage, the chi-square statistic indicates that the null hypothesis of no difference between those mentioning impersonal and personal sources on income level may not be rejected (Cramer's  $V = .077$ ). At the information stage there is little difference in income levels between snowmobile owners using personal and impersonal sources. The chi-square statistic indicates that the null hypothesis may not be refuted at a significant level of probability (Cramer's  $V = .008$ ). Finally, at the evaluation stage, the test statistic indicates that the null hypothesis of no difference in the income levels between those using personal and impersonal sources may not be rejected at the five percent level (Cramer's  $V = .008$ ).

Adoption-diffusion researchers have found that farm operator innovativeness is related to type of information sought at each stage of the adoption model (Beal, et al., 1957). Farm operators who are more innovative tend to use more impersonal sources of information across all stages of the adoption model.

Innovativeness is frequently examined by use of five adopter categories (Beal, et al., 1957; Rogers, 1962). Each category represents increasing degrees of innovative behavior. Respondent innovativeness sten scores were combined into these classifications for chi square analysis. The classification and percents of respondents within each are the following: "Innovators" (2.9%), "Early adopters" (11.4%), "Early majority" (35.7%), "Late majority" (31.9%), and "Laggard" (18.1%). It should be noted that innovators are the first 2.9% of the sample accepting snowmobiles while laggards represent the last 18.1% of the sample. Other classifications represent intermediate positions on the innovativeness continuum.

Laggards are late adopters and have been observed to use more personal sources of information. The data in Table 15 indicate that this observation may not be generalized to snowmobile

decision-making. Chi square was calculated for each stage separately and indicates that no difference or relationship exists between adopter classification and type of information reported for each stage.

Most farm-related adoption studies have not examined the relationship between sex and types of information reported, since most decision-makers are males. These data are reported in Table 16. The data indicate that males tend to use more impersonal sources of information at the information and evaluation stages than female snowmobile owners. The chi-square tests of independence were calculated at each stage and indicate that the proportions of male and females using impersonal sources of information is not significantly different ( $P \leq .10$ ). Therefore, the differences attributed to sex within the samples may not be generalized to the population of state snowmobile owners.

## Summary and Discussion

This bulletin has presented data relating to (a) the importance of information sources at each of the first three stages of decision-making and (b) the personal attributes of snowmobile owners as they relate to information used at each stage of the adoption model.

Many of the findings and generalizations of past diffusion studies were not found to hold for sampled snowmobile owners in South Dakota. More specifically, the data contained in this report indicate the following: (a) the adoption model, although useful in generating explanations of farm operator decision-making, does not fully describe the process of decision-making when considering the purchase of snowmobiles, (b) personal sources of information are relatively more important than impersonal sources across the first three stages of the adoption model and (c) few snowmobile owners' personal characteristics relate significantly to information-seeking behavior. Age, as a personal characteristic, was observed to

relate to the type of information chosen at the awareness and evaluation stages of the adoption model. Older snowmobile owners tend to use more impersonal sources of information than younger owners.

The findings of this study may, in large part, be due to the rather specialized nature of the sample. Past diffusion studies have focused on individual farm operators in selected counties, areas and states. This study, however, sampled state snowmobile owners who registered their vehicles with the Department of Public Safety. Yet, an adoption-diffusion approach is middle range theory and should account for decision-making in diverse settings. It has not. The decision-making model, therefore, needs further examination and refinement if it is to apply to recreational decisions.

## Implications of the Study

The practical implications of this study are several. Another section of this report found that the number of dealer visits before purchasing the snowmobile has little influence on the degree to which owners are early versus late in accepting the snowmobile. In this section, however, "dealers" were found to be among the most important source of information at the information and evaluation stages of decision-making. These findings together seem to indicate that quantity of visits is unimportant as an explainer of innovativeness although dealer visits are important in the final decision. Snowmobile manufacturers and dealers may want to incorporate these findings in potential marketing programs and policies.

Impersonal sources of information were observed to be relatively unimportant in the decision-making process. Age, however, relates to the greater use of impersonal sources. The implications of these findings for snowmobile marketers are that either the quality, quantity of mass media advertising is inadequate. Whatever changes are

contemplated in mass media advertising should be directed toward an older, target audience.

For those wishing a complete manuscript of this study, send your order to: Rural Sociology Department, Scobey Hall, South Dakota State University, Brookings, SD, 57006.

### Resources

1. Anson, Richard H., "Adoption-Diffusion: A Perspective for Recreation and Leisure Research," Journal of Leisure Research, Vol. 7, 1975, pp. 154-156.
2. Beal, George, Everett M. Rogers and Joe M. Bohlen, "Validity of the Concept of Stages in the Adoption Process," Rural Sociology, XX, June, 1957, pp. 166-168.
3. Blau, Peter, "Structural Effects," American Sociological Review, XXV, April, 1960, pp. 178-193.
4. Bohlen, Joe and Thomas Bretnach, "Irish Farmers Use of Information Sources," Irish Journal of Agricultural Economics and Rural Sociology, III, 1970, pp. 1-32.
5. Bose, S. P., "Socio-cultural Factors in Farm Efficiency," Indian Journal of Extension Education, I, 1965, pp. 192-199.
6. Bose, S. P., "Peasant Values and Innovation in India," American Journal of Sociology, LXVII, 1962, pp. 552-556.
7. Burdge, Rabel, Communications "The Nature of Leisure Research: A Reflection and Comment," Journal of Leisure Research, III, Summer, 1972, pp. 215-217.
8. Chattopadhyay, S. N. and Udai Pareek, "Prediction of Multi-practice Adoption Behavior from Some Psychological Variables," Rural Sociology, XXXII, September, 1967, pp. 324-333.
9. Chubb, Michael (ed.), Proceedings of the 1971 Snowmobile and Off the Road Vehicle Research Symposium, East Lansing, Michigan: Michigan State University, 1971. Technical Report Number 8.
10. Draper, Norman and Harry Smith, Applied Regression Analysis, New York: John Wiley and Sons, 1966.
11. Flinn, William L., "Influence of Community Values on Innovativeness," American Journal of Sociology, LXXV, May, 1970, pp. 983-991.
12. Havens, Eugene, A Review of Factors Related to Innovativeness, Ohio State Agricultural Experiment Station, Bulletin 329, 1962.

Continued on back cover.

13. Kerlinger, Fred N., Foundations of Behavioral Research, New York: Holt, Rinehart and Winston, 1973, pp. 414.
14. Kish, Leslie, "Some Statistical Problems in Research Design," American Sociological Review, 24, June 1959, pp. 328-338.
15. Kuhn, Thomas, The Structure of Scientific Revolutions, Chicago: University of Chicago Press, 1962.
16. Morrison, Denton, "Significance Tests Reconsidered," The American Sociologist, 4, May, 1969, pp. 131-140.
17. Presser, H. A., "Measuring Innovativeness Rather Than Adoption," Rural Sociology, XXXIV, 1969, pp. 510-527.
18. Rogers, Everett M., The Diffusion of Innovations, New York: MacMillan Press, 1962.
19. Rogers, Everett M., A. Eugene Havens, and Darrel A. Cartano, The Construction of Innovativeness Scales, Ohio State Agricultural Experiment Station, Mimeo Bulletin A. E. 330, 1962.
20. Von Fleckenstein, Fritz, Commentary "Are Innovativeness Scales Useful?" Rural Sociology, XXXIX, Number 2, Summer, 1974, pp. 257-260.