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| <p>This is a final report of research conducted between September, 1978, and December, 1980. The organization of social information was explored through a series of laboratory studies. The first series of studies examined the effects of familiarity on the processing of information about a group of other persons. The remaining studies explored specific components of familiarity, including perceptual discriminability, social discriminability, and frequency of association.</p> |                                      |  |

## THE ORGANIZATION OF SOCIAL INFORMATION

In the course of their day-to-day activities people receive an enormous amount of information about a large number of other people, obtained either directly through interaction and observation or indirectly through secondary sources. As has been recognized for a long time (e.g., Lippman, 1922), people cannot hope to hold in their memory each discrete item of information they encounter. To make living more manageable, people need to cognitively classify and organize this information as it is received. The manner in which people organize social information has an important bearing on the extent to which they will, for example, trust, seek out, or cooperate with others, as well as how much they will discriminate against, aggress against, or reject others.

In recent years the Navy has attracted more ethnic minorities and women into its ranks. This increased cultural diversity has created problems involving the effective integration of these personnel into the Navy's organizational structure. Minority-group personnel have complained that prejudicial decisions limit their upward mobility and interfere with optimal job assignments. If these beliefs are veridical then the full potential of these naval personnel is not being effectively utilized. While there exist guidelines for recruitment, assignment and promotion processes, such complex interpersonal decisions are inevitably influenced by the decision-makers' personal perceptions of the individual about whom such decisions are made.

Problems stemming from cultural, sexual, or age heterogeneity are not limited to formal decision making. Culturally diverse work and living groups may also experience difficulties in their informal day-to-day communications. Stereotyped perceptions and expectations of other group members can influence the level of trust and cooperation between the diverse individuals.

Through a psychological analysis of general person perception processes, it is possible to assess the cognitive antecedents of biases in interpersonal communication and decision making. For example, consider the situation where an officer makes a promotion decision concerning some individual in an ethnically heterogeneous group. In order to understand the dynamics of this decision we must examine the officer's mental representation of available information concerning the person being considered for promotion. Of special concern is the extent to which the officer accurately perceives and organizes this information in his or her mind. The officer should ideally base his or her decision on the individual merits of a person, rather than being influenced by the person's minority group classification.

A central question in this analysis involves the organizational schema that the officer imposes upon information concerning each of the members in his or her unit. Impartial judgments should result if individual members of the group serve as organizational foci in the officer's mental representation. When this is the case, the officer's decision should reflect his or her consideration of the personal merits of each individual in the group. Alternatively, the officer might mentally organize the information about the group members according to other foci such as ethnic labels. In this latter state of affairs, the merits of some individual within a particular ethnic category may not be attributed to him or her individually. Indeed his or her merits

may be mentally subsumed and diffused into the subgroup which bears a common ethnic label. Thus, while this ethnically-labeled individual might be equally deserving relative to the promoted individual, his or her merits would go unnoticed and unrewarded.

The above is an example of one of the many social situations which may be elicited by an understanding of how people memorially represent and organize interpersonal information. The cognitive basis of conflicts and uncooperative attitudes within culturally heterogeneous or sexually mixed social units should also be clarified by such analyses.

This research was concerned with the manner in which people cognitively organize social information. We use the term "social information" in its broadest sense. It refers to the temporal flow of information about other people, with special emphasis on situations in which people receive two or more units of information about each of two or more persons. Most past work in the area of impression formation has studied settings in which subjects are given information about only one stimulus person. We argue that new considerations arise when the stimulus field contains multiple information items about each of several persons.

#### Historical Prelude

Soloman Asch (1946) was one of the first social psychologists to study the organization of person impressions. He started from the premise that items of information about a single person would form a perceptual unit. The resulting "gestalt" would influence the interpretation of each of the elements so as to make them consistent with the overall theme of the impression. First impressions, then, were viewed as being organized around an overall theme.

Asch explored two possible determinants of the organizing theme, trait centrality and order of presentation. Some traits (or, more generally, person features) were thought to be especially salient, vivid, or otherwise dominant so as to emerge as the focus of organization. In his research, traits such as warm and cold appeared to occupy this central position. Analogously, sociological literature has argued that person features which are "deviant" within a particular culture may serve a similar organizing function in person perception.

Order of presentation is the second variable studied by Asch. He found evidence in support of the view that the first items in the sequence of person information provide a thematic organization into which the later items are integrated.

Subsequent work on the variables of centrality and order moved away from the question of impression organization and looked instead at the effects of these (and other) variables on trait inference and impression favorability judgments (c.f., Anderson, 1974; Rosenberg & Sedlak, 1972). Not until very recently (e.g., Anderson & Hastie, 1974; Cantor & Mischel, 1977; Lingle & Ostrom, 1981) have social psychologists returned to Asch's original concern regarding the thematic organization of impressions.

There has now emerged a healthy interest in American social psychology with the cognitive organization of social information. This interest has extended beyond understanding the organization of information about a single person (Asch's objective) to the organization in memory of information about several other persons (e.g., Picek, Sherman, & Shiffrin, 1975) as well as about the self (e.g., Markus, 1977; Rogers, Kuiper, & Kirker, 1977).

This renewed attention to the manner in which people organize social information is not only welcome, but it represents an important advance over previous work in the field of impression formation and person perception. It allows us to theorize about which items of social information get categorized together, how one thought follows from another thought, and the manner in which people retrieve previously learned items.

### Objectives of This Research

In the Navy, as with any other organization, most activities involve people working with people. Personnel are continually involved in informal day-to-day interaction; also, they must make (or respond to) more formal supervisory and command decisions. In all these interpersonal responses, people must draw upon their memory of previously acquired information about the other group members. We want to find out how such social information is organized in memory.

Previous research in the area of person perception has uncritically accepted the assumption made by Asch regarding the "unity" of person impressions. It was assumed by Asch that subjects automatically form a "person gestalt" when exposed to a set of information items about a particular person. This research explored the possibility that there are several factors which determine the strength of the "person gestalt." When the stimulus field contains a variety of information items about several people, there may be circumstances under which the information items are not organized around persons at all. For example, a culturally heterogeneous work group might contain two members from a similar ethnic background. The group leader (and other group members) may not effectively differentiate between the two persons in terms of how information about the two is organized in the perceiver's memories. The individual strengths and weaknesses of the two may be obscured in memory by the fact of their common ethnic characteristics. We view the problem of discovering the determinants of the strength of the "person gestalt" as being fundamental to all work in person perception. If there is no cognitive unit representing the person, there can be no within-person organization of information.

### Initial Investigations into the Organization of Social Information

A newcomer joining a group finds that there is a great deal of information to be learned in his or her first days and weeks in the group. New members slowly acquire a wide variety of behavioral observations, facts, gossip, and personal impressions about the other group members. For example, a new group member may encounter the following items (in the following order) during the early stages of group interaction:

Bill is outgoing  
Ann is from Arlington  
Bill is from Columbus  
John is quiet  
John is from New York  
Ann is formal



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It can be seen that this information sequence contains four characteristics of "social information." The list a) contains several items about each of several people, b) is sequentially encountered, c) is in haphazard order (in regard to persons), and d) some items are repeated (e.g., person names).

If the newcomer organized this information set by person, he or she would be able to recall that Bill was outgoing and from Columbus, that Ann was formal and from Arlington, and that John was quiet and from New York. Each of the facts about a particular person would be directly associated with that person. An item of social information refers to any feature or characteristic of a person that is discriminable (i.e., represents an identifiable unit) by the observer. It may be an observed behavior sequence, a belief about the person's past, a physical feature, a trait or any other of a multitude of such possible characteristics. Naturally enough, features are associated with a specific person at the time they are perceived. In the language of associative network theories (e.g., Anderson & Bower, 1973; Collins & Loftus, 1975; Kintsch, 1974), a person node is created in memory when the first item of information is received and a pathway is established between the person node and a node representing the feature. As additional characteristics of a person are observed, new feature nodes and their pathways to the person node are created.

Social information is not always organized by person. Other pathways from the information items (i.e., the person descriptors) to non-person nodes may be stronger than those to the person nodes, and therefore dominate the cognitive organization. For example, the newcomer may remember that he learned that the people in his group were from New York, Arlington, and Columbus, but not be able to recall which person was from which city. This is an example of using "descriptor category" (e.g., home town) as the basis of organization. A more subtle example of organization by descriptor category is when the person remembers having met one female and two males, and knows that one of the males was outgoing, but can't recall whether it was the one from Columbus or the one from New York. He may remember that the first person he met was outgoing and the last person he met was from New York, but not recall where the first person was from or what the last person was like. This is an example of organization by temporal sequence.

The objective of this research was to find a way to investigate the extent to which people organize person information by persons. Since there had been no previous work on this problem in social psychology, we were faced with a dual problem. It was to devise ways of measuring person organization while at the same time searching for substantive variables that influence the strength of person organization. We decided to adopt a multiple operationism approach to the assessment problem and to explore the role of "familiarity" as a substantive issue.

#### Multiple Operationism

Measures were needed that would reflect the extent to which people organized social information around persons. Traditional methods in person perception and stereotyping were inadequate. The methods typically used in those areas were interviews, adjective check lists, rating scales, and listed thoughts. But for all these methods, the target person or group must be explicitly identified to the respondent as a condition for their use. They do not allow an assessment to the extent to which the information that people have learned about their social environment is strongly linked to (or associated with) the persons in that environment.

The multiple operationism approach was originated to provide converging evidence for the existence of a theoretical construct (see Garner, Hake, & Ericksen, 1956; Webb, Campbell, Schwartz, & Sechrest, 1966). If a particular attitude change procedure affects attitude when measured by three methodologically distinct methods, we are more confident that the underlying attitude was actually affected than had we used only one measurement operation. This is because the use of three operations reduces the likelihood that the effects were due to some methodological artifact inherent in the one method.

We felt that there were additional reasons for adopting the multiple operationism approach in this case. Since there had been no previous research on this problem, there was no empirical basis on which we could select among potential alternatives. Second, we felt that the issue of person organization was central to a variety of cognitive activities, and that it would be appropriate to examine the implications of person organization on several of these activities.

We selected three tasks that were in current usage in cognitive psychology, and that reflected different phases in the cognitive processing of information. One was an input task that was relevant to how people classify or categorize social information into person categories. The second was a processing task that measured the ease with which one thought leads to another when both thoughts are about the same person. The third task was an output task that looked at how person organization affected the overt communication of person information.

The input task (see Garner, 1969) involved sorting a deck of 3x5 index cards, with each card containing a person's name and a fact about the person. Each deck would have several cards (each with a different fact) for each of several different persons. The cards would be in random order and subjects were required to sort them into piles according to persons (i.e., one pile for each person). To insure that subjects read the facts that were on the cards, subjects were asked to "proof read" each of the cards before sorting. It was predicted that the speeded categorization of the cards by person would be fastest when the social information was organized by person than when it was not.

The processing task (see Johnson, 1978) involved having people learn a set of three descriptors (information items) for each of three person. Subjects were then presented visually with pairs of descriptors (without the person names) and asked to indicate whether both members of the pair were in the original information set. Half of the pairs were and half were not in the original set. The dependent variable was the speed with which subjects responded "true" for the items in the original set. There were two kinds of "true" items. In one, both descriptors in the pair were from the same person and in the other each descriptor in the pair came from a different person. If the social information is organized by person, subjects should respond "true" faster when both items are from the same person than when they are from different persons. If the information is not organized by person, the difference in those two response speeds should be zero.

The third task was an output task (see Bousfield & Bousfield, 1966), and it involved people learning a set of social information items. After receiving a set of person descriptors in random order, subjects were asked to recall them in the order in which they came to mind. An analysis of that order provides an index of categorical clustering in free recall. This is done by counting the frequency with which two descriptors from the same person are recorded



adjacently in the free recall reporting sequence. This observed frequency of "category repetitions" can be compared to the chance level and to the maximum number possible. Observed repetitions at chance level yield an index of zero and the maximum number result in an index with a value of unity (Roenker, Thompson, & Brown, 1971). Information organized by person should result in a clustering index significantly above zero, whereas the index should be near zero when there is no person organization.

#### Familiarity as a determinant of person organization

Familiarity has been a relatively neglected variable in social perception research. Most research in impression formation has asked subjects to respond to hypothetical stimulus person, avoiding the complexities that arise when the target of perception is well known to the subject. While there are a number of advantages with that procedure for studying certain impression processes, that research has not advanced our understanding of the role of familiarity in social perception. This is unfortunate in that many of every-day social perceptions relate to long term acquaintances rather than to strangers.

Our basic hypothesis was that social information would be more organized by person when it is about familiar others than when it was about unfamiliar persons. Further, it was expected that this effect should be obtained with all three of our "multiple operationism" tasks.

We then proposed to examine the theoretical components of familiarity to see if we could verify their separate contributions to the overall familiarity effect. The first component was the discriminability of the persons in the groups from one another. Discriminability refers to the overlap in descriptors that characterize the several persons in the group. Groups that are fairly homogeneous (e.g., all members are of the same race and sex) are low in discriminability and should have less person organization than groups in which each member has something distinctive about him or her (e.g., a four person group in which all combinations of male/female and black/white are represented).

The second component of familiarity was the frequency of association between the person and the descriptor. Frequency should directly affect the strength of the pathway linking the person node with the descriptor node, and this in turn enhances the strength of person organization. It was expected that the effects of both theoretical components would be detectable on all three measurement tasks.

#### Findings and Conclusions

Completed research. We obtained substantial confirmation of our predictions. Since none of the three methods had been used before to study social perception, there was quite a bit of pilot testing required for each task. We have now worked the bugs out of the input and output tasks, and four studies dealing with each of those operationalizations were completed. All produced supportive results.

Soon after beginning this project, we realized that there were two foci of familiarity when the familiarity concept is applied to the domain of social information. Since an item of social information, when acquired, contains two elements (a person and a descriptor), either element can vary in familiarity. The person him or herself can vary in familiarity and the information items can be familiar or unfamiliar. Consequently, we decided to study the independent

contribution of each type of familiarity to person organization. We supplemented the original contract by conducting additional studies (for the input and output tasks). They verified that each type of familiarity is separately important in the organization of social information.

Two other major activities were undertaken as part of the initial contract. A literature review was completed that surveyed previous work published on the concept of "familiarity" in both cognitive psychology and social psychology. This review was extremely useful in putting the present work into the broader perspective of other research on the topic.

The second activity was the preparation of stimulus material that would allow the meaningful investigation of "familiarity" with appropriate experimental controls. To test the overall effects of familiarity, we assembled four stimulus replications each containing five well known facts about each of five famous people. The names and facts were obtained from a sample of undergraduates at Ohio State--the same population from which our subjects would later be taken. From these data we were able to construct four stimulus replications in which the items of social information would be identical in both the familiar and unfamiliar conditions (see Ostrom, Pryor, and Simpson, 1980, for a description).

For our discriminability studies, it was necessary to prepare a new pool of stimulus items. We decided to use categories of person information that undergraduates considered to be relevant to forming impressions of other undergraduates (Ostrom, 1975). Sixteen categories were set up and at least four items were generated per category. For example, the category of class rank contained freshman, sophomore, junior, and senior. We believed that using such items of person information in our tasks would make the experience more meaningful for our subjects.

Substantive conclusions. So far the data has been highly supportive of our predictions. In our initial series of studies we found that overall familiarity influenced the degree to which social information was organized by person. This effect was detected in all three of our "multiple operationism" tasks. The theoretical components of discriminability and frequency of association were found to separately contribute to the overall familiarity effect. Finally, familiarity of name and familiarity of descriptor are independent components of items of social information.

These data convincingly supported our original contention that research in social perception should not be confined to the study of individuals in isolation as in impression formation research or to groups (as in stereotype research). It needs to be extended to the perception of individuals within groups. This research also established that persons are not always the basic unit of organization for social information. Having established the viability of this new area of research, both as having substantive interest and being methodologically tractable, there is a clear need to explore further the antecedents and consequences of the manner in which people organize social information.

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## Communication Activities

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Ostrom, T. M., Lingle, J. H., Pryor, J. B., & Geva, N. Cognitive organization of persons. Ohio State University, August, 1979.

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##### TR#3

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##### TR#4

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##### LR#3

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LR#6

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LR#9

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Contract Personnel

|                     |   |
|---------------------|---|
| Barbara Aronson     | Computer Programmer - July, 1979-December, 1980   |
| Seville Bates       | Secretarial Worker - July, 1979-December, 1980  |
| Freeman Clark       | Unpaid Undergraduate Student - July, 1979-September, 1980   |
| Jerry Diday         | Unpaid Undergraduate Student - October-December, 1978   |
| Janet Dukerich      | Graduate Research Assistant - October, 1979-March, 1980<br>Graduate Clerical Assistant - July-September, 1980<br>Undergraduate Work-Study Student - October, 1978-March, 1979<br>Undergraduate Clerical Worker - April, 1979-September, 1979<br>Unpaid Graduate Student - April-June, 1980;<br>October-December, 1980 |
| Mary Beth Greenwell | Unpaid Undergraduate Student - October-December, 1980   |
| Cindy Gruber        | Unpaid Undergraduate Student - October, 1978-March, 1979<br>Undergraduate Clerical Worker - April-June, 1979  |
| David Harris        | Undergraduate Work-Study Student - July, 1979-September, 1980   |
| John Herstein       | Post-Doctoral Research Associate - October, 1979-December, 1980   |
| Tammy Holcomb       | Unpaid Undergraduate Student - October-December, 1979   |
| Mike Hyde           | Graduate Research Assistant - July, 1979-September, 1980<br>Unpaid Graduate Student - April-June, 1979  |
| Mildred King        | Unpaid Undergraduate Student- October-December, 1978  |
| Robert Knox         | Unpaid Undergraduate Student - October-December, 1979   |
| Teresa Lewis        | Unpaid Undergraduate Student - October-December, 1979   |
| Barbara McLaurine   | Undergraduate Work-Study Student - July, 1979-June, 1980  |
| Mark Mitchell       | Graduate Research Assistant - October, 1978-September, 1980<br>Unpaid Graduate Student - October-December, 1980   |
| Thomas Ostrom       | Principal Investigator - October, 1978-December, 1980   |
| Penny Parr          | Undergraduate Work-Study Student - October 1980-December, 1980  |
| John Pryor          | Co-Principal Investigator - October, 1978-December, 1980<br>Assistant Professor at the University of Notre Dame<br>October, 1979-December, 1980   |
| Sandy Regas         | Secretarial Worker - July-September, 1979   |

|                  |   |
|------------------|---|
| David Simpson    | Assistant Professor at Carroll College - October, 1978-<br>December, 1980   |
| Patty Smith      | Unpaid Undergraduate Student - October-December, 1978<br>Undergraduate Clerical Worker - January-September, 1979                          |
| Dave Steigerwald | Undergraduate Work-Study Student - October, 1979-March, 1980<br>Undergraduate Clerical Assistant - April-December, 1980                   |
| Linda Tyner      | Graduate Research Assistant - January-September, 1979<br>Unpaid Graduate Student - October-December, 1978<br>October, 1979-December, 1980 |
| Tim Vance        | Unpaid Graduate Student - January, 1979-December, 1980  |
| Joann White      | Secretarial Worker - April-June, 1979   |
| Tom Zureick      | Undergraduate Work-Study Student - October-December, 1980   |

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