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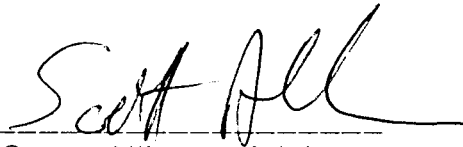
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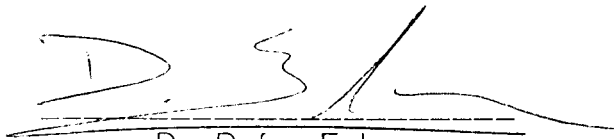
I certify that I have read this thesis and find that, in scope and quality, it satisfies the requirements for the degree of Master of Arts.

A handwritten signature in cursive script that reads "Scott Allison". The signature is written in black ink and is positioned above a horizontal dashed line.

Dr. Scott Allison, Advisor

A handwritten signature in cursive script that reads "Amelia D. Compton, Ph.D.". The signature is written in black ink and is positioned above a horizontal dashed line.

Dr. Amelia Compton

A handwritten signature in cursive script that reads "Dafna Eylon". The signature is written in black ink and is positioned above a horizontal dashed line.

Dr. Dafna Eylon

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Abstract

Previous studies on resource-sharing behavior have revealed a number of factors which influence the decision-making process. For example, Allison and Messick (1990) found payoffs, resource divisibility, fate control, and social values to be significant factors influencing resource-sharing decisions. Information sharing behavior, however, remains relatively unexamined. The present study was designed to investigate the effects of three situational cues on information sharing behavior, including the type of information at hand (ambiguous or concrete), the amount of time allotted to complete a task, and the availability of a team of experts. Results indicated a two-way interaction between the type of information and target (partner or competitor), $F(1, 76) = 39.28, p < .001$, demonstrating a tendency for individuals to share concrete information with their partners and ambiguous information with their competitors regardless of the given time frame or availability of a team of experts. These findings contradict those of Allison and Eylon (1996), which showed that participants preferred to share ambiguous information with their partners and concrete information with their competitors. Possible explanations for these findings and suggestions for future research involving information sharing behavior are discussed.

Temporal, Social and Meaningful Aspects of Information Sharing Behavior

The act of sharing occurs in countless facets of life. Materials, physical space, and time are but several of the many shared resources which must be allocated daily. One strand of research regarding the division of allocated resources has been dedicated to the investigation of the rules or *social decision heuristics* people use when deciding how to allocate shared resources (e.g., Allison & Messick, 1990; Rutte, Wilke, & Messick, 1987). More recently, Samuelson and Allison (1994) examined some of the cognitive factors affecting the implementation of social decision heuristics in resource sharing situations. Another strand of research on sharing focuses on information sharing behavior (e.g., Schermerhorn, 1977; Palmer, 1990). Information sharing research, however, has been dominated by questions about power-dependence relations between interacting organizations (e.g., Pfeffer & Leong, 1977) and the development of interorganizational relationships through the exchange of information (e.g., Levine & White, 1961; Czepiel, 1975). The purpose of this study is to test whether information sharing behavior is affected by the type of information (ambiguous or concrete) at hand; specifically, which type of information managers of a partnership are more willing to divulge to their own partners

and to their competitors, and how this behavior is affected when managers have access to a team of consultants.

Additionally, a temporal variable has been included in an effort to determine whether a time constraint will affect information sharing behavior. To address these issues, the present paper will include a review of the research and theories associated with social decision heuristics in the division of shared resources, and literature concerning information sharing behavior.

Social decision rules used in resource allocation

In social decision making research, the question of what rules people use when making social decisions has been prominent. Although common sense would seem to dictate that people reach social decisions after carefully weighing the benefits and drawbacks of their choices, Collett (1977) has suggested that individuals are more likely to implement a quick and efficient solution when confronted with a social dilemma. Resource allocation, a common social dilemma, is often determined by the implementation of one of three basic rules: equity, necessity, or equality. The rule of equity is applied when an individual's outcomes are proportional to his or her inputs (Adams, 1963). Thus, those who invest more (resources, ability, services) receive more (money, benefits, intrinsic rewards) in return. When decisions are based on

necessity, resources are distributed in accordance with each individual's need (Hutz, DeConti, and Vargas, 1993). When the equality rule is applied, individuals in a group are given the same amount of an allocated resource, regardless of individual contribution (Deutch, 1975). Allison and Messick (1990) propose that when these rules are applied to social choice dilemmas in order to quickly reach an acceptable solution, they may be viewed as *social decision heuristics*.

The notion of equality is an especially appealing foundation on which to base decisions concerning resource sharing for several reasons. As noted by Rutte, Wilke, and Messick (1987), it provides decision makers with a criterion or benchmark from which to make their decisions and may be viewed as a standard by which to evaluate the sharing behavior of others. Additionally, application of the equality rule requires minimal cognitive effort and is easily justifiable (Harris and Joyce, 1980).

Researchers have examined a number of factors which affect the use of the equality heuristic. In a study by Shapiro (1975), participants were asked to divide a monetary reward between themselves and a partner who had made an unequal work contribution. When participants in the high input condition anticipated future interaction with their partner, they used the equal division rule; however, when no future

interaction was anticipated, the equity rule was applied. Participants in the low input condition divided rewards according to equity, giving themselves less money regardless of whether or not they expected to interact with their partner in the future. These results indicate that the expectation of future interaction and level of input may significantly affect allocation.

Allison and Messick (1990) investigated the effects of payoffs, resource divisibility, fate control, and social values on the implementation of the equality rule. They found that group members were likely to exceed equal division when the resource was not equally divisible among group members, the payoffs were high, and the members demonstrated a "noncooperative" social value disposition. Members were less likely to exceed equal division when the resource was equally divisible among group members when monetary payoffs were low, and when they believed that the last member to draw from the pool had the power to "punish" the other group members. These results support the notion that equality is a "benchmark" from which individuals may deviate in one direction or the other, depending upon situational cues.

The Importance of environmental factors in resource allocation is further demonstrated by Allison, McQueen, and Scaerfl (1992) in a series of three experiments in which

participants in large and small groups were asked to draw from a shared resource that was either partitioned or nonpartitioned. Results indicated that the equality rule is more likely to be used when group members are dividing equally partitioned resources as opposed to nonpartitioned resources. Furthermore, members of small groups were likely to take equal amounts of a resource whether it was partitioned or nonpartitioned. Members of large groups, however, tended to take amounts greater than those consistent with equal division when sharing nonpartitioned resources but not when sharing partitioned resources. Allison, et. al. (1990) suggest that although the equality rule may serve as a basic "rule of thumb" by which to make decisions, their perceptions of what is equal may be pervaded by an "overestimation bias" that exists when nonpartitioned resources are to be divided among a large number of people. Additionally, individuals competing for resources in large groups may take slightly more than what they perceive as an equal amount to ensure that they will not be cheated out of an equal share (Messick and Thorngate, 1967), or when they feel that their overconsumption will not be easily detected due to group size (Williams, Harkins, and Latane, 1981), or nonpartitionment (Allison, et. al., 1990). Consequently, individuals in such groups who may think that they are taking only slightly more than an equal portion may be

grossly overconsuming as a result of the overestimation bias operating in conjunction with the tendency to consume slightly more than their "fair share."

Information in Organizations

The majority of research concerning information in organizations has dealt with information as secondary to some other subject. For example, information in organizations frequently appears in studies about organizational communication. A related topic in organizational literature where discussions about information can be found deals with how groups use communication technology for information processing and decision making support systems (DMSS), such as electronic mail and facsimile machines. Much of this research concerns the effect of such technology on social judgments. Whereas decision makers in organizations once relied on experience, intuition, and the expertise of others for their information, an increasing dependence on technological sources has recently emerged. Huber (1990) is one of several researchers who has shown that the circumstances surrounding decision making are dramatically impacted by technology, since much of the information used in the decision making process is provided by technological sources. Furthermore, it has been found that the use of DMSS limits important information which could otherwise be relayed

through social cues (Kull, 1982). An absence of social cues may present an especially difficult problem for new groups in which there is presumably less information than in groups which have previously established interorganizational relationships.

An important implication emerges upon reviewing the literature on information in organizations. Although information is addressed insofar as it relates to interorganizational issues such as communication, the type of information being relayed is usually not well defined, when it is defined at all. Clarification of the nature of such information may be an important prerequisite for making generalizations about interorganizational activity and communication. Additionally, the topic of information itself merits greater attention if researchers wish to study organizational communication within an information processing framework.

Information Sharing

Viewing sharing behavior in terms of quantifiable resources is not always practical. While most social decision making research is aimed to shed light on the factors which influence how individuals share tangible commodities, little research has been devoted to the dynamics and factors involved in sharing intangible commodities such as

information. Particularly in the organizational setting, information is a valuable resource which must often be allocated much in the same manner as physical resources. The exchange of information not only promotes the development of interorganizational relationships (Czepiel, 1975), but also impacts individuals and groups both socially and economically (Hodgson, 1988; Teft, 1980).

One area of information sharing which has been addressed is the impact of the environment on interorganizational processes. Thompson and McEwen (1958) examined the effect of the environment on goal-setting activity. They proposed that although different organizations envision different goals, many of the goal-setting processes experienced by these organizations are the same and are mediated by the social environment of the organization.

Thompson and McEwen (1958) further suggested that one form of environmental control which is exerted over these organizational decisions is competition. Competition implies an element of rivalry between groups or organizations, where the attainment of a resource or reward for one group means the denial of that resource or reward to other groups. To the extent that competition is an issue for a group, it influences goal-setting processes and decisions.

This theory may be difficult to test if the "goals" are not

explicitly defined. Information sharing may be considered a goal in one sense if communication among members of an organization is an objective in itself within the organization; or, it may be considered a means by which to attain a goal if information sharing is used to bring about another end result. Either way, Thompson and McEwen's theory when applied to information sharing would suggest that the amount of competition within a group or between two groups would influence the information-sharing behavior of those groups.

Following Thompson and McEwen's (1958) theory, there was a surge of research intended to investigate environmental effects on other internal organizational processes. A study by Dill (1958) examined how pressures exerted by the environment affected managerial autonomy. Research by Sampson and Gulley (1962) revealed that volunteer organizations with many pressures from the environment were more likely to be structurally decentralized, have high internal communication and high membership involvement, while those receiving less pressure from the environment were more likely to demonstrate centralized structure, lower internal communication, and less membership involvement. Yuctman and Seashore (1967) attempted to define "organizational effectiveness" in terms of an organization's success in obtaining resources from the environment, and Thompson

(1967) and Lawrence and Lorsch (1967) studied the effects of the environment on organizational behavior. Aiken and Hage (1967) examined the effect of relationships between different organizations on interorganizational behavior.

Although the environmental factors studied in most of this research include social controls such as contracts, legal codes, governmental regulations, supply and demand, and cooperation and support from other organizations and outside sources, they are not limited to such. Other studies have included more abstract concepts such as cultural values and societal norms as environmental variables (e.g., Richardson, 1959; Crozier, 1964).

While environmental effects on information sharing behavior are implied in many of these studies (for example, in Simpson, et. al., 1962), "high internal communication" implies a high degree of information sharing), information sharing in itself has not been expanded upon. This fact gives rise to an interesting question: Exactly what type of information are members of organizations sharing? As Schermerhorn (1977) has suggested, information sharing tendencies may well depend upon the specific type of information at hand.

One line of research which has touched upon a closely related (but not identical) issue involves communication among commercial fishermen. Commercial fishing is an

industry in which fierce property competition exists. Because one person's catch is often another person's loss, the strategic management of information may be a powerful weapon in this type of competition (Lofgren, 1972). While some studies have found secrecy, misinformation, and deceit to be prevalent among some fisheries (Andersen, 1972, 1980; Gatewood, 1984; Lofgren, 1972), other studies have revealed an honest and candid system of information sharing (Goodland, 1972; Stiles, 1972).

A study by Palmer (1990) examined the codings of 442 radio communications among Maine lobstermen and the amount and type of information sharing which took place. They found that during times of "good fishing" when sharing information would be most costly, secrecy increased but only to the extent that it would not harm social relationships. As the economic costs of sharing information increased, communication about catch size became more vague. Open disclosure about catch size and location demonstrates a desire to cooperate with competing lobstermen even when such cooperation may entail a personal economic loss. As the potential loss increased, information becomes more vague; however, as the value of social relationships transcended the economic consequences, the specificity of information increased.

This research suggests that the nature of information

may be an important factor to consider in information sharing research. Individuals in this case seemed more willing to divulge "facts" to other individuals when economic repercussions were low, but as economic loss became more significant, the information shared became less concrete and more vague. In light of this finding, it is tempting to infer that concrete information is more valuable than information which is more ambiguous.

It should be noted that the ambiguous information pertinent to the discussion at hand is qualitatively different from that which may be considered "uncertain." Despite the substantial amount of literature surrounding both ambiguous and uncertain information, the two terms remain inconsistently defined and have often been used interchangeably.

Researchers who have attempted to distinguish uncertainty from ambiguity have often done so in terms of probability (e.g., Stasson, Hawkes, Smith and Lakey, 1993). Becker and Brownson (1964) have identified a similar concept called probability ambiguity, which denotes a range of probabilities within a decision making context. Likewise, Einhorn and Hogarth (1986) have noted that some random events are uncertain as opposed to ambiguous, since the probability of each outcome may be point-estimated.

Other researchers have recognized ambiguity in terms of information. Parks and Conlon (1990) note that different situations may give rise to different types of ambiguous information which may either lack adequate information to make an informed decision, or present mixed cues as opposed to strictly positive or negative information. Similarly, Daft and Lengel (1984) have focused on ambiguity as characteristic of information which lacks decision-relevant content, or "richness." For the purpose of this study, ambiguous information is best and most easily defined simply as information which is unclear.

In light of Parks and Conlon's (1990), Daft and Lengel's (1984), and the author's definitions, ambiguous information may seem at first glance to be unhelpful and perhaps useless for decision making purposes. However, might there not be special circumstances under which ambiguous information would be of particular valuable? Consider the following study in which Eylon and Allison (1996) examined individuals' preferences for sharing ambiguous versus concrete information with collaborators versus competitors.

Individuals in this study were instructed to assume that they and a business partner were opening a new restaurant, and were given access to ten pieces of information pertinent to successfully operating such an establishment. They were then

asked to share five of these items with their business partner, and five items with a "local competitor." Items shared with their partner could be the same as or different from those shared with the competitor. Results showed that individuals were more likely to share information that they considered ambiguous with their partner, and to withhold it from their competitor. Interestingly, the ambiguous information was not considered more important than the concrete information, but was actually considered slightly less so. Although these results indicate that ambiguous information may be perceived as less important than concrete information, might it be considered more valuable in some circumstances? We are left speculating as to whether or not this may be the case and why.

One possible explanation stems from social learning theory (Bandura, 1969; Sears, 1951), which states that we learn from others through observational learning, interaction, and self-regulation. Within this framework, these results suggest that the individuals in the study may have been looking to their partner for help in deciphering the meaning of ambiguous information. Because the concrete information was clear-cut and straightforward, it needed no interpretation and presumably contained no hidden information. The ambiguous information, on the other hand, was more difficult to understand and perhaps contained some valuable albeit less

obvious information.

Another important yet unaddressed consideration in information sharing studies involves temporal aspects of decision making behavior. Recall from earlier discussion the notion of social decision heuristics as quick and acceptable solutions to social choice dilemmas. A unique aspect of information sharing is that in real life situations, managers often have crucial deadlines to meet and must reach an information sharing decision under time pressure. In this situation, managers may be likely to act similarly to individuals faced with a resource allocation dilemma, in that they opt for an easy yet reasonable solution. When no time constraint is present, an individual will have more time to weigh the value of the information at hand and consider the consequences of each possible decision. Time, therefore, may play an essential role in determining what type of information will be shared.

Hypotheses

Following a procedure similar to that of Eylon and Allison (1996), the present research aimed to investigate whether information sharing behavior is affected by the type of information (ambiguous or concrete) at hand; specifically, to determine which type of information members of a partnership are willing to disclose to their own partner and to

their competitors, and whether or not this behavior is affected when individuals have access to a team of expert industry consultants. Furthermore, the effect of a strict time constraint on information sharing behavior will be examined in an effort to explore time as a possible factor influencing information sharing behavior.

Hypothesis 1: Individuals will prefer to share ambiguous information with their partners and concrete information with their competitors when a team of consultants is available to them and there is no strict time constraint.

Hypothesis 2: Individuals will prefer to share concrete information with their partners and ambiguous information with their competitors when no team of consultants is available and there is a strict time constraint.

Method

Participants

Eighty introductory psychology students (31 males and 49 females ranging in ages from 18 to 26 years) from the University of Richmond, Virginia participated in order to fulfill their Introductory Psychology course requirement. The students participated in groups of one to 18 persons. All

participants were treated in accordance with the "Ethical Principles of Psychologists and Code of Conduct" (American Psychological Association, 1992).

Materials and procedure

Upon their arrival to the laboratory, participants were given informed consent forms to sign (Appendix A). Next they were given a questionnaire requesting their age, sex, and year in college (Appendix B). Participants were then given a set of instructions and used a pen or pencil to respond independently to all questions asked within the instructions. The instructions asked the participants to assume that they belong to one of two partnerships which were submitting a magazine advertisement for running shoes to an athletic shoe company. One half of the participants were told that they had 45 minutes to produce the advertisement, and the other half were informed that they had five days to produce the advertisement. One half of the participants in each of these two conditions were told that they had immediate access to a five-person team of expert advertising consultants with whom they could communicate during the construction period. Participants were told that they must work cooperatively with a partner to produce an advertisement which was better than that of the competing partnership, and that fictitious committee of marketing experts would pick the winning advertisement.

Participants were also informed that both members of the winning partnership would receive \$5,000.00.

Participants were told that they were the only person out of both partnerships who was been given access to ten pieces of information concerning the production of the advertisement. Participants were told that they could choose five pieces of information to share with their partner, and five pieces to share with the competing partnership. The items shared with their own partner could be identical to, partially the same as, or completely different from the items shared with the competing partnership, and their choices about which pieces of information to share would remain confidential.

The ten pieces of information were:

1. The advertisement must feature a catchy slogan.
2. The print in the advertisement must be black.
3. Your final advertisement must be submitted on a piece of posterboard measuring 18 inches by 24 inches.
4. The advertisement must feature an attractive color scheme.
5. Advertisement slogans may be no more than 20 words in length.
6. The ad must reflect the creativity of the partnership.
7. A picture of the product must appear in the advertisement.
8. The advertisement should invoke a feeling of motivation.

9. The name of the product should appear three times in the advertisement.

10. All text must be clear and concise.

See appendix C for directions.

Upon examination of these items, participants were asked to chose which items they wished to share with their partner and which items they wished to share with the competing partnership (Appendix D). After they completed this task, they were given a brief questionnaire (Appendix E) which asked them to rate each of the ten items of information on a five-point Likert-type scale, indicating how important, obvious, ambiguous, difficult to understand, and representative of a goal versus a means to achieve a goal each piece of information was. Participants were given a list of possible sharing strategies and were asked to indicate which strategy or strategies best described how they decided which pieces of information to share with their partner and which to share with the competing partnership (Appendix F). The purpose of the study was explained to the participants after all tasks were completed.

Design and Analysis

A 2 (length of time: 45 minutes, 5 days) x 2 (social context: team of expert advertising consultants, no team of consultants) x 2 (type of information: ambiguous, concrete) x 2

(target: partner, competing partnership) mixed design Analysis of Variance was used in the experiment. The first factor (length of time) was a between-subjects factor since participants were told that they had 45 minutes or five days to complete the task. The second factor (social context) was also a between-subjects factor because participants were informed that they either had or did not have the opportunity to consult with a team of experts. The remaining two factors (type of information and target) were within-subject factors because all participants were provided with both types of information and were asked to choose pieces of information to share with their own team and with the competing team.

Results

Manipulation check

Five of the ten items of information given to the participants were designed to be concrete in nature and five were designed to be ambiguous. Ambiguity ratings of the items on a scale of one to five showed that participants did indeed perceive the five items constructed to be ambiguous as more ambiguous than the five items constructed to be concrete. The ambiguous items were: the advertisement must feature a catchy slogan, the advertisement must feature an attractive color scheme, the advertisement must reflect the creativity of the partnership, the advertisement should invoke a feeling of

motivation, all text must be clear and concise. On a Likert-type scale of one to five, where a score of one indicated "extremely ambiguous," and a score of five indicated "extremely concrete," these pieces of information received ambiguity ratings of 4.39, 4.39, 4.36, 4.35, and 4.31, respectively.

The five items which were designed to be concrete in nature were: the print in the advertisement must be black, your final advertisement must be submitted on a piece of posterboard measuring 18 inches by 24 inches, advertisement slogans may be no more than 20 words in length, a picture of the product must appear in the advertisement, the name of the product should appear three times in the advertisement. These items were rated as more concrete than the items designed to be ambiguous in nature, and received ambiguity ratings of 2.67, 2.75, 2.11, 2.28, and 3.20, respectively. An analysis of variance revealed that the difference in the mean values of the two groups was indeed greater than would be expected by chance, ($F(1,79) = 103.5, p = .000$), indicating that the manipulation of information ambiguity was successful.

All participants were asked how they characterized their relationship with their competing team in terms of competitiveness. On a scale of one to five, participants indicated that they felt that the fictitious relationship was a

competitive one ($M = 3.75$) Participants were also asked how rushed they felt in their fictitious situation. Those who were given 45 minutes to complete their task indicated that they felt more rushed than their counterparts who were given five days to complete the task ($M = 3.24$). Although not statistically significant, $F(1, 68) = 1.63$, $p = .129$, the data do suggest that the more time participants are given to complete the task, the less rushed they feel and vice versa.

Finally, participants who were told that they would have immediate access to a team of expert advertising consultants were asked how available they felt these experts were to them. The mean "availability" ratings for the 45-minute and five-day conditions were 3.71 and 3.78 respectively, indicating that the participants did feel that their team of experts was available to them.

Type of information shared

The mean number of ambiguous and concrete items that participants shared with their partner and with their competitors in the 45-minute condition and 5-day condition, with a team or without a team of expert advertising consultants, is displayed in Table 1.

Possible scores for type of information shared range from 0 to five, with a score of five indicating that all items of a specific type of information (ambiguous, concrete) were

shared, and 0 indicating that no items of a specific type were shared. Participants' sharing decisions were analyzed using a 2 (type of information: ambiguous, concrete) x 2 (target: partner, competing partnership) x 2 (social context: team of experts, no team of experts) x 2 (time: 45 minutes, 5 days) mixed design, with repeated measures on the first two factors. The results revealed a two-way interaction between information and target, $F(1, 76) = 39.28, p < .001$. Table 2 displays the means associated with this effect. Participants shared more concrete items ($M = 3.61, SD = 1.392$) than ambiguous items ($M = 1.40, SD = 1.38$) with their partner ($F(1,79) = 50.94, p < .000$), but shared more ambiguous items of information ($M = 3.30, SD = 1.52$) than concrete items ($M = 1.72, SD = 1.53$) with their competitor ($F(1, 79) = 21.55, p = .000$). Although there were no additional statistically significant effects, an inspection of Table 1 reveals some interesting findings. For example, participants shared nearly the same amount of concrete ($M = 2.48$) and ambiguous ($M = 2.50$) information in the 45-minute condition, however, in the 5-day condition, the amount of concrete information shared was increased ($M = 2.88$) while the amount of ambiguous information shared decreased ($M = 2.18$).

Correlations among ratings

A Pearson product-moment correlation between

participants' ratings of ambiguity and goal indicated that the more ambiguous an item was considered, the more it represented a means to achieve a goal rather than a goal itself ($r = .25, p < .05$). Interestingly, the correlation between ambiguity and importance was positive but statistically nonsignificant ($r = .12$), indicating that ambiguous information was considered only slightly more important than concrete information; however, the more obvious an item was considered, the more important ($r = .25, p < .05$) and less difficult to understand ($r = -.38, p < .001$) it was rated by the participants. Possible interpretations of these findings are considered in the general discussion.

Sharing Strategies

A 2 (target: partner, competitor) x 4 (dimension: clarity, obviousness, ambiguity, meaningfulness) x 2 (strategy: helpful, hurtful) x 2 (time: 45 minutes, five days) x 2 (social context: team, no team) analysis of variance revealed a significant three-way interaction for target by dimension by strategy $F(3, 234) = 40.20, p < .000$. See Table 3 for means. A Tukey-HSD Post Hoc comparison test ($\alpha = .01$) revealed several interesting things about this interaction. The first dimension, "clarity," was identified by asking participants whether they shared the information which was "the hardest to understand," or "the easiest to understand." Interestingly, this dimension was not a

statistically significant factor in participants' sharing decisions. That is, although participants showed a tendency to share the information which was the easiest to understand with their partner and that which was the most difficult to understand with their competitors, this preference was not strong or consistent enough to produce statistical significance. The second dimension was "obviousness" and was identified by asking participants whether they shared information which was the most obvious or least obvious. Individuals were much more likely to share the least obvious information with their partner and withhold it from their competitor, sharing instead the most obvious information with their competitor but not with their partner. The employment of the third dimension, "ambiguity," was assessed by asking individuals whether they shared the information which was the most ambiguous or the most concrete with their partner and with their competitor.¹ A Post Hoc analysis showed that although participants preferred to share concrete information with their partner and to withhold it from their competitor, they did not demonstrate a strong tendency to share instead information that was considered the most ambiguous with

¹ "Ambiguity" was considered because the participants demonstrated a tendency to share more concrete items of information with a partner and withhold them from their competitor, indicating that they may have perceived concrete information to be more helpful than ambiguous information.

their competitor. The fourth dimension, "meaningfulness," was evaluated by asking participants whether they made their sharing decisions based on the information that was the most meaningful or the most meaningless. Results indicated that while individuals preferred to share the most meaningful information with their partners and to withhold it from the competition, they shared the most meaningless information with their competitors and withheld this information from their partners.

Discussion

This research was undertaken in an attempt to discover factors that influence information sharing behavior. Although the present study was intended to support and extend the findings of Eylon and Allison (1995), the results contradicted their findings in several respects. Eylon and Allison (1995) found that individuals tended to share ambiguous information with their partners and concrete information with their competitors. Interestingly, the results of the present study revealed the opposite trend, demonstrating a tendency for individuals to share concrete information with their partners and ambiguous information with their competitors.

Additionally, it was proposed that a time constraint would influence participants' sharing decisions. For example, when a strict time constraint of 45 minutes for task completion was imposed, individuals were expected to feel pressed for time and therefore be more likely to share concrete information, which presumably requires a minimal amount of explanation, with their partner. Alternatively, since ambiguous information may require more time and effort to understand, a more lenient time frame consisting of five days was expected to be ample time during which participants could deliberate with their partner over the meaning of the ambiguous items of information. Therefore, when the participants had five days

within which to complete their task, they were expected to be more likely to share ambiguous information with their partner and concrete information with their competitors. Curiously, even though participants indicated that they felt more rushed for time in the 45 minute condition than the five day condition, the amount of time that participants were given to complete their task did not have a significant effect on their sharing decisions. Instead, individuals consistently demonstrated a clear preference to share concrete information with their partner and ambiguous information with their competitor, regardless of time constraint.

One consideration to be addressed here is that five days may not be a sufficient amount of time to give participants in order to assure that they would not feel rushed. Although participants in the 45 minute condition indicated that they felt more pressed for time than those in the five day condition, the difference was not statistically significant. Furthermore, responses of participants in the five day condition were closer to "extremely rushed" than "not at all rushed" (a mean response of 3.24 on a scale of one to five).

In real world settings, we are seldom faced with "lenient" time frames when it comes to decision making. The participants in the present study were college students, representative of a population that is experienced in trying to

meet deadlines and feeling overwhelmed by the amount of work they must accomplish within a given time frame. Perhaps the population in this study has been conditioned to view their given time frame, whether it was 45 minutes or five days, as a "deadline" rather than a "time frame," instilling in them a sense of urgency to complete their task.

Moreover, the participants in the five day condition may not have felt that they were given a generous amount of time because they had nothing with which to compare this duration. This consideration stems from social comparison theory (Festinger, 1954), which states that in the event of uncertainty, individuals compare their own beliefs with the beliefs of others. The present experiment offered no opportunity for social comparison; that is, individuals in the five day condition who may have been uncertain about how long their task would take to complete did not realize that half of the participants were only given 45 minutes. Had they been able to compare time frames and see that some partnerships were given only 45 minutes to construct an advertisement, they may not have felt so rushed and responded differently.

It was also hypothesized that when a team of expert advertising consultants was made immediately available to the participants, individuals would show a greater tendency to share ambiguous information rather than concrete information

with their partner. Recall that the rationale behind this hypothesis was that perhaps individuals perceive ambiguous information as valuable and important, but useless unless there is help available to decipher its meaning. Again, the participants in the present study continued to show a preference for sharing the concrete information with their partner and the ambiguous information with their competitor, regardless of whether or not a team of expert advertising consultants was available to them.

Social learning theory (Bandura, 1977) was alluded to briefly in the introduction. This theory states that individuals operate cognitively on their social experiences, which in turn influence their behavior. The provision of a team of expert advertising consultants was intended to give participants social guidance in the event of uncertainty. Specifically, the team of experts was given to participants with the expectation that they would plan to consult with these experts to figure out the meaning of ambiguous information. However, social learning theory proposes that individuals integrate information that is encountered in a variety of social experiences, such as exposure to models, verbal interactions, and other encounters. Because the participants in the present study were not actually involved in such experiences, they may not have been affected by the fictitious social context here.

Generally, when perceptual and behavioral changes are viewed through a social learning theory framework, some type of interaction is involved. In the fictitious advertising scenario implemented here, real life interaction was excluded. Perhaps individuals were unable to view their team of consultants as helpful, since they could not actually see them or converse with them.

Relevant to this notion is Kull's (1982) research on communication technology, in which he discusses the relevance of social cues and their absence during the use of communication technology. Although communication technology was not used in the present experiment, any social cues which would have been present in an actual information sharing situation as opposed to a fictitious one were eliminated. Participants' sharing decisions in an imaginary situation may not be representative of their decisions in a situation where real social cues are available.

Another explanation lies in the possibility that the participants did not view the consultants as "helpers," who would be willing to aid them in the construction of their advertisement. Instead, the consultants may have been viewed as a group of experts who were there to oversee the task. Those individuals who were told that they had access to a team of consultants, therefore, may not have realized that

they had an advantage which was intended to be beneficial.

Results indicated a positive but nonsignificant correlation between participants' ratings of ambiguity and importance for the items of information available to them. Although this correlation is extremely weak, it is indeed positive which may hint that although ambiguous items may be perceived as slightly more important than concrete items. Any importance they may have, however, was not reflected in the participants' sharing decisions. Upon initial consideration, it may seem that if ambiguous information is perceived as more important than concrete information, then individuals would want to share this important material with their partners. However, any importance that ambiguous information holds may be irrelevant or at least inaccessible to participants if they have no way to interpret its meaning. There are several possible explanations as to why attempts to provide participants with a situation in which they would have more time as well as experienced help to decode ambiguous items of information proved unsuccessful.

Advertising is an industry in which many (if not all) of the participants in the present study have not worked. Most likely, none of the individuals in the present study have ever attempted to create an actual magazine advertisement. Therefore, the task itself may have carried with it an element

of ambiguity. Participants may have been so overwhelmed by the unfamiliarity of trying to construct an advertisement that they needed some information which was basic and concrete from which to start. Participants in the present study faced a great deal of uncertainty in their situation if they were unfamiliar with the concept of advertisement construction. Therefore, they may not have felt like they had enough of a grasp on their task to begin to untangle ambiguous information in hope of discovering hidden meanings.

An interesting finding emerged upon examination of participants' ratings of items of information according to how goal oriented, ambiguous, important, obvious, and difficult to understand each item was. Although participants exhibited a preference for sharing concrete information with their partners, they gave a slight (albeit statistically nonsignificant) indication that they perceived ambiguous information to be more important than concrete information. This puzzling finding contradicts that found by Eylon and Allison (1996), who found that subjects preferred to share ambiguous information with their partners and concrete information with their competitors, they considered concrete information slightly more important.

Here we are faced with a perplexing question. Why do participants give away the information which they feel is

more important? Moreover, why do they choose to share with their partners the information which they believe is less important?

One possibility which was alluded to earlier in the discussion involves task familiarity. Participants were asked to indicate how much each item represented a means to achieve a goal or a goal in itself. Overall, participants indicated that they viewed the ambiguous items as means to achieve goals rather than goals themselves, suggesting that the concrete items of information were viewed as goals rather than means to achieve end results. When faced with an unfamiliar task, individuals may be more concerned with completing the task successfully rather than the method implemented to reach that point. In other words, perhaps the participants in the present study were so overcome with uncertainty about the situation in general, that they chose to focus on completing the advertisement itself instead of trying to figure out the optimal procedure to do so. This line of thinking parallels that of Hinsz and Tindale (1992), who suggest that when individuals must make judgments or decisions, they tend to examine all available information first, and then to decide which information is useful in making the judgment. They then latch on to one piece of information and make judgments according to other information which is

available to them, taking into consideration the relevance and accuracy of all information. However, when individuals feel uncertain about their situation, their perception of relevance may be altered. Furthermore, availability may outweigh importance in an unfamiliar situation. For example, one of the ambiguous items given to participants was, "the advertisement must feature an attractive color scheme." Individuals who are unfamiliar with the arts and advertisement industry may feel helpless in trying to determine what type of color scheme would be considered "attractive" to their target population. Instead of using their time to research this difficult yet important question, they may have decided to share a more concrete and easily implemented item, such as "the name of the product must appear twice in the advertisement." This piece of information can be easily and successfully implemented by an individual who has no experience in advertising, whereas in determining what is considered an attractive color scheme, there is no guarantee of success. Thus, it appears that the participants were choosing items based on their helpfulness and accessibility rather than importance.

In order to better understand why the participants in this study chose the items they did, they were provided with a list of "sharing strategies" at the end of their workbooks and were

asked to indicate which strategies they used to make their sharing decisions. Strategies were separated into four dimensions: clarity, obviousness, ambiguity, and meaningfulness. Each dimension consisted of a helpful strategy and a harmful strategy. For example, a helpful strategy on the meaningfulness dimension would be, "I chose the items that were the most meaningful," while a harmful strategy on the same dimension would be, "I chose the items that were the most meaningless." It was assumed that strategies implemented to determine which items were shared with an individual's partner were helpful, and those used to decide which items to share with the competition were harmful. Therefore, the helpful strategies included choosing items that were also the easiest to understand, the least obvious, and the most concrete. The hurtful strategies included items that were also the hardest to understand, the most obvious, and the most ambiguous.

The participants in the present study apparently perceived items that were the easiest to understand, the least obvious, the most concrete, and the most meaningful as the most helpful to them in trying to construct a magazine advertisement. The finding that individuals preferred to share the items which were the easiest to understand underscores the possibility that they did not feel comfortable enough with

their fictitious scenario to ponder the meaning of items that were difficult to understand. Furthermore, their choices reveal that participants were implementing two approaches in determining which items to share with their partner and competitor. For example, individuals were not likely to share items which were the easiest to understand with both their partner and competitor; rather, the easy items were more likely to be shared with their partner and the difficult items with their competitor, suggesting that it was not only important to help one's own partnership, but equally important to withhold helpful information from the competition.

The results of this study highlight the notion that information which is perceived as ambiguous is different from information perceived as concrete in several distinct ways. Additionally, the type of information which seems to be the most useful appears to vary as a function of circumstance. Researchers interested in designing studies to further investigate the findings of this research may wish to consider task familiarity as a factor influencing information sharing decisions. Furthermore, before dismissing temporal aspects of information sharing, researchers may want to investigate situations in which social comparison may be enacted by participants; for example, informing participants of the time frame given to other individuals. These issues, as well as

other matters relevant to information sharing behavior await further exploration.

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Appendix A

INFORMED CONSENT

Thank you for volunteering in this study entitled "Social Judgments." You will be asked to answer a series of brief questionnaires after reading a fictitious scenario. You will receive one hour of credit for participating in this study.

Additionally, your responses will be kept confidential and you may withdraw from the study at any time without penalty. Please do not reveal the nature of this study to other students until all of the data have been collected at the end of the semester. You may contact Lisa Mirabelli at 289-8126 if you have any questions in the future or if you would like a copy of the results of this study.

Signature

Date

Appendix B

COVER SHEET

Subject Number _____

Year in college (freshman, sophomore, junior, senior)

Sex (M or F) _____

Age _____

Origins (please write ethnic background or country of origin) _____

Appendix C

DIRECTIONS

You are a member of an advertising partnership which will be submitting an advertisement for running shoes to a nationally published fitness magazine. You must work cooperatively with your partner to construct a better advertisement than a competing partnership. A committee of marketing experts will pick the winning advertisement. Each member of the winning partnership will receive \$5,000.00. You have (*45 minutes, 5 days*) to produce the advertisement.

You have been the only one selected in both partnerships to be given information crucial for creating a successful advertisement. *Additionally, you will have immediate access to a five-person committee of expert advertising consultants with whom you may communicate during the (45 minute, 5-day) construction period.* The winning advertisement should fulfill all ten of these requirements:

1. The advertisement must feature a catchy slogan.
2. The print in the advertisement must be black.
3. Your final advertisement must be submitted on a piece of posterboard measuring 18 inches by 24 inches.
4. The advertisement must feature an attractive color scheme
5. Advertisement slogans may be no more than 20 words in length.
6. The ad must reflect the creativity of the partnership.
7. A picture of the product must appear in the ad.
8. The ad should invoke a feeling of motivation.
9. The name of the product should appear three times in the ad.
10. All text must be clear and concise.

(Please continue to next page)

Now we would like to ask you the following questions:

You are only able to share five of these ten items with your partner. Which five items will you share? You must also share five of the ten items with the competing partnership. Which five items will you share?

Please keep in mind that the five items you share with your partner do not have to be the same five items you share with the other partnership. In other words, the items you share with your partner may be exactly the same as, partially the same as, or completely different from those which you chose to share with the competition. Neither your partner nor the opposing partnership will ever know which items if information you choose to withhold from them. It is all confidential. Additionally, keep in mind that you and your partner are competing with the other partnership in order to create the winning advertisement.

You may now list the items that you will share with your partner and with the competition below:

Five Items to Share
with my Partner

Five Items to Share
with the Competing
Partnership

(indicate by item numbers on previous page)

1. _____

1. _____

2. _____

2. _____

3. _____

3. _____

4. _____

4. _____

5. _____

5. _____

3. **Your final advertisement must be submitted on a piece of posterboard measuring 18 inches by 24 inches.**

A. How concrete or ambiguous do you believe this piece of information is?

extremely 1---2---3---4---5 extremely
concrete ambiguous

B. How important do you believe this piece of information is?

not at all 1---2---3---4---5 extremely
important important

C. How obvious do you believe this piece of information is?

not at all 1---2---3---4---5 extremely
obvious obvious

D. How difficult to understand do you believe this piece of information is?

not at all 1---2---3---4---5 extremely
difficult difficult

E. How much does this information reflect a goal versus a means to achieve a goal?

definitely a means 1---2---3---4---5 definitely a goal
to achieve a goal

4. **The advertisement must feature an attractive color scheme.**

A. How concrete or ambiguous do you believe this piece of information is?

extremely 1---2---3---4---5 extremely
concrete ambiguous

B. How important do you believe this piece of information is?

not at all 1---2---3---4---5 extremely
important important

C. How obvious do you believe this piece of information is?

not at all 1---2---3---4---5 extremely
obvious obvious

D. How difficult to understand do you believe this piece of information is?

not at all 1---2---3---4---5 extremely
difficult difficult

E. How much does this information reflect a goal versus a means to achieve a goal?

definitely a means 1---2---3---4---5 definitely a goal
to achieve a goal

5. **Advertisement slogan may be no more than 20 words in length.**

A. How concrete or ambiguous do you believe this piece of information is?

extremely 1---2---3---4---5 extremely
concrete ambiguous

B. How important do you believe this piece of information is?

not at all 1---2---3---4---5 extremely
important important

C. How obvious do you believe this piece of information is?

not at all 1---2---3---4---5 extremely
obvious obvious

D. How difficult to understand do you believe this piece of information is?

not at all difficult 1---2---3---4---5 extremely difficult

E. How much does this information reflect a goal versus a means to achieve a goal?

definitely a means 1---2---3---4---5 definitely a goal
to achieve a goal

6. The ad must reflect the creativity of the partnership.

A. How concrete or ambiguous do you believe this piece of information is?

extremely 1---2---3---4---5 extremely
concrete ambiguous

B. How important do you believe this piece of information is?

not at all 1---2---3---4---5 extremely
important important

C. How obvious do you believe this piece of information is?

not at all 1---2---3---4---5 extremely obvious
obvious

D. How difficult to understand do you believe this piece of information is?

not at all difficult 1---2---3---4---5 extremely difficult

E. How much does this information reflect a goal versus a means to achieve a goal?

definitely a means 1---2---3---4---5 definitely a goal
to achieve a goal

7. A picture of the product must appear in the advertisement.

A. How concrete or ambiguous do you believe this piece of information is?

extremely 1---2---3---4---5 extremely
concrete ambiguous

B. How important do you believe this piece of information is?

not at all 1---2---3--- 4-- 5 extremely
important important

C. How obvious do you believe this piece of information is?

not at all 1---2---3---4---5 extremely
obvious obvious

D. How difficult to understand do you believe this piece of information is?

not at all difficult 1---2---3---4---5 extremely difficult

E. How much does this information reflect a goal versus a means to achieve a goal?

definitely a means 1---2---3---4---5 definitely a goal
to achieve a goal

8. **The advertisement should invoke a feeling of motivation.**

A. How concrete or ambiguous do you believe this piece of information is?

extremely 1---2---3---4---5 extremely
concrete ambiguous

B. How important do you believe this piece of information is?

not at all 1---2---3---4---5 extremely
important important

C. How obvious do you believe this piece of information is?

not at all 1---2---3---4---5 extremely
obvious obvious

D. How difficult to understand do you believe this piece of information is?

not at all difficult 1---2---3---4---5 extremely difficult

E. How much does this information reflect a goal versus a means to achieve a goal?

definitely a means 1---2---3---4---5 definitely a goal
to achieve a goal

9. The name of the product should appear three times in the advertisement.

A. How concrete or ambiguous do you believe this piece of information is?

extremely 1---2---3---4---5 extremely
concrete ambiguous

B. How important do you believe this piece of information is?

not at all 1---2---3---4---5 extremely
important important

C. How obvious do you believe this piece of information is?

not at all 1---2---3---4---5 extremely
obvious obvious

D. How difficult to understand do you believe this piece of information is?

not at all difficult 1---2---3---4---5 extremely difficult

E. How much does this information reflect a goal versus a means to achieve a goal?

definitely a means 1---2---3---4---5 definitely a goal
to achieve a goal

10. All text must be clear and concise.

A. How concrete or ambiguous do you believe this piece of information is?

extremely 1---2---3---4---5 extremely
concrete ambiguous

B. How important do you believe this piece of information is?

not at all 1---2---3---4---5 extremely
important important

C. How obvious do you believe this piece of information is?

not at all obvious 1---2---3---4---5 extremely obvious

D. How difficult to understand do you believe this piece of information is?

not at all difficult 1---2---3---4---5 extremely difficult

E. How much does this information reflect a goal versus a means to achieve a goal?

definitely a means to achieve a goal 1---2---3---4---5 definitely a goal

Appendix E

Were you aware of the strategy you used to choose which items to share with your partner? (circle one):

Yes

No

Please read the strategies below and circle the item(s) that best describe your strategy when deciding which items to share with your partner.

1. I picked the items that were the hardest to understand.
2. I picked the items that were the easiest to understand.
3. I picked the items that were the hardest to implement.
4. I picked the items that were the easiest to implement.
5. I picked the items that were the most obvious.
6. I picked the items that were the least obvious.
7. I picked the items that were the most concrete.
8. I picked the items that were the most ambiguous.
9. I picked the items that were the most meaningless.
10. I picked the items that were the most meaningful.
11. I picked the items that others would be able to help me with.
12. I picked the items that I had time to figure out the meaning of.
13. I picked the items that were (please indicate any additional strategies you may have used): _____

Were you aware of the strategy you used to choose which items to share with the competition? (circle one):

Yes

No

Please read the strategies below and circle the item(s) that best describe your strategy when deciding which items to share with the competition.

1. I picked the items that were the hardest to understand.
2. I picked the items that were the easiest to understand.
3. I picked the items that were the hardest to implement.
4. I picked the items that were the easiest to implement.
5. I picked the items that were the most obvious.
6. I picked the items that were the least obvious.
7. I picked the items that were the most concrete.
8. I picked the items that were the most ambiguous.
9. I picked the items that were the most meaningless.
10. I picked the items that were the most meaningful.
11. I picked the items that others would be able to help me with.
12. I picked the items that I had time to figure out the meaning of.
13. I picked the items that were (please indicate any additional strategies you may have used): _____

Table 1

Mean scores for type of information shared with partners and competitors as a function of social context and time constraint.

Time constraint and Social context	Target and Type of information			
	Partner		Competition	
	Ambiguous	Concrete	Ambiguous	Concrete
Access to team				
45 minutes				
<u>M</u>	1.43	3.57	3.52	1.43
<u>SD</u>	(1.29)	(1.29)	(1.25)	(1.21)
5 days				
<u>M</u>	1.45	3.56	2.95	2.06
<u>SD</u>	(1.42)	(1.42)	(1.67)	(1.67)
No access to team				
45 minutes				
<u>M</u>	1.73	3.27	3.32	1.68
<u>SD</u>	(1.64)	(1.64)	(1.59)	(1.59)
5 days				
<u>M</u>	.95	4.11	3.68	1.73
<u>SD</u>	(1.08)	(1.10)	(1.64)	(1.72)

Table 2

Mean scores for type of information shared with partner and competitor.

Type of information	Target	
	Partner	Competitor
Ambiguous		
<u>M</u>	1.40	3.30
<u>SD</u>	(1.38)	(1.52)
Concrete		
<u>M</u>	3.61	1.73
<u>SD</u>	(1.39)	(1.53)

Table 3

Proportions of strategies used to share information with partner and competitor.

Strategy	Target	
(I picked the items that were. . .)	Partner	Competitor
the hardest to understand.	.18	.30
the easiest to understand.	.28	.29
the most obvious.	.14	.74
the least obvious.	.73	.15
the most ambiguous.	.18	.49
the most concrete.	.64	.20
the most meaningless.	.08	.60
the most meaningful.	.69	.09

Note. Maximum possible score = 1.0.

The first strategy in each pair is considered "helpful," while the second is considered "harmful."