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RESOURCE ALLOCATION AS A FUNCTION OF LEADERSHIP TITLES AND MYERS-BRIGGS TYPOLOGY

BY

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A Thesis

Submitted to the Graduate Faculty

of the University of Richmond

in Candidacy

for the Degree of

Masters of Arts

in Psychology

July 1990

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BY

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Acknowledgements

It is with pleasure that I recognize Janie, Kim, and Anne Marie, the other members of the graduate class of 1990. Without their encouragement this thesis would never have been completed. I also want to express appreciation to my family, who suffered through many hours of long distance telephone calls and offered an untold amount of support and encouragement. This thesis is dedicated in loving memory to my great-grandmother, Lettie Tesh. Through her life, she taught me how to love and encouraged me to forgive unconditionally.

Abstract

In recent years, research efforts have attempted to identify variables that may moderate leaders' decision making styles. Variables that have been identified include divisibility of the resource, social scripts, and type of resource being divided. This study attempted to replicate these findings and examine the influence of personality variables as defined by the Myers-Briggs Type Indicator Scale. The influence of the thinking-judging and feeling-judging typologies are examined in light of a resource allocation task, as well as their relationship to Blake and Mouton's Managerial Grid of leadership styles. Results were generally nonsignificant. However, the thinking and feeling typologies were correlated with social and task leadership styles. There were no behavioral differences between typologies or leadership titles, and the only self-report difference was that "thinking" types, compared to "feeling" individuals, asserted that maintaining social happiness and unity was a less important goal. The findings are discussed in relation to the limitations of this study and the direction future research might take.

Resource Allocation as a Function of Leadership Titles and Myers-Briggs Typology

Even though the process of decision making has long been a popular topic in social psychology, its application to resource allocation has only recently been examined in the psychological literature. Research such as Allison & Messick (in press), Rutte, Wilke, & Messick (1989), and Keating (1989) has refined the gross assumption that all decisions are made with rational forethought, which was the basis of early decision making research (Matlin, 1989), and applied these refinements to the specific managerial responsibility of resource allocation. Their refinements include examination of type of resource being allocated, number of departments to which the resource must be allocated, divisibility of the resource, other individuals' authority in the process, and cognitive scripts (Allison & Messick,in press; Keating, 1989; Rutte et al., 1989). This study seeks to further refine this early assumption by examining resource allocation and the relationship of leadership titles and personality on this task.

Before examining the resource allocation paradigm, one must first understand the evolution of the decision making literature. Refinements to

the earliest assumptions of rationality have many traceable paths, including Collett's contention that even though the ideal may be to engage in a rational and thorough consideration of various choices to determine the one with the highest likelihood of success, this is only done occasionally (Collett, 1977). He proposed that it is likely that a given situation will quickly bring to mind a single normative rule, a heuristic, that is almost thoughtlessly applied to the decision process, rather than an individual wasting energy engaging in a rational and logical enterprise. In order to identify such a heuristic, Harris and Joyce (1980) used a resource allocation paradigm, and identified the "divide equally" rule as one example. In their study, subjects allocated payoffs and expenses to other group members who had contributed individually to a group effort. Although group members did not contribute equally, subjects tended to distribute rewards and costs equally. This left some members with significantly higher payoffs for their efforts than others. The results suggested that subjects were using a simple heuristic, an informal rule of thumb, and not a complex analysis in their decision process. Other researchers (Allison & Messick, in press; Rutte et al., 1987) have obtained similar results with resource allocation paradigms, demonstrating that when individuals must allocate a shared resource, they often use an equal division heuristic.

"When will the equal division heuristic be applied?", was the question examined by Allison, Redpath, and Schaerfl (1990). They believed that leaders follow the equal division rule in resource allocation only to the extent that cues make the heuristic salient. In support of this contention, they demonstrated that subjects are more willing to violate an equal division if the resource is nonpartitioned (i.e. sand, millions of dollars, etc.), rather than easily quantifiable.

Extending the idea of the salience of equality cues, Allison and Messick (in press) examined the following variables: magnitude of payoff for individuals, whether the last group member could remove other member's points, whether the number of points was evenly divisible by the number of group members, and subjects' social value orientation (i.e. cooperative, noncooperative). They placed subjects in groups of six to twelve and asked them to individually draw points from a shared resource pool. Their results demonstrated that the more equality cues available,

such as cooperative orientation and an evenly divisible amount of resource, the more likely subjects were to utilize the equal division heuristic.

Building upon Allison and Messick's (in press) idea of social value orientation, Keating (1989) asked subjects to rate the social responsibility of individuals with different leadership titles (i.e. chairman, manager, supervisor, leader, guide, advisor, etc.). Subjects consistently rated certain leadership titles as involving more social responsibility. Guide and mentor were rated as being the most socially responsible leaders, while manager, boss, and supervisor were rated as being significantly less socially responsible. The effects of the degree of social responsibility elicited by various leadership titles were then examined in light of a resource management task. Subjects were randomly assigned the labels of guide, leader, and supervisor. They were told they were in a group of six people, all of whom would draw from a shared resource pool, and that they were the first member of their group to draw from the pool. Subjects with the pro-social leadership title of guide withdrew a smaller amount of the resource than those with the title of supervisor. The guides also felt more strongly that the resource should be

divided equally.

The current study improved upon Keating's design by utilizing standard job descriptions for mentors and supervisors. It was hypothesized that subjects with the pro-social leadership title of mentor would utilize the equality heuristic in deciding how much of the resource to take, while the less pro-social supervisor, would be more likely to deviate from an equal division. In this study, pro-social leaders were conceived as being a close parallel to the socially oriented style of leadership. A pro-social leader would be concerned about meeting group members needs and assuring that individuals' jobs were intrinsically rewarding. The hypothesized results would support research conducted by Messe (1988) which demonstrated that the amount of work leaders engage in relative to other group members varies as a function of their title/role.

To explain their findings, Keating and Messe utilized the concept of cognitive scripts. A script is a simple, well-structured sequence of events, involved in most of our daily processing (Abelson, 1981; Mandler, 1984). Scripts act in much the same way as heuristics. They allow individuals to face uncertainties by defining an appropriate set of

cognitive processes or behaviors. When someone accepts a leadership title, they are accepting a category of behaviors that are appropriate for that "type" of leader. Ashmore and Del Boca (1981) and Abelson (1976) have shown that the behavioral categories defined by cognitive scripts may lead individuals to act in significantly different ways than if no script had been accessed from memory. Thus, leaders may act in accordance with the scripts elicited by their titles rather than from personal beliefs and group values.

Research has shown that cues such as quantifiability of a resource, divisibility of a resource, and cognitive scripts, moderate leaders' utilization of the equal division heuristic. Deutsch's (1975) theory stipulated that for groups with the goal of maintaining enjoyable social relationships, the equality heuristic would be the main principle of division, while those with productivity goals would utilize other principles of division. Consequently, this study hypothesized that personality variables congruent with leadership styles (i.e task or socially oriented leaders) would also moderate the use of the equal division heuristic.

The idea of personality variables influencing leadership behavior has received a great deal of research attention. Early leadership research attempted to identify personality traits that cause individuals to become leaders. Aronoff and Wilson (1985) reviewed this voluminous literature and identified several traits that characterize leaders; self-esteem, dominance, achievement, sociability, ego/social adjustment, and authoritarianism. It is currently conceded, however, that these traits do not universally differentiate leaders from followers, or effective from ineffective leaders. Instead, it is believed that these are general traits that are consistently associated with generic leaders (Robbins, 1989).

Many leadership theories incorporated the idea of general traits with a two dimensional view of leadership behavior: "task" vs "people" leaders. Blake and Mouton's managerial grid (1978) described task leaders as focusing on the group's goals and arranging conditions such that human elements interfere to a minimum degree; while socially oriented leaders address individuals' needs, believing that by meeting those needs the task will be accomplished. This two dimensional view of leadership parallels the personality typology of the Myers-Briggs Type Indicator. The

Myers-Briggs scale is based on Jungian theory and proposes that individuals operate with one predominate style from each of the following sets: extraversion/introversion, sensing/intuition, thinking/ feeling, and judgment/perception. Examining specific sub-scales, it further proposes that individuals utilize either a thinking or feeling orientation when making decisions (making decisions is the role of the judging typology) (Myers and McCaulley, 1985). "Thinking" types make decisions based on logical connections of cause and effect and tend to be impersonal, and unaware or uninterested in people's feelings. "Feeling" individuals, however, make decisions by weighing relative values and merits of an issue. They rely on personal and group values, tend to be subjective, and are attuned to the values and needs of others (Myers & McCaulley, 1985). From these descriptions it is clear that individuals operating with a thinking orientation closely resemble the task oriented leader and feeling individuals parallel the socially oriented leader.

The Myers-Briggs dimension of "judging" may also relate to

leadership because it identifies an interest in making decisions, an obvious
leadership trait. Research involving leadership and the Myers-Briggs scale

has revealed that individuals in leadership positions (i.e. managers, supervisors, lawyers, judges, and administrators) commonly demonstrate clear preferences for the "Thinking Judging" and "Feeling Judging" typologies (Macdaid, McCaulley, & Kainz, 1989). Recent measurement and investigations of managerial cognitive styles, which is the characteristic or habitual process by which individuals gather and evaluate information, has examined the sensing-intuition and thinking-feeling typologies as possible keys to mangers' "information evaluation" or decisional process (Schweiger, 1985).

A common decision managers must make is how to allocate shared resources. Following Deutsch's (1975) hypothesis that individuals with different orientations (i.e. productivity or social relationships) make different decisions, this study examined how a leader's preferred decisional orientation or cognitive style (thinking/feeling) may influence the process of resource allocation. To assess decisional styles, this study used the Myers-Briggs typologies of thinking-judging and feeling-judging. Even though it is more common to interpret the Myers-Briggs an an entire typology (e.g. ENTJ, ISFP, etc.), this study isolated only the thinking-

judging and feeling-judging sub-scales. This is consistent with other researchers (Schweiger, 1985; Kerin & Slocum, 1981) who have isolated certain subscales of the Myers-Briggs and examined their relationship to cognitive styles. It should be noted, however, that this isolation of subscales limits the interpretative ability of the Myers-Briggs as a measure of personality types.

Previous refinements to the decision making literature have demonstrated that nonpartitioned resources and certain leadership titles act as cues to ignore the equal division heuristic. Therefore, a nonpartitioned resource and the leadership labels of supervisor and mentor were also used. The roles of supervisor and mentor are commonly encountered within organizational settings and organizational leaders are often faced with nonpartitioned resources in the form of vast sums of money. This study was the next step in the refinement of the decision making literature because it attempted to improve upon Keating's (1989) design and examined the influence of personality variables in the resource allocation process. It was hypothesized that individuals with a thinking-judging Myers-Briggs typology and those with the supervisor title

would be more likely to deviate from the equal division heuristic than individuals with a feeling-judging orientation or the title of mentor.

Method

Subjects

Forty undergraduate students participated in this study. Twenty subjects demonstrated the Myers-Briggs typology of Thinking-Judging and twenty possessed the Feeling-Judging typology. Of the forty subjects, seventeen received credit in their introductory psychology course for participation, while the other twenty three subjects were recruited from the two previous semesters' introductory psychology courses and paid five dollars for their participation.

Materials

Thirty pounds of sand were used as the resource. A small sixteen ounce scale and small flat boxes (each 45 cm. x 30 cm. and 10 cm. high) were used to measure and store the resource (sand). Subjects'

Myers-Briggs typologies were assessed using Form G of the Myers-Briggs

Type Indicator test. In order to assess the hypothesized relationship between the Myers-Briggs typology T-F and leadership orientation, the

social and task scales (e.g. scales 1,9 and 9,1) of Blake and Mouton's managerial grid test were used to identify students' leadership style. A standard job description was designed and the titles mentor and supervisor were appropriately substituted (see appendix C). Finally a manipulation check questionnaire, including self-report items concerning the importance of making a logical decision and importance of keeping everyone happy, was taken by each subject (see appendices A &B).

Procedure

Introductory psychology students were mass-tested on the Myers-Briggs scale in groups of twenty to fifty subjects and selected for the current study based on their typology. To be selected, they had to demonstrate a moderate preference (i.e. preference scores greater than 10) for either thinking or feeling; and judging orientations.

The labels supervisor and mentor were randomly assigned to subjects as they arrived for the experiment. They were brought into a room and given the following instructions:

"The purpose of this study is to investigate the decision making process as it occurs within an organizational setting (i.e. manufacturing companies, non-profit organizations, CPA accounting

firms, etc.). for the purpose of this experiment, you are a member of a group of twelve departmental leaders which have been given

the responsibility of dividing a common resource. Each leader needs part of this resource for his/her department to operate efficiently. You are the mentor (or supervisor) of this group. Because of your leadership position you will be allowed to draw from the resource pool first. After you have removed the amount of the resource you desire for your own department, the other leaders will withdraw from the remaining amount. The resource to be divided is the thirty pounds of sand in front of you. The thirty pounds will be divided between the twelve departments according to how much each leader withdraws."

Subjects were also assured that their responses would remain confidential from the other members in their group. They were then given a written job description, which was identical for all subjects, except for the word supervisor or mentor at the top of the form (see appendix C). After reading the job description, they were told:

"To get you involved in this process, at the conclusion of the study a lottery will be held and the person whose name is drawn will receive two dollars for every pound of sand they withdrew from the resource pool."

As they were deciding how much of the resource to take for their department, subjects were asked to write everything about which they were thinking and to list any factors influencing their decision. Upon

completion of the task subjects were given the manipulation check questionnaire. Naive coders were trained to an interrater reliability equal to 1.0, before they were allowed to code the open ended question concerning the process of how subjects decided the amount of resource to take. Responses were coded using 4 categories: (a) divide evenly, (b) concern for other's welfare and happiness, (c) take more than an equal share, and (d) a miscellaneous category. Actual interrater reliability for this coding task was found to be $\underline{R} = .83$.

Results

Data were analyzed using parametric and non-parametric techniques, including correlations, ANOVAS, and Chi-Squares. The results generally demonstrated nonsignificant differences, with the exception of the correlation between leadership style and personality typology.

A Pearson-R Correlation revealed, as expected, a significant relationship between Myers-Briggs typology and Managerial Grid leadership style preferences <u>R</u>=.57; <u>p</u><.001. "Thinking" types were more likely to describe themselves as task/goal leaders, while "feeling" subjects tended to describe themselves as socially concerned and directed.

The manipulation check questionnaire revealed that all subjects accurately remembered their title, the amount of sand in the resource pool, and the number of people in their group. Therefore, the following ANOVA and Chi-Square analyses include data from all forty subjects.

A 2X2 ANOVA was calculated with leadership title and typology as independent variables and amount of resource withdrawn as the dependent variable. Two other 2X2 ANOVA used the same independent variables but the scores on the self-report questions served as the dependent variables. There were no significant differences between typologies or leadership titles for amount of resource taken E(1, 36)=.05, p > .82; E(1,36)=1.75, p > .19 (see Table 1 for means).

Insert Table 1 about here

...............

Likewise, for the self-report question concerning the importance of making a rational and logical decision, no significant differences were found for typologies, \underline{F} (1,36) = .186, \underline{p} > .66; nor for leadership titles, \underline{F} (1,36) = .186, \underline{p} > .66 (see Table 2 for means). There was, however, a

significant difference between typologies on the self-report item concerning the importance of maintaining good interpersonal relationships within the group, $\underline{F}(1,36) = 8.82$, $\underline{p} < .01$ (see Table 2 for means). Individuals with a "feeling" orientation were more likely to state that maintaining interpersonal relationships within the group was more important (M=6.70), compared to individuals with a "thinking" orientation (M=5.85). There were no differences between leadership titles on this question, $\underline{F}(1,36) = .031$, $\underline{p}_{.} > .86$ (see Table 2 for means).

Insert Table 2 about here

----Insert Table 3 about here

A Chi Square analysis examined the proportion of "thinkers" vs.

"feelers" and mentors vs. supervisors who took an equal division of the
resource. Following Allison et al.'s procedure (1990), an equal division of
the resource would have been any amount between 2.0 and 3.0 pounds of

sand. The current study extended this definition to 1.9 and 3.1 pounds to include enough subjects for the analysis. The Chi Square revealed no significant differences between typologies, \underline{X}^2 (1) = 1.13, \underline{p} > .05; nor between titles, \underline{X}^2 (1) = .12, \underline{p} > .05 (see Table 3 for percentages).

The final Chi Squares, with 2 levels of title and typology, and 4 levels of process, examined the coded self-report data which defined the process by which each subject decided how much of the resource to take (i.e. divided evenly, thought of others, took more than one twelfth, miscellaneous). It revealed no significant differences between the processes utilized by each title X^2 (3) = 1.12, x > 0.05; or typology x = 0.05 (see Table 4 for cell totals).

Insert Table 4 about here

Discussion

This study attempted to extend the previous research findings of Allison and Messick (in press), Allison et al., (1990), and Keating (1989),

who discovered that leadership titles, resource divisibility, and group membership moderate the use of the equal division heuristic. Following Allison et al. (1990), a nondivisible amount of resource was selected, as was a group with large membership. The selected leadership titles were consistent with Keating's ratings (1989). The current study, however, failed to replicate many of the previous findings in the literature.

Even though many of the results were not significant, the contribution of the present findings should not be ignored. Pearson-R correlations support the hypothesized relationship between Myers-Briggs typology and leadership style. Individuals with a "thinking" orientation are likely to manifest a preference for an impersonal, logical, goal directed leadership style. "Feeling" individuals are likely to demonstrate a more socially oriented style of leadership and concern for other's happiness. These results support the idea of a relationship between personality variables and leadership styles. However, they fail to provide support for the thinking-feeling Myers-Briggs typology as a measure of cognitive style or as a moderator in the decisional process. Individuals demonstrating a preference for the thinking typology did not take more of the common

resource than the "feeling" individuals, nor did they demonstrate more of need to make a logical, impersonal decision. "Feeling" types failed to demonstrate the hypothesized behavioral social awareness and concern, demonstrating this only on the self-report question. The influence of the social scripts elicited by leadership titles reported by Keating (1989) and Messe (1988) were also not discovered. Leadership titles consistently demonstrated no effects on the subjects' cognitive styles.

One possible reason for the lack of significant findings could be skewed data. An analysis of the data revealed a positively skewed distribution. Subjects demonstrated strong positive social evaluations in their responses, consistently drawing small amounts from the resource pool. In light of this findings, a measure of the proportion of subjects successfully following the equal division heuristic was computed.

Unfortunately, it failed to reveal the hypothesized influence of personality and social script on cognitive styles. Analysis of the subjects' self-reported processes behind their decisions of how much of the resource to take, also failed to show any influence of personality variables and cognitive scripts.

Beyond the skewness of the data, there are several factors that should be considered. One possible explanation for these results is the necessity of using subjects who only demonstrated a moderate preference for the specified Myers-Briggs typologies. If individuals with clear preferences could have been obtained, the hypothesized relationships may have been found.

Another consideration stems from the research conducted by Schweiger (1985) who found significant relationships between subjects' sensing-intuition typology and cognitive style. He failed to find his hypothesized relationships using the thinking-feeling typology. However, significant non-hypothesized relationships were discovered. For simple logistical reasons, the present study did not control the sensing-intuition or extraversion-intraversion Myers-Briggs typologies. This inability may have also limited the findings of this investigation.

It also seems possible that the requirement to write the factors influencing how much of the resource each subjected wanted to take, may have somehow locked subjects into certain socially desirable norms. After writing that they wanted to divide equally or even draw less than an equal

share, subjects may have felt it was necessary to follow these positive social behaviors. The simple act of writing and making their motivations known to the experimenter may have directed their actions toward socially acceptable behavior.

Similarly, several subjects were concerned that they would actually have to write the report referred to in the job description. The concern that their behavior may be evaluated by a powerful authority figure may have directed their actions in a socially appropriate direction.

A final factor that may have limited these findings was the standard job descriptions for mentors and supervisors. These generic job descriptions were presented to each subject in an effort to control the randomness of subjects' perceptions of leadership roles. Unfortunately, the descriptions included the word leader more often than the word mentor or supervisor. As a result, subjects may have been operating with the social script of leader, rather than the separate scripts of supervisor and mentor. Keating (1989) reports the title of "leader" as being neither strongly pro-social nor non-pro-social. This may help explain the reason why similar results were not found.

In conclusion, the results of this study do not replicate many of the findings of previous researchers. It did, however, reveal a link between personality and leadership styles in a correlation between Myers-Briggs typologies and preferred leadership styles as assessed by Blake and Mouton's managerial grid. This link was also demonstrated in the self-report measures by "thinking" individuals who reported that maintaining social happiness and unity was less important to them than the feeling types. This link should encourage other investigators to develop new measures to explore the relationships between personality, leadership, and cognitive styles.

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Table 1

Cell Means for Amount of Resource Taken.

	Resource Taken*					
	Mentor	Supervisor	Mean			
TJ	39.70	57.35	48.53			
FJ	46.05	55.50	50.78			
Mean	42.88	56.43				

^{*}Reported in ounces.

Table 2

Cell Means for the Importance of Making a Logical Decision and

Maintaining Good Interpersonal Relationships.

	Logical Decision				
	Mentor	Supervisor	Mean		
TJ	6.40	6.50	6.45		
FJ	6.30	6.40	6.35		
Mean	6.35	6.45			

Interpersonal Relationships

	Mentor	Supervisor	Mean
TJ	6.00	5.70	5.85*
FJ	6.50	6.90	6.70*
Mean	6.25	6.30	

^{*}Significantly different p.< .01.

Table 3.

Percentage of Subjects Dividing the Resource Equally (N=11).

	ΤJ	FJ	<u>Mentor</u>	Supervisor
Dividing Equally	36%	64%	45%	55%

^{*}Equal division was defined as withdrawing between 1.9 and 3.1 pounds of sand.

Table 4.

Number of Subjects Following each of the Self-Reported Processes of

Deciding the Amount of Resource to Withdraw.

	Independent Variables			
	Typology		Title	
<u>Processes</u>	TJ	<u>FJ</u>	<u>Mentor</u>	Supervisor
Divide Evenly (Logical)	7	6	7	6
Think of Others (Social)	5	10	6	9
Take More Than Equal Shar	e 6	3	5	4
Miscellaneous	2	1	2	1,

Appendix A

			Appointing	•		
1. How ma	ny pounds o	f sand did the	e resource po	ool contain? _		
2. How ma	iny members	were in your	group?	•		
3. What wa	as your title i	n the group?			·	
	oortant was i lecision?	t for you to re	each a ration	al and		
1 not at all important	2	3	4	5	6 in	7 very nportant
•	ortant was it hips within th		aintain good	d interpersonal	l	
1 not at all important	2	3	4	5	6 ir	7 very nportant
6. What be	havior/roles	constitute a g	good Mentor	/Supervisor?		

When in a **Leadership Position** which of the following statements would be most likely to describe your behavior?

- A. I promote good relations. I embrace opinions, attitudes, and ideas of others rather than push my own. I avoid conflict and when it is appears, I immediately soothe feelings to keep people together. My humor shifts attention away from the serious side. I prefer to support others rather than initiate action.
- B. I expect my decisions to be respected. I stand up for my ideas, opinions, and attitudes, even if they conflict with other's ideas. When conflict arises, I try to cut it off or win my position. I am not afraid to offer counter arguments. My humor is hard-hitting. I drive myself and others.

Appendix B

As you are making your decision, write down everything about which you thinking and any ideas that influences your decision.

Appendix C

Mentor (Supervisor)

As the **mentor** (supervisor) of this group of department heads, you will assume the leadership position. It is your responsibility to lead the twelve members in the resource allocation task. Because you are the **mentor** (supervisor) you will direct any necessary discussions of the allocation process and mediate any disputes that may arise. Finally, it will be your responsibility to write a final report discussing the effectiveness of each department head, which will be submitted to the president of the corporation.

This is a critical leadership opportunity, so your performance and the end result of the allocation process is very important to your career and to the strength of your department. You need to attain enough of the resource to insure your department's future success, yet maintain the satisfaction of the other departments heads.