Blood Group and Managerial Style

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ABSTRACT

This paper examines the relationship between blood group and managerial style. Blood group, as a genetic indicator, correlates with managerial style. The ABO blood type grouping is used. Managerial style is defined according to Rowe's Decision Style Inventory(DSI). Pure managerial styles are directive, analytical, conceptual, and behavioral styles; basic patterns are the combinations of different pure styles such as left brain, action, and staff style patterns. Eight hundred and twenty eight Taiwanese from more than ten organizations completed a Chinese version of the DSI. The findings of the study indicate that there are correlations between blood group and managerial style, and are consistent with previous empirical research. Statistically significant relationships were found for the four blood groups. Blood group A is linked with a dominant behavioral style and a right brain style pattern; blood group B is linked with a dominant thinking style; blood type AB is linked with a dominant conceptual style; and blood group O is linked with a dominant directive style and left brain style pattern. The results provide a promising direction for organizational research.

Introduction

This paper examines the correlations between blood group and managerial style. Managerial style has been heavily researched because of its relatedness to job performance(Rowe & Mason, 1987; McGill et al., 1993). Personality research, such as California Personality Inventory(CPI) and Myers-Briggs Type Indicator(MBTI), and managerial style research, such as the Decision Style Inventory(DSI), imply that there is something which determines unconscious preferences and shapes consistent characteristics (Rowe & Mason, 1987). It is possible that genetic factors determine managerial style. But the relationship between managerial style and genetics has been rarely researched. Many studies indicated that human behavior might be caused by genes (Plomin et al., 1990; Loehlin, 1992; Hamer et al., 1993). Blood group, which is genetically determined, becomes an alternative in studying managerial behavior.

Under the ABO blood group system, there are four types of blood. They are A, B, AB, and O; and everyone belongs to one of the four types. Blood group O possesses both antibody A and antibody B in serum agglutinates with either antigen A or antigen B; blood type A, possesses antibody A, clots with antigen A; and blood type B, possesses antibody A, clots with antigen B. Greendyke(1980) stated that about 400 blood group antigens, such as MNSs and P blood type grouping, have been found. He asserted that it would be theoretically impossible to find two persons with an identical blood type under the available antigen testing. But the ABO blood group system represents a simple classification of human genetics.

There is a speculation that managerial style might be genetically determined (Rowe & Mason, 1987; Quinn, 1988). Brain and twins research support genetically determined human behaviors(Springer & Deutsch, 1989; Eysenck, 1990). On one hand, most genetic methods are either too costly or too complex. The application becomes limited in behavioral science. On the other hand, blood group could be a simple method of analyzing human behavior because everyone belongs to one of the four blood types. The association of blood group with personality is originally developed by Dr. Takeji Hurukawa, a Japanese scholar, in 1935(Iwase, 1991). Eysenck(1990) stated that blood group research "has not received as much attention as it deserves" (p.263). Also, the blood group theory in explaining personality differences has been popular in Taiwan for decades but with few empirical testings(Mee, 1982).
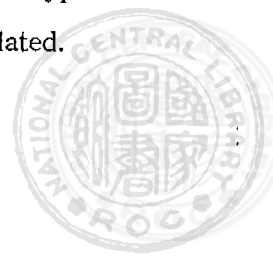
It has been studied that blood groups are associated with personality dimensions (Lester & Gatto, 1987; Lester, 1987; Gupta, 1990, 1992; Jogawar, 1983; Eysenck, 1977; Eysenck, 1982; Cattell & Young, 1964). The blood group theory in explaining the personality differences has been popular for decades in Japan and has been introduced in Taiwan(Noumi, 1977; Suzuki, 1977, 1981, 1984; Mee, 1982; Liao, 1985). But a theoretical foundation concerning the relationship between blood groups and behavioral traits remains unexplored in the U.S.

Cattell & Young(1964) were probably the first authors to investigate the relationship between blood groups and personality traits. They found that people with blood

type A tend to be more tender-minded than people with other blood types. "Tender-minded" is defined as sensitive and overprotective. Later authors have used different instruments to identify various personality traits(Lester & Gatto, 1987; Lester, 1987; Gupta, 1990, 1992; Jogawar, 1983; Eysenck, 1982). The instruments which have been used are Catell's sixteen PF(Personality factor) and Eysenck's EPI(Eysenck Personality Inventory). Among the existing studies, Eysenck's three dimensions, extraversion, psychoticism, and neuroticism, are the most frequently used in examining the relationships between blood groups and personality traits. The definition of neuroticism is an expression of the degree of emotional stability, with respect to feelings, wearisomeness, and nervousness. Extraversion is defined as sociable, active, and assertive characteristics. Psychoticism describes the degree of emotional independence or autonomy, exemplified by not having sympathy or empathy for animals caught in a trap or hurting loved ones. A more detailed explanation of the three personality dimensions can be found in the appendix of Eaves et al.(1989).

Other findings concerning the relationships between blood groups and personality traits are as follows. Lester & Gatto(1987) concluded that individuals with type A had lower scores on extraversion. These scores on extraversion were measured by Eysenck's(1968) questionnaire; and individuals with type B had lower scores on extraversion. Eysenck(1982), in a cross-cultural study, found that neuroticism is linked with blood type B. Gupta(1990) found that blood type B had significantly higher scores on neuroticism than the other three blood types. Eysenck(1982) found a pattern that countries with lower percentage of blood group AB had higher scores on extraversion. Others found that blood type AB had higher introversion scores by using Eysenck & Eysenck's(1964) EPI-Form A(Angst and Maurer-Groeli, 1974; Gupta, 1990). Neumann et al. (1991), in a Myocardial Infarction(MI) research, found that patients with blood group O reported more behavioral/psychological MI(myocardial infarction) risk factors than patients having blood group A. They found that individuals with type O blood had higher ratings on traits of anger, depression, and anxiety than individuals with blood type A. They provide evidence that blood group, personality, and disease are interrelated.

Previous blood group research in Japan covers managerial styles, personality types, job matches, love connection, crime studies, and communication style. Mee (1982), a psychologist, in a correlational study of blood group and personality, concluded that there is a slightly significant relationship between blood group and personality. He found some relationships which were consistent with the propositions proposed by Japanese scholars. Mee(1982) also found that individuals with blood type A have low scores on decisiveness, high scores on introversion, low scores on cold mindedness, and high scores on carefulness. Decisiveness was defined as responding and acting quickly. Introversion was defined as shy and inward oriented. "Cold mindedness" was defined as sensing and thinking oriented instead of feeling oriented. Blood type B have the lowest scores on persistence, the lowest scores on planning, higher scores on decisiveness, higher scores on extraversion, and the highest scores in dealing with interpersonal relationship. Blood group AB have the highest scores on personal planning, the highest scores on intuition, higher scores on carefulness, higher scores on decisiveness, higher scores on cold mindedness, and the lowest scores on emotional stability. He defined intuition as sensitive to color or environments. People with blood type O have the highest scores on persistence, highest scores on emotional stability, and the lowest scores in dealing with interpersonal relationships. "Persistence" is defined as avoiding incomplete tasks or projects.

The DSI questionnaire created by Rowe(1983) analyzes four pure styles which are analytical, behavioral, conceptual, and directive. According to Rowe & Mason(1987), the four styles are characterized as follows:

> Directive style has low tolerance for ambiguity and is oriented to task and technical concerns. Analytical style has a high tolerance for ambiguity and is oriented to task and technical concerns. Conceptual style has a high tolerance for ambiguity (considerable complexity) and is oriented to people and social concerns. Behavioral style has a low tolerance for ambiguity and is oriented to people and social concerns.(p.4)

Also, left brain style indicates people who are task oriented and have a combina-

tion of analytical and directive styles(Rowe & Mason, 1987). Right brain style describes people who are people oriented and have a combination of conceptual and behavioral styles. Thinking orientation describes people who possess both analytical and conceptual styles.

An action(or extraversive) pattern represents a combination of directive and behavioral styles. By knowing scores for people who are action style, thinking style can be inferred from Rowe & Mason's(1987) model. A left brain pattern describes a combination of analytical and directive style. A right brain pattern describes a combination of conceptual and behavioral styles. Likewise, if "left brain" is known, scores for the "right brain" can be inferred.

Hypothesis

ABO blood type system, which includes A, B, AB, and O, is used to differentiate individual genetic characters among individuals. Managerial style is defined and measured by Rowe's(1983) Decision Style Inventory(DSI). Based on the above information, hypotheses are made as follows:

Directive Style

Hypothesis 1A: Individuals with blood group A have lower directive style scores than individuals with the other blood groups.

Hypothesis 1B: Individuals with blood group B have higher scores on directive style than individuals with the other blood groups.

Hypothesis 1AB: Individuals with blood group AB have higher scores on directive style than individuals with the other blood groups.

Hypothesis 1O: Individuals with blood group O have higher scores on directive style than individuals with the other blood groups.

Analytical Style

Hypothesis 2A: Individuals with blood group A have lower scores on analytical

style than individuals with the other blood groups.

Hypothesis 2B: Individuals with blood group B have lower scores on analytical style than individuals with the other blood groups.

Hypothesis 2AB: Individuals with blood group AB have lower scores on analytical style than individuals with the other blood groups.

Hypothesis 2O: Individuals with blood group O have higher scores on analytical style than individuals with the other blood groups.

Conceptual Style

Hypothesis 3AB: Individuals with blood group AB have higher scores on conceptual style than individuals with the other blood groups.

Behavioral Style

Hypothesis 4A: Individuals with blood group A have higher scores on behavioral style than individuals with the other blood groups.

Hypothesis 4B: Individuals with blood group B have higher scores on behavioral style than individuals with the other blood groups.

Hypothesis 4AB: Individuals with blood group AB have higher scores on behavioral style than individuals with the other blood groups.

Hypothesis 4O: Individuals with blood group O have lower scores on behavioral style than individuals with the other blood groups.

Left Brain Style

Hypothesis 5A: Individuals with blood group A have higher scores on right brain style pattern than individuals with the other blood groups.

Hypothesis 5AB: Individuals with blood group AB have higher scores on right brain style than individuals with the other blood groups.

Hypothesis 5O: Individuals with blood group O have higher scores on left brain style than individuals with the other blood groups.

Action Style

Hypothesis 6B: Individuals with blood group B have higher scores on action style than individuals with the other blood groups.

Hypothesis 6AB: Individuals with blood group AB have higher scores on action style than individuals with the other blood groups.

Method

The DSI questionnaire contains twenty questions with four choices for each question. Four numbers, 8, 4, 2, 1, were used to rank respondents' choices: 8 when the question was mostly like the respondent; 4 when the question was moderately like the respondent; 2 when the question is slightly like the respondent; and 1 when the question is least like the respondent. The first column of the DSI is directive style; the second column is analytical style; the third column represents conceptual style; and the fourth column is behavioral style.

Instrument Translation

The translation of Rowe's DSI was carried out in four stages:

1. The DSI was translated from English to Chinese by the author of this study.

2. This first translation was checked by another Chinese- English bilinguist to detect any mistranslations.

3. Another bilinguist read the Chinese version to ensure that the translation could be clearly understood in Chinese.

4. The Chinese version was translated back into English by another bilinguist who had not read the English version.

Whenever there was a disagreement, at any stage in this process, an effort was made collaboratively with all those involved to choose a better Chinese expression.

Friends and relatives from different areas of Taiwan were asked to distribute the questionnaires in a number of organizations. 828 people filled out the Chinese version

of the DSI. The sample includes 211 people with blood type A, 202 people with blood type B, 67 people with blood type AB, and 348 people with blood type O.

The respondents work for different organizations and firms which include the Department of Motor Vehicle(DMV) in Nantoe, and Taichung, construction, regional administration of veterans in Nantoe County in middle Taiwan, Chu-San township office in Chu-San Nantoe, Taiwan English Magazine Company in Taipei, Cultural Center in the city of Taichung, Internal Revenue Service(IRS) in Nantoe, Kuomintang party office in Nantoe, and graduate students at Fun-Jua University in the City of Taichung. There were 387 who work as accountants, sales people, administrative assistants, temporary workers, or secretaries(task oriented jobs); 79 worked as teachers, housewives, nurses, and counsellors(social orientation jobs); 50 participants were students; 81 were managers; 15 architects; 17 engineers; 30 army officers; 68 others included pharmacists, doctors, lawyers, specialists, and vice presidents. The remaining 101 people did not provide job information.

Results

Directive Style

Hypothesis 1A and 1O are supported. Hypothesis 1B and 1AB are not supported. Hypothesis 1A predicts that people with blood type A have lower directive style scores and hypothesis 1O indicates that people with blood type O have higher directive style scores. The result shows that people with blood type O have significantly higher directive style scores than people with blood type A. (A one-tailed test is applied when the concern is a specific direction.) The t-test results with a one-tailed test are t= 1.46 and p= 0.073. There is no statistical significance in directive style found in blood groups B and AB. Hypothesis 1B predicts higher directive style scores for blood type B. And hypothesis 1AB indicates higher directive style scores for blood type AB. Table 1 and Table 2 show that scores of directive style are very similar among blood type A, B, and AB.

Analytical Style

Hypothesis 2A is consistent with the expected direction. Hypothesis 2B is inconsistent with the expected direction. Hypothesis 2AB and 2O are not supported. Hypothesis 2A indicates that people with blood type A have lower analytical style scores. But the result is opposite to hypothesis 2B which predicts lower analytical style scores for blood type B. People with blood type B have the highest mean analytical style scores. But the t-test results show that analytical style scores are not significantly different among diverse blood groups. Hypothesis 2AB indicates that blood type AB has lower analytical style scores. Table 2 shows that the mean analytical style scores for blood type AB are higher than blood type A and O. Hypothesis 2O predicts higher analytical style scores for blood type O. But no statistical significance was found. Table 2 indicates that the mean analytical style scores for blood type O are lower than blood type B and AB.

Conceptual Style

Hypothesis 3AB which indicates higher conceptual style scores for blood type AB is supported. Table 2 shows that people with blood type AB have the highest conceptual style mean scores and people with blood type A have the lowest mean scores. The conceptual style scores of blood type AB are significantly higher than blood type A with a one-tailed test at 0.10 level($t = 1.57$ and $p = 0.053$).

Behavioral Style

Hypotheses 4A and 4O are supported; hypotheses 4B and 4AB are inconsistent with expected direction. Hypothesis 4A which predicts higher behavioral style scores for blood type A is supported. People with blood type A have significantly higher behavioral scores than the other three blood types. The t-test results with a one-tailed test are $t = 1.95$($p = 0.028$ between blood type A and B), $t = 1.76$($p = 0.040$ between blood type A and AB), and $t = 1.87$($p = 0.031$ between blood type A and O) in Table 2. Hypothesis 4AB which predicts higher behavioral style scores for blood type AB is not supported. Table

1 shows people with blood type AB have lower behavioral style scores than people with other blood types. Hypothesis 4O which indicates low behavioral style scores for blood type O is supported. People with blood type O have significantly lower behavioral style scores than people with blood type A, although there is no comparable difference among the other blood groups. Hypothesis 4B which predicts higher behavioral style scores for people with blood type B is not supported. People with blood type B have significantly lower behavioral style scores than people with blood type A. Hypothesis 4AB which predicts higher behavioral style scores for people with blood type AB is not supported. Table 1 shows that people with blood type AB have the lowest behavioral style scores.

Left Brain Style

Left brain style is defined as a combination of directive and analytical styles. Hypotheses 5A and 5O are supported. Table 1 shows that people with blood type A have the lowest left brain style scores and people with blood type O have the highest. People with blood type O have statistically significant higher scores at 0.10 level with a one-tailed test than people with blood type A($t = 1.40$, $p = 0.081$). Hypothesis 5A predicts people with blood type A have higher right brain scores. Hypothesis 5O indicates higher left brain scores for blood type O. Also, people with blood type B have significantly higher left brain scores at a 0.10 level with a one-tailed test than people with blood type A($t = 1.29$, $p = 0.099$). People with blood type AB are not significantly different from the other blood types. The left brain style scores of blood type AB are lower than blood type B and O. No statistical significance was found. Hypothesis 5AB which predicts higher right brain scores for blood type AB is moderately supported.

Action Style

Action style is defined as a combination of directive and behavioral styles. Research results are opposite to hypothesis 6B and 6AB. Table 6 shows that people with blood type A have the highest action style scores and people with blood type AB have the lowest. The t-test results show that people with blood type A have significantly

higher action style scores at 0.10 level with a one-tailed test than people with blood type B(t= 1.47, p= 0.071) and AB(t= 1.60, p= 0.056). Hypothesis 6B predicts higher action style scores for people with blood type B. Hypothesis 6AB indicates higher action style scores for blood type AB.

Table 1. Means(M) and Standard Deviations(SD)

for the managerial styles

Blood Groups

Managerial Styles		A n=211	B n=202	AB n=67	O n=348	Total n=828
Directive	M	74.34	74.82	74.25	76.08	75.18
	SD	12.80	11.88	12.45	14.16	13.15
Analytical	M	76.27	77.82	77.45	76.59	76.88
	SD	12.07	14.06	13.65	14.07	13.54
Conceptual	M	71.70	72.66	74.37	72.34	72.42
	SD	12.14	11.99	12.33	11.87	12.00
Behavioral	M	77.70	74.70	73.93	74.99	75.52
	SD	15.31	16.04	15.14	17.31	16.37
Left Brain	M	150.60	152.64	151.70	152.66	152.05
	SD	14.67	17.33	18.20	18.01	17.06
Action	M	152.04	149.51	148.18	151.07	150.70
	SD	17.80	16.97	13.13	18.09	17.53

Table 2. Significant mean differences of styles

With Two-Tailed Tests

Managerial style	Means compared	t	p

- -

Directive	A vs B	-.39	.693
	A vs AB	.05	.963
	A vs O	-1.46	.145*
	B vs AB	.33	.740
	B vs O	-1.07	.287
	AB vs O	-.98	.326
Analytical	A vs B	-1.21	.228
	A vs AB	-.68	.499
	A vs O	-.28	.783
	B vs AB	.19	.849
	B vs O	.99	.321
	AB vs O	.46	.645
Conceptual	A vs B	-.81	.416
	A vs AB	-1.57	.118*
	A vs O	-.62	.539
	B vs AB	-1.00	.316
	B vs O	.31	.758
	AB vs O	1.28	.203
Behavioral	A vs B	1.95	.052**
	A vs AB	1.76	.079**
	A vs O	1.87	.061**
	B vs AB	.35	.729
	B vs O	-.19	.846
	AB vs O	-.47	.639
Left brain	A vs B	-1.29	.197*
(Analytical	A vs AB	-.50	.615
+ Directive)	A vs O	-1.40	.161*
	B vs AB	.38	.705

	B vs O	-.02	.987				
	AB vs O	-.40	.690	Action	A vs B	1.47	.141*
(Directive	A vs AB	1.60	.111*				
+ Behavioral)	A vs O	.62	.536				
	B vs AB	.57	.567				
	B vs O	-.99	.322				
	AB vs O	-1.23	.221				

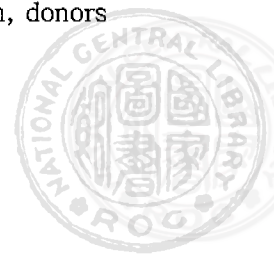
*Statisitcally significant at 0.10 level(one-tailed test)

**Statisitcally significant at 0.05 level(one-tailed test)

Discussion

The results suggest that there are some associations: blood type A is linked with behavioral style and right brain style; blood type B is linked with thinking style; blood type AB is related to conceptual style; blood type O is related to directive style and left brain style.

There are two weaknesses in this study. First, blood type is a simple classification of human genetics. Blood group shows an overall information of genetics. But the classification may be too simple to include diverse personality traits. A more detailed understanding of human genetics may have to rely on biological examination such as DNA testing. The value of this study demonstrates that people with certain blood group may possess higher probability of certain personality characteristics.

The second weakness is the methodological issue which is the questionnaire collection. Unlike traditional random sampling, the DSI was distributed to different organizations through friends and relatives in this study. But first, it is a genetic concern which is a predetermined factor. The blood type distribution of the distribution is: blood type A(25.5%), blood type B(24.4%), blood type AB(8.1%), and blood type O(42%). According to 1992 statistical data from the blood donation center in Taiwan, donors

with blood type A are 26.5%; donors with blood type B are 23.6%; donors with blood type AB are 6.1%; and donors with blood type O are 43.8% of the population which is close to the blood distribution of the sample. Second, in order to get cooperation from respondents and increase response rate, it is more efficient to distribute the questionnaires through friends and relatives than distribute them by mail. In this regard, 828 questionnaires were completed within three weeks. Third, more than ten organizations from different districts of Taiwan were surveyed. Based on these reasons, it is still considered as a reasonable alternative.

This study at least shows three contributions to prior research. First, it again relates genetics to human behavior. As many biologists claim the correlations between genes and human behavior, social scientists are able to use a simple blood group language to study human behavior. Second, blood group study on human behavior is worthy of our paying attention. Most previous blood group research focus on personality characteristics instead of work related behaviors. The research results imply that blood group might be used to predict both personality traits and managerial behaviors. Third, the correlations between blood group and managerial style may be used to predict work performance as the research of McGill et al.(1993). The most important is that the alignment between managerial style and organizational (or job) characteristics becomes a key to career success(Chatman, 1989). Facing the difficulties of measuring managerial style, blood group analysis provides another way of interpreting personality characteristics. To predict managerial style, we are able to get more accurate results by evaluating both the DSI and blood group. In the future, more factors may be included to examine the blood group effect on human behavior. These factors may include genetic and environmental factors. For example, gender, age, education, and job categories all influence human behavior. There may have interesting results by examining the dynamics with blood group.

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