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PERSONALITY AND WORK PERFORMANCE: MYERS–BRIGGS TYPE INDICATOR CORRELATES OF MANAGERIAL PERFORMANCE IN TWO CULTURES

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Summary—Chinese and European middle and senior management of an Asian based international airline completed the Myers–Briggs Type Indicator (MBTI) which was correlated with reliable, behavioural measures of performance management. Performance managerial practices included customer focus, decision making, team work, communication as well as the overall score and a rating of future potential. Over 340 European and Chinese managers completed the MBTI, and their direct reporting superior (and his/her superior) rated their manager on his/her management performance over the previous year. The performance test data was correlated with four dimensions arising from the MBTI—separately for the European expatriates and Chinese. Fewer correlations than may be expected by chance arose from the correlational and regressional analysis. These results are discussed in terms of recent literature in this field.

INTRODUCTION

To the lay person it is a self-evident fact that personality factors play an important part in job performance and satisfaction. Yet the psychological literature is equivocal. Two early reviews by Ghiselli and Barthol (1953) and Ghiselli (1966) found that across a variety of occupational groups mean predictive validities of personality measures ranged from $r = 0.14$ to 0.36 and $r = 0.21$ to 0.46, respectively, when the measured traits were judged to be relevant for the job in question. In both reviews the predicted criteria were some measure of job proficiency (e.g. production records, supervisory ratings). In another review, Guion and Gottier (1965) concluded that "taken as a whole there is no generalizable evidence that personality measures can be recommended as good or practical tools for employee selection" (p. 159). They note that custom-built or home-made measures demonstrated better predictive validity, on average, than the standardized inventories (e.g. MMPI).

More recently, Schmitt, Gooding, Noe and Kirsch (1984) conducted a meta-analysis of validation studies of personality measures published in the *Journal of Applied Psychology* and *Personnel Psychology* between the years of 1964 and 1982. The average validity coefficient across all studies and situations, corrected for differences in sample size (sampling error), was a rather modest $r = 0.21$ for a performance rating criterion. Yet two meta analyses have concluded that there are grounds for optimism concerning the use of standard personality tests in measuring employee selection and productivity (Barrick & Mount, 1991; Tett, Jackson & Rothstein, 1991).

Furnham (1992) has listed six different approaches to investigating personality and individual difference predictors of work-related behaviour. Perhaps the most interesting and impressive of these is longitudinal studies, some over 20 or more years that show the predictive validity of various personality inventories (Inwald, 1988; Mortimer, Lorence & Kumka, 1986; Howard & Bray, 1988). Furnham (1992) concluded as have others, that if poorly psychometrized and non-theoretically based personality measures are related to unreliable and contaminated ratings of work performance, it is no surprise that results are equivocal between tests and that personality measures correlate poorly (if significantly) with occupational measures.

This study is concerned with Myers–Briggs Type Indicator (MBTI) correlates of multi-faceted, supervisor rated work performance. The MBTI is not a measure of skills or abilities. It looks at

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four preferences that everybody supposedly uses at different times. The MBTI consists of four preferences which together make up our personality 'type' (such as ENTP, ISFJ, ESTP, etc). These preferences are not a measure of excellence—rather they are an indication of the type of environment in which people feel most comfortable and work best.

The four preferences are: *Extraversion* (*E*) or *Introversion* (*I*): one of the differences in people's personalities is whether they are most interested in the outer or inner worlds. Extraverts are more comfortable with people and things; introverts with ideas. Extraverts are often friendly, talkative, and easy to know while introverts are more often reserved, quiet and hard to know. Extraverts easily express emotions, both positive and negative, while introverts are more likely to bottle up their emotions. *Sensing* (*S*) or *Intuition* (*N*): there are, according to Jung (1953), two different ways of perceiving. One is by sensing-using five senses to become aware of things. Sensing types are good at precise work and routine but less comfortable at solving new problems. The other way of perceiving is by intuition—a more indirect way of looking at things by using unconscious ideas or associations. Intuitives like solving new problems and planning for the future. *Thinking* (*T*) and *Feeling* (*F*): similarly, there are two ways of judging or making decisions. One way is by thinking—a more logical, impersonal process. Thinkers are supposed to like to analyse and organize, to make decisions based on facts. They find it difficult to confront or express feelings—either their own or other people's. The other way of making judgements is by feeling. Feeling types like relationships to work well, enjoy pleasing people, and are sensitive to others. They tend to decide on the basis of values and the impact of decisions on people. *Perceiving* (*P*) or *Judging* (*J*): the fourth preference is the choice between a perceptive attitude and a judging attitude, for dealing with the world. Perceptive types adapt well to change, like to start many projects (but have trouble finishing them), and may have difficulty making decisions. Judging types are generally more ordered, like to finish tasks, to make quick decisions (perhaps too quickly), to be organized and to plan. Each person gets a score on each of the 16 dimensions, and a type (i.e. ISFP or ENTJ) refers to their dominant preference on each of the four major dimensions.

The MBTI is one of the most widely used psychological measures world-wide, and popular books are available for lay self-interpretation (Hirsh & Kummerow, 1989). The MBTI has been around so long as to be correlated with every other major personality measure (Thorne & Gough, 1991). Devito (1985) has described the MBTI as "probably the most widely used instrument for non-psychiatric populations in the area of clinical, counselling, and personality testing" (p. 1030). Moore (1987) noted that most companies used the MBTI to help managers better understand how they come across to others who may see things differently. Other applications include team building, improving customer service, reconciling group differences, career planning, adapting to change, analysing troublesome behaviour between employees, and facilitating competitive strategic thingking.

McCrae and Costa (1988), argued the MBTI is unusual among personality assessment devices for three reasons: it is based on a classic theory; it purports to measure types rather than traits of continuous variables; and it is widely used to explain individuals' personality characteristics, not only to professionals but also to the individuals themselves and their co-workers, friends, and families. But they also point out its limitations: the original Jungian concepts are distorted, or even contradicted; there is no bi-model distribution of preference scores; studies using the MBTI have not always confirmed either the theory or the measures' validity.

There have been both popular and academic criticisms of the MBTI. Bayne (1989) notes that the personal feedback is more often based on flattery than honesty, and that because most are simply vignettes of unrelenting virtue they cannot be accurate. More seriously Lorr (1991) has found problems on the MBTI classification scheme which suggests raw scores rather than simple typology should be used in research.

Although there has been a vast amount of work on the MBTI relatively few studies have examined the relationship between types and occupational behaviour such as productivity and satisfaction. The literature has also been highly equivocal. Rahim (1981) tested the hypothesis that there would be a congruence between MBTI type and occupational type (technical, intellectual and social) as measured by a job satisfaction index. The results did not confirm the person–job fit hypothesis but did show extraverts were more satisfied than introverts, and judging types more satisfied than perceiving types, irrespective of their occupation. Other results have also shown

evidence of the main effects of personality on job satisfaction (Furnham & Zacherl, 1986). Nutt and colleagues (Henderson & Nutt, 1980; Nutt, 1982, 1986a, b, 1988, 1989, 1990) have completed a number of very competent simulated decision-making studies using the MBTI but as all this work is based on hypothetical situations, it is uncertain whether the results would generalize to real world settings.

In a similar simulated study, Haley and Stumpf (1989) tested real managers in groups of 12. The simulation concerned a hypothetical commercial bank with 12 senior management posts across three hierarchical levels and two product areas. After selecting managerial roles, participants received information on the financial issues and then they ran the bank as they saw fit. Trained observers rated the information-gathering methods which the participants used, which were then related to their MBTI scores. The hypotheses which were derived from the work of Tversky and Kahneman (1982) all received support, revolved around the idea that managers' information input biases have subsequent output biases which may lead to operational biases. For instance, SFs (Sensing Feelers) succumb to functional-fixedness and regularity-and-structure biases, while NFs (Intuitive Feelers) succumb to reasoning-by-analogy and illusory-correlation biases. They argued that this research indicated the choices that different personality types usually make, the environmental conditions under which manager's predominant styles may lead to good strategies, and the information that managers may leave out of their calculation. This information could help managers sensitize themselves to sequential biases in decision making and by identifying appropriate and erroneous tactics.

Role play simulated decisions, as used in the above studies may not, of course, replicate the decisions that executives would reach when faced with a real decision. Hence, empirical studies have attempted to overcome these problems of ecological validity by looking at actual occupational behaviour. For instance, Rice and Lindecamp (1989) correlated MBTI types with gross personal income of small business managers to returns on assets. Although extraverts tended to do better than introverts and thinking types better than judging types, the author concluded: "The study found no convincing support for any link between Jungian personality types and the performance of small businessmen, and this included failure to support the expectations of Myers." (pp. 181–182)

Yet other studies have found significant and predictable relationships between MBTI scores and other aspects of work behaviour. Marcia, Aiuppa and Watson (1989) compared the MBTI self-esteem and job satisfaction scores of 102 American managers with the organization's 'normative' personality type. It was hypothesized that managers whose personality type are the norm of their particular organization should show higher self-esteem, greater job satisfaction, and a lower turnover rate. The results were confirmed for self-esteem but not for job satisfaction. They argue that those with high fit tend to be more rewarded by the organization, which tends to increase their self-esteem.

Danziger, Larsen and Connors (1989) found a relationship between MBTI types, and time keeping and appointments for an experiment on problem solving. Also Schurr, Ruble and Henrikser (1988) found MBTI types were significantly related to self-reported academic problems and skills and scholastic aptitude. Thus, the personality type score explained 21% of the verbal score variance and 8% of the mathematics scores' variance. Other studies have noted the uneven distribution of the 16 types (Campbell & Van Velsor, 1985; Haley & Stumpf, 1989), in that some types (ESFP) are rather rare in the population as a whole and others very common (ENTJ), which may well influence correlational results.

Furnham and Stringfield (under review) have pointed out that many of the previous studies in this area have suffered from methodological problems when relating MBTI scores to occupational behaviour. First, some of the most comprehensive studies have used business simulation and role-plays rather than real behaviour (Nutt, 1986a, b, 1988; Haley & Stumpf, 1989). Second, studies that have used real behavioural variables like business income (revenue) have not always been able to partial out other, perhaps crucially relevant variables, that actually account for the dependent variable (in interaction with the personality types) (Rice & Lindecamp, 1989). Third, many studies have used students rather than employed adults more particularly, managers (Danziger *et al.*, 1989). Fourth, nearly all reported studies have been restricted to North American WASPS so threatening the generalizability of the result across other cultures.

This study which is the second in a series, attempts to overcome some of the above problems. The strength of the study lay particularly in the measurement of dependent variables.

Various studies dating back since the second world war have pointed out serious problems in using supervisor/superior ratings as a reliable and valid dependent measure (Cook, 1988). This study used supervisor ratings but endeavoured to overcome nearly all of the most obvious problems. Firstly, the dimension upon which raters evaluated their subordinates, had been carefully chosen and extensively piloted in order to be understood by all, and more importantly, to be salient to the company's culture and operation. Secondly, *all* managers had undergone a half-day intensive rate-training course to ensure they were aware of, and possibly able to, avoid the common pitfalls. Thirdly, all ratees received two ratings to ensure reliability: each person was rated by his/her immediate boss (to whom they directly reported) and their boss's boss (to whom their boss reported). Where differences of over a certain range occurred, these *S*s were excluded from the analysis. Hence there is some reason to suppose the data are reliable. Fourthly, and perhaps most importantly, these data were treated to statistical analysis (normalization, regression, weighting) to ensure the ratings from different groups were equivalent and comparable.

More importantly the ratings were treated to fairly extensive statistical analysis, to ensure people from different parts of the organization were rating in the same way. This included a normalization of the scores, conversion to a percentage score, and weighting based on regressional analysis. The point of this fairly extensive analysis was to ensure that employees from different gender or cultural groups, at different levels with the organization and from different sections (i.e. engineering, marketing) were being rated on the same scale. Hence, it can be assumed that the multi-dimensional dependent variable was robust, and reliable.

Few hypotheses were entertained because of the limited and equivocal previous research: first, it was assumed that MBTI scores would be modestly related to the performance ratings. It was hypothesized that I–E would be most strongly correlated with the dependent variables; E positively and I negatively (Rice & Lindecamp, 1989; Furnham & Springfield, under review). Thirdly, it was assumed that the dependent ratings would be highly inter-correlated with each other as well as the 'overall' and 'potential' scores. It was also hypothesized that the other MBTI dimensions would be consistently related to performance and rating with S, F, and J scores negatively correlated and N, T, and P scores positively related. Finally it was expected that there would be significant cultural (and gender) differences on the MBTI but not managerial performance (Smith, Missumi, Tayeb, Peterson & Bond, 1989).

METHOD

Subjects

In all, 371 managers divided into two groups took part in this study: Chinese managers ($n = 222$) and non-Chinese (European) ($n = 148$) managers. Both groups worked for a successful international airline based in South East Asia and came from all sections of it (i.e. marketing, operations, engineering, accounts). The vast majority (over 90%) were men but there were 30 Chinese and 11 European women. All were managers and they ranged from junior management to actual directors of the company. Most had been with the company for some time; the range being 6 to 29 years. All managers above a certain level were required to attend training courses over a 28 month period in preparation for these compulsory attendances, they or their subordinates completed various questionnaires.

Materials

The MBTI (Myers, 1975). This is a 166-item scale which in most, but not all, cases is based on 2-fold forced choice scale. It yields eight scores per person which results in a 16 ($2 \times 2 \times 2 \times 2$)-item taxonomic structure. Dimensions included E–I, S–N, T–F, and J–P. The measure is based on Jung's type theory and was first developed over 40 years ago, and has impressive norms and satisfactory reliability, though less impressive validity statistics. It is most extensively used in psychotherapy, career counselling, and education.

Performance ratings. As part of the Performance Management System, each manager was rated twice on 12 dimensions (see Table 1) considered by the organization highly relevant to their job.

Table 1. Sex and culture differences on all three measures: personality, management. practices and climate

	Sex			Culture		
	Female 40	Male 223	*F* Level	Chinese 186	European 93	*F* Level
Extraversion	14.57	12.88	5.06*	12.02	14.93	25.93***
Introversion	10.93	12.73	5.36*	13.47	10.81	20.05***
Sensing	12.22	15.87	11.87***	16.75	12.92	22.01***
Intuiting	11.19	9.72	4.17*	8.94	11.56	22.51***
Thinking	14.22	17.94	20.87***	18.10	16.04	10.20***
Feeling	6.56	4.84	10.87***	4.73	5.77	6.39**
Judging	18.31	19.09	1.06	20.52	16.60	50.36***
Perceiving	9.24	8.57	0.74	7.05	11.14	51.50***
Forward looking	55.35	58.84	1.93	58.05	58.77	0.14
Customer focus	58.79	57.71	0.20	57.54	58.54	0.29
Team work	56.53	58.77	0.82	58.28	58.67	0.04
Communication	58.20	58.75	0.05	57.27	60.53	2.22
Leading and motivating	54.67	59.07	3.04	58.04	59.11	0.31
Planning	53.69	57.84	2.76	57.67	56.23	0.55
Decision making	56.11	59.01	1.41	58.90	57.90	0.59
Commitment	58.60	62.96	2.88	61.71	63.41	0.74
Innovation	55.26	58.15	1.39	56.65	59.85	2.66
Achieved KRA	56.37	59.20	1.34	59.62	56.85	2.01
Achieved MP	57.04	59.53	1.03	59.04	59.34	0.02
Potential	55.46	58.60	1.65	58.40	57.31	0.21
Overall	56.69	59.00	1.55	59.56	58.62	0.28

***$P < 0.001$; **$P < 0.01$; *$P < 0.05$.

To ensure reliability each manager was rated by his/her boss and their boss. Fewer than expected by chance differences occurred. Ratings were treated to 2 score transformations and regression-based weightings, to ensure comparability across the organization.

Procedure

Managers were asked to complete the MBTI approx. 3 months before going on a course. A full day was spent at the course giving feedback and interpretation of these scores. The performance ratings were completed by the manager's boss (and his/her boss). Each manager was shown his/her MBTI score on a development course (lasting $\frac{3}{4}$ day) and discussed his/her performance ratings in a frank and open discussion with his/her boss.

RESULTS

Culture and gender differences

It was important to determine whether there was either or both culture and/or gender differences on the independent (MBTI) and dependent variables (managerial practices). A MANOVA followed by a series of one-way ANOVAs on the 12 managerial practices was then performed.

Table 1 shows the results of the ANOVAs. It is immediately clear that while there are a large number of significant differences on the MBTI scores for both gender and culture, there were fewer than chance differences on performance ratings. Both MANOVAs showed no significant differences on managerial practices. However considering the MBTI finding, 6 of the 8 sex differences showed a striking pattern. Compared to males, females were more extraverted, and less introverted; less sensing and more intuitive; less thinking and more feeling. These sex differences are frequently found, and accord with previous research using the MBTI (Myers, 1975).

The culture differences were however more dramatic. Everyone of the 8 dimensions yields large and dramatic differences. Compared to the Chinese managers, the European tended to be more extraverted, less introverted; less sensing, more intuitive; less thinking, more feeling and less judging, and more perceiving. Despite these differences it is worth pointing out that the average profile for the Chinese is ISTJ, whereas for the Europeans it is ESTJ. Hence, for this organization the profile for the different culture groups is a matter of degree rather than kind. A series of sex and culture 2-way ANOVAs were then computed for each of the 12 management practices. None reached significance.

Given the size and number of significant sex and culture differences on the MBTI, it appears that these groups should be analysed separately.

MBTI correlates of appraisal work behaviour

The major aim of this study was to examine MBTI correlates of work behaviour. Hence correlations were computed between the 8 type scores and 13 appraisal ratings for the Chinese and European groups (with sex partialled out).

It is quite apparent from Table 2 that fewer than by chance correlations were significant. Furthermore, where the correlations were significant they were very different when comparing the European and Chinese.

Various other analyses were attempted. Opposite types (i.e. E–I) were transformed through a simple arithmetic processing of the raw scores into a single bi-polar score. These four scores were then correlated (partialling out sex and culture) with the various work-related criteria. Again, fewer than may be expected by chance correlations reached significance. Next, the 8 scores were correlated with both all scores totalled up and the overall score. Given the fact that the correlation matrix of the various dependent measures showed *all* correlations were positive and significant, it was thought legitimate to do this.

As indicated in Table 3, none of the correlations reached significance.

Finally a series of regressions were performed. The 8 MBTI scores were regressed onto each of the work measures. Only 2 yielded a significant difference shown in Table 4. The results showed that sensing was a predictor of leading and motivating, and feeling and judgement negative predictors of innovating. None of the other analyses yielded significant predictors.

DISCUSSION

Despite the fact that the MBTI had been shown to be a significant predictor of some work-related behaviours, this study failed to yield any major correlations. The MBTI did yield significant gender and cultural differences but seemed unrelated to robust and multi-factorial measures of management performance. Given this result, it is worthwhile attempting to decide why this occurred.

First, it has been argued by some that personality measures quite simply do not predict job performance. Yet more recent and comprehensive meta-analyses have come to different conclusions. Barrick and Mount (1991) looked at the relationship between the 'big five' personality dimensions (namely extraversion, emotional stability, agreeableness, conscientiousness, and open to experience) with three job performance criteria (job proficiency, training proficiency and personnel data) for five occupational groups. One dimension fairly predictably related consistently to job performance, namely conscientiousness. This dimension is not measured by the MBTI nor are any related factors such as the Protestant Work Ethic (Furnham, 1990) part of the MBTI, and thus, this most salient dimension was not included. Despite the fact that a dimension like conscientiousness is probably very easy to fake, it does seem one of the best predictors of management performance.

Barrick and Mount (1991) also found E a valid predictor for two groups across the five criteria and a predictor of training proficiency across the occupational groups. In this study E correlated positively with team-work, commitment and potential for the European managers, and negatively with decision making and achieving key results with the Chinese managers. Although many were not significant, it is noticeable that E tended to be correlated with high job performance ratings for the European managers, while I was associated with job success for the Chinese managers. The fact that E seems correlated with job performance criteria, may therefore, be culture specific. Indeed other culture specific patterns tended to emerge in this data. For instance, N was nearly always (12 out of 13) negatively correlated with job performance scores in the Chinese managers, whereas for the European managers 9 out of 13 correlated were positive.

The noticeable cultural differences on the MBTI, but not job related scores, raises the possibility that the relationship between personality, management style, and management efficacy may be quite different in different cultures. The Chinese managers who were highest rated tended to be sensing introverts, while for the Europeans the extraverts seemed to get the higher scores. Of course the other possibility is that quite simply the MBTI is a culture bound instrument not appropriate for use in other cultures. If indeed this were the case, one might expect more correlations between type and job performance among the European group if, of course, the MBTI measured salient

Table 2. Correlation between 12 managerial practices overall score and the 8 personality dimensions for both Chinese (C) and European (E) populations Myers-Briggs

	E		I		S		N		T		F		J		P	
	C	E	C	E	C	E	C	E	C	E	C	E	C	E	C	E
Forward looking	0.02	0.01	0.01	0.04	0.02	0.01	−0.04	0.14*	−0.07	0.03	0.04	−0.10	0.04	0.07	−0.03	−0.06
Customer focus	0.00	0.08	0.06	0.00	0.08	0.00	−0.03	−0.04	0.05	0.12	−0.07	−0.15*	−0.04	0.00	0.08	−0.05
Team work	−0.06	0.13*	0.05	−0.14*	0.04	0.02	−0.06	0.08	0.01	−0.04	0.03	0.01	−0.03	−0.06	0.05	0.05
Communication	−0.09	0.07	0.09	−0.05	0.00	−0.03	−0.04	0.08	0.00	−0.01	−0.05	−0.02	−0.10*	0.00	0.10*	−0.03
Leading/ motivating	−0.07	0.06	0.08	−0.02	0.06	0.15*	−0.07	0.09	0.00	−0.04	−0.01	0.00	−0.03	0.00	0.02	0.05
Planning	−0.02	0.10	0.00	−0.05	0.04	0.05	−0.08	−0.06	0.07	0.05	−0.10*	−0.12*	0.11*	0.18**	−0.09	−0.20**
Decision making	−0.10*	−0.03	0.11*	0.07	0.11*	0.04	−0.12**	0.00	0.09	0.09	−0.08	−0.15*	−0.09	−0.04	0.11**	0.03
Commitment	0.05	0.17**	0.06	−0.19**	0.10*	0.02	−0.07	0.04	0.08	−0.03	−0.06	0.01	0.12**	−0.01	−0.10*	0.00
Innovation	0.00	0.00	0.00	0.02	0.00	0.08	0.01	0.09	0.13**	0.03	−0.13*	−0.17**	−0.13**	0.00	0.15**	0.04
Achieved KRA	−0.13**	0.05	0.15***	−0.07	0.08	−0.02	−0.10*	−0.09	0.04	−0.06	−0.04	0.00	0.04	−0.14*	−0.02	−0.18**
Achieved MP	−0.05	0.06	0.06	−0.03	0.09	0.01	−0.11**	0.03	0.06	−0.02	−0.07	−0.02	0.00	0.04	0.02	−0.08
Potential	0.01	0.14*	−0.02	−0.12**	0.04	−0.06	−0.07	0.03	0.09	−0.02	−0.05	−0.06	−0.04	−0.06	0.04	0.00
Overall	−0.09	0.04	0.11**	−0.05	0.07	0.01	−0.10*	−0.03	0.05	0.03	−0.05	−0.01	0.00	0.10	0.02	−0.14*

*$P < 0.09$; **$P < 0.05$; ***$P < 0.01$. For abbreviations see text.

Table 3. First order and partial correlation between MBTI and climate

	First order	Partialling out sex and culture		
	Overall	Total	Overall	Total
Extraversion	−0.05	0.01	−0.01	0.03
Introversion	0.06	0.01	0.04	0.00
Sensing	0.05	0.05	0.03	0.03
Intuition	−0.08	−0.02	−0.04	−0.01
Thinking	0.05	0.02	0.02	0.00
Feeling	−0.07	−0.04	−0.02	−0.02
Judgement	0.05	−0.02	0.00	−0.03
Perception	−0.05	0.02	0.00	0.03

Table 4. Significant step-wise predictors for each cultural group

Variables	MBTI	Beta	R square	F level
Leading and motivating	Sensing	0.13	0.02	4.48*
Innovating	Feeling	−0.15	0.04	4.06*
	Judgement	−0.14		

dimensions. From the work of Barrick and Mount (1991) however, one should perhaps only expect the magnitude of estimated true score correlations to be round about $r = 0.10$.

Two explanations have been put forward to account for the lack of any real significant pattern in these data, namely the problems associated with cultural differences and also the fact that the MBTI may not be measuring the most salient personality dimensions that relate to job performance. But there are other explanations which may equally account for the general lack of significant findings. The first could relate to the quality of the dependent variable, namely the job performance data. All sorts of errors typically occur with rated data—restriction of range, halo effects, and other systematic biases. None of these could be considered necessary or sufficient explanations in this study, because the reliability and validity of these ratings were thoroughly checked and raters had been trained. Another possibility was that the raters were valid but not salient in that they were strictly not relevant to the job. This explanation could also be discounted as the organization has spent over 2 years ensuring the relevance of these dimensions.

A third explanation could lie in the fact that managers faked their MBTI scores, but again this could be discounted by looking at the large range of scores. Fourthly, and perhaps most importantly, the direct relationship between personality scores and job performance criteria may simply be washed out by other more powerful organizational variables. That is, work performance is determined by many other criteria than simply personality—the team in which one works, physical conditions and equipment, market forces—and all these could quite simply overpower an important, but small personality effect. This indeed may well be true.

As Gellatly, Panounen, Meyer, Jackson and Goffin (1991) note:

> "Predicting managerial peformance remains a tricky and complex problem faced by employers. This is especially true given the diversity of role requirements and behaviours across different levels of management. This observation only highlights the need to consider performance from a multi-variable perspective and to evaluate carefully individual differences that predict proficiency in each criterion domain." (p. 230)

This point is well taken. To use an instrument well thought of in the counselling of managers to predict their job performance scores may well be naive. Although various hypotheses were formulated based on MBTI types and job performance criteria, less theoretical analysis was undertaken than may thought to be necessary. This is not to argue that the MBTI is not a potentially useful tool in certain contexts but rarely a powerful, significant predictor of work performance.

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