Comparative Studies: TMP & the MBTI

Introduction

In order to compare the Myers Briggs Type Indicator® (MBTI)®[1] and the Team Management Profile Questionnaire (TMPQ), it is important to understand their foundations. While both instruments are based on the theoretical work of Carl Jung, there are clear differences.

The MBTI is a general measure relating to psychological types and gives a picture of a person's preferences across the whole of life. The Team Management Profile Questionnaire, which we have developed as a work specific measure, emanates from discussions with managers and team members. We started with a work-orientated focus by asking what team members felt were the critical factors required for team success.

This article provides information on the testing of the Team Management Profile Questionnaire, and how it compares with the more well known MBTI. We have outlined the foundations (Margerison and McCann, 1990a, 1990b, 1995) of the Team Management Profile Questionnaire, and assume readers are familiar with the foundations of the MBTI (Briggs-Myers with Myers, 1980).

Key Teamwork Functions

In our research on critical factors associated with success in teamwork, we found team managers and their staff had clear, if differing, views. For example, those in advertising teams perceived 'innovating' and 'promoting' to be important. Those in manufacturing perceived 'organizing' and 'producing' to be important. The security industry often emphasized 'inspecting' and 'maintaining' work functions. 'Promoting' was emphasized by those in sales, while those in consulting emphasized 'advising'. These discussions enabled us to identify eight types of work that all team members recognized as contributing in some form or other to effective teamwork. This led us to develop the Margerison-McCann Types of Work Wheel.

Working with various teams in the petrochemical, banking, aeronautic, government, manufacturing, advertising, and other industries, we were able to test the empirical validity of the 'types of work'. The reaction was positive, particularly as the results reflected the 'reality' of the words used in the day-to-day work environment.

The 'Types of Work Functions' as they became known, provided a common language checklist and explanation of what key activities every team needs to focus upon - albeit some teams emphasize some work functions more than others. We were also able to provide short definitions of the work functions:

- Advising - gathering and reporting information
- Innovating - creating and experimenting with ideas
- Promoting - exploring and presenting opportunities
- Developing - assessing and testing the applicability of new approaches
- Organizing - establishing and implementing ways of making things work
- Producing - concluding and delivering outputs
- Inspecting - controlling and auditing the working of systems
- Maintaining - upholding and safeguarding standards and processes
- Linking - coordinating and integrating the teamwork functions both internally and externally

As a result of this work, a number of organizations expressed interest in a measure of how individual team members and managers perceived their own approach to teamwork. This was the basis of the personal Team Management Profile Questionnaire. The Team Management Profile Questionnaire is a 60-item questionnaire that enables individuals to identify their work preferences on the first eight work functions. Linking was found to be a set of skills and a separate instrument, the Linking Skills Profile Questionnaire (Margerison and McCann, 1993), was developed to measure this.

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The Need for a Teamwork Preference Instrument

Once we had identified the importance of work preferences as the foundation for teamwork we looked for a theoretical framework that would be helpful. Here the work of Carl Jung (1923) proved to be extremely insightful. Jung had identified life orientations from his discussions with patients and clients in his psychoanalytical and psychiatric work.

The key concepts identified by Jung are briefly summarized below:

- *Extroversion* and *Introversion* - describing how people prefer to relate with one another;
- *Sensing* and *Intuition* - explaining how people prefer to relate to their world;
- *Thinking* and *Feeling* - defining how people prefer to interpret their world.

Isabel Briggs-Myers later developed and extended these concepts (1976) to include the *Judging* and *Perceiving* dimension on how people responded to their world.

These concepts and the Myers Briggs Type Indicator were used in our early project work to see if they were able to relate the Types of Work Wheel functions with the personal preferences of the team members. The response was that the MBTI data was seen as helpful to many of those involved, but the specific link with their work was not clear. Also the technical terms like 'Judging' and 'Perceiving' or 'Sensing' and 'Intuition' were not easily understood in the context of their work. Mathematically, the scores on the MBTI did not relate to the Types of Work Wheel.

Therefore we decided to test a new instrument which was specific to the workplace and to teamwork activities, as identified in our Types of Work Wheel. We decided that the concept of 'work preferences' was vital and, therefore, built upon the original Jungian framework in defining the constructs and the profile questionnaire.

Our discussions eventually showed that the following terms were seen by people at work to be acceptable as the basis for establishing four work preference measures.

1. *Extroversion (E)* and *Introversion (I)* for how people relate with others at work.
2. *Practical (P)* and *Creative (C)* preferences, for how people wish to approach tasks by gathering and using information.
3. *Analytical (A)* and *Beliefs (B)* orientations, for how people wish to make decisions.
4. *Structured (S)* or *Flexible (F)* approaches, for how people wish to organize themselves and others.

Research on the Team Management Profile Questionnaire

The Team Management Profile Questionnaire was developed with 15 bi-polar items on each of the 4 work preference levels, making 60 items in total. The profile questionnaire was tested for validity and reliability by Davies (1988, 1993a, 1993b) over a number of years and the reliability statistics are published in the *TMPQ: Reliability* section of this manual.

Table 1. Team Management Profile Questionnaire reliability data

	Middle to top level managers (n=275)	Male MBA students (n=296)	Female MBA students (n=40)	Test-retest coefficients (n=44)
E-I	0.83	0.81	0.77	0.85
P-C	0.85	0.84	0.82	0.76
A-B	0.86	0.84	0.91	0.70
S-F	0.80	0.75	0.81	0.67

The above coefficients report internal consistency as estimated by Cronbach's alpha in the case of the first 3 columns, and standard test-retest coefficients in the fourth column. Details of these studies are available in Davies (1988). These results suggest that the Team Management Profile Questionnaire measures the 4 constructs for team members and managers in a consistent way, both internally and over time. Further reliability studies, conducted on eight translations of the

Team Management Profile Questionnaire, in differing cultures and countries, and among managers in particular work areas, confirm the above results (Davies 1993a, 1993b).

The Team Management Profile Questionnaire is based on a work-orientated language centered around the eight Types of Work functions. It nevertheless shares a common intellectual foundation with the Myers Briggs Indicator. Therefore, the question was posed, what, if any, differences exist between the two instruments. This can be assessed on various levels as shown below.

Comparative Studies of the TMPQ and MBTI

Australian Study

A research study was conducted whereby 88 people completed the TMPQ and the MBTI. As a result a correlation matrix was developed which shows the following outcomes (Davies, 1988; Margerison and McCann, 1990a).

The results show moderate to weak correlations over each of the scales. Even where a high correlation would be expected, say between the Extroverted/Introverted scale on the TMPQ and Extroverted/Introverted on the MBTI, it is only 0.62. This means that less than 50% of the variance is shared. In particular the results show that the J-P scale of the MBTI is independent of the S-F scale on the TMPQ (coefficient of 0.27).

Table 2. Campbell-Fiske multi-trait multi-method matrix for MBTI/TMPQ correlations (n=88)

	E-I	P-C	A-B	S-F	E-I	S-N	T-F	J-P
E-I								
P-C	-0.41							
A-B	-0.20	-0.30						
S-F	-0.18	0.46	0.27					
E-I	**0.62**	-0.05	0.10	0.04				
S-N	-0.30	**0.67**	0.21	0.28	0.03			
T-F	-0.11	0.20	**0.56**	0.14	0.08	0.38		
J-P	-0.36	0.42	0.12	**0.27**	0.13	0.51	0.31	

It indicates that the two instruments are measuring, in some respects, different things. It is possible that the MBTI is measuring a person's overall life preferences, whereas the TMPQ is specifically measuring work preferences. Individuals were interviewed and asked to explain their different scores on the J-P and S-F dimensions. Many indicated that, although they were Perceiving at home, they were far more Structured at work, as they had learned that this was the way to achieve results. They indicated that this was indeed a work preference and that they were happy having different approaches to different situations.

This makes sense in so far as if people have preferences, some of them will choose a different approach at work than at home or with friends. In subsequent work we have tested this and found it to be sustained in many cases.

The USA Study

In this study, a sample of 93 staff working for the USA National Science Foundation (NSF) completed both the MBTI (Form G) and the TMPQ. There were 69 women and 24 men. The results were analyzed to assess the relationships between the constructs measured by both instruments (Davies, 1995).

The MBTI uses weighted item scores to construct scale scores, and for the 'Thinking-Feeling' scale, the scoring procedure varies for men and women. The TMPQ uses a non-weighted additive scale, and the scoring procedure is the same for each sex.

One of the MBTI forms was completed incorrectly and therefore has not been included in the analysis. Table 3 presents the minimum and maximum scores, means and standard deviations for each of the 4 scales of the TMPQ and MBTI. The descriptive data below for TMPQ is similar to that for a major database of 16,000 TMPQ's collected over five years.

Internal consistency of the TMPQ was in the acceptable ranges. Internal consistency for the MBTI was not calculated due to the weighted nature of the scales.

Table 3. NSF respondents descriptive data: TMPQ (n=94) and MBTI (n=93)

	Min	Max	Mean	SD
TMPQ				
E-I	-27	25	-2.29	14.09
P-C	-26	28	0.21	14.27
A-B	-19	28	8.72	11.99
A-B (Men *)	-19	28	8.50	14.19
A-B (Women **)	-17	27	8.80	11.26
S-F	-27	26	0.31	12.24
MBTI				
E-I	-53	51	-5.23	31.16
S-N	-51	67	3.27	37.22
T-F	-37	63	15.06	28.12
T-F (Men ^)	-23	63	23.75	29.41
T-F (Women ^^)	-37	59	12.04	27.23
J-P	-61	55	3.88	35.72

* (n=24); ** (n=70) ^ (n=24); ^^ (n=69)

The relationship of the TMPQ constructs to the MBTI (Form G) constructs was again examined using the Campbell-Fiske multi-trait multi-method matrix (Table 4). This has been compiled by using Spearman's rank-order correlation coefficients on the dichotomous data. Spearman's *rho* is a special form of the Pearsonian correlation coefficient and does not require the assumption of a normal distribution.

This sample has exhibited a higher relationship between the MBTI and TMPQ scores than the Australian MBTI/TMPQ analysis reported above.

Table 4. Campbell-Fiske multi-trait multi-method matrix (n=93)

	E-I	P-C	A-B	S-F	E-I	S-N	T-F	J-P
E-I								
P-C	-0.22							
A-B	-0.11	0.40						
S-F	-0.02	0.25	0.16					
E-I	**0.70**	-0.29	-0.17	-0.01				
S-N	-0.18	**0.77**	0.29	0.18	-0.35			
T-F	-0.15	0.28	**0.52**	0.34	-0.15	0.29		
J-P	-0.18	0.30	0.29	**0.53**	-0.18	0.31	0.32	

Intra-scale correlations for the TMPQ range from -0.22 to 0.40 with an average correlation of 0.19 and intra-scale correlations for the MBTI ranged from -0.35 to 0.32 with an average correlation of 0.27. This demonstrates only slight scale redundancy for both instruments.

Additionally, coefficients between methods, are, as they should be, higher than those between traits.

These data show moderate variation between the T-F/A-B scales and the J-P/S-F scales. In these cases the shared variance is less than 30%. This confirms that while there is some similarity between the scales there is still a considerable amount of unexplained variance.

Role Preferences

Table 5 shows the distribution of role preferences for the TMPQ and MBTI. The TMPQ role preferences are recorded vertically and the MBTI types obtained are recorded horizontally.

To interpret the table, locate a particular TMPQ combination from the top row and then determine which MBTI types the respondents obtained. The highlighted figures down the middle indicate those TMPQ role preferences and MBTI types that are theoretically analogous. For example, of eight people with ECAS scores on the TMPQ, two returned ENFJ scores on the MBTI, and the remaining six people returned ESFP, ENFP, ENTJ, INTJ, ESTJ, and ISTJ scores.

Table 5 shows that while the MBTI and TMPQ scales are moderately correlated for this sample, role calculation on dichotomous scores alone could lead to a large margin of error. Only 43 out of the possible 93 subjects scored similarly on both the MBTI and TMPQ. This means 50 returned different overall profiles. For example in theory, ECBS on the TMPQ should be equivalent to ENFJ on the MBTI. However, of the three ECBS scores none returned ENFJ, and of the four ENFJs, none returned ECBS. The four ENFJs recorded TMPQ scores of ECAS, ICAS, and EPBS.

As an example, Figure 1 shows that for people scoring ENTP on the MBTI, only 50% recorded the corresponding TMPQ preference of ECAF. The remainder was scattered among ECBS, EPAS and ICBF.

Figure 2 shows that for the 7 people scoring ENTJ on the MBTI, only 1 person recorded the corresponding TMPQ preference of ECAS. The remainder was scattered elsewhere on the Team Management Wheel.

Table 5. Role preference distribution for the TMPQ and the MBTI (n=93), with analogous roles/types bolded

	EPBF (n=0)	ICBF (n=6)	ICAF (n=6)	ECBF (n=7)	ECBS (n=3)	ECAF (n=8)	EPAF (n=4)	ECAS (n=8)	ICAS (n=7)	EPAS (n=11)	EPBS (n=2)	IPAS (n=18)	IPAF (n=9)	IPBS (n=1)	ICBS (n=2)	IPBF (n=1)
ESFP (n=2)				1				1								
INFP (n=7)		**2**	2	1		1									1	
INTP (n=2)			**2**													
ENFP (n=12)		2		**4**	2	1	2	1								
ENFJ (n=4)								2	1		1					
ENTP (n=6)		1			1	**3**				1						
ESTP (n=3)						1	**1**			1						
ENTJ (n=7)						2		**1**	3	1						
INTJ (n=6)			1					1	**3**						1	
ESTJ (n=7)								1		**6**						
ESFJ (n=2)										1	**1**					
ISTJ (n=19)			1				1	1		1		**14**	1			
ISTP (n=7)												2	**5**			
ISFJ (n=6)												2	2	**1**		1
INFJ (n=1)		1														
ISFP (n=2)				1									1			

Figure 1. TMPQ role preference distribution for MBTI role preference of ENTP (n=6)

Figure 2. TMPQ role preference distribution for MBTI role preference of ENTJ (n=7)

The data can be further analyzed by presenting the results as the number of respondents who scored similarly on each instrument. This is shown below in Table 6. As an aid to interpreting this table it should be noted that TMPQ scale distributions are recorded vertically and MBTI scale distributions are recorded horizontally.

Taking the AB scale on the TMPQ and the TF scale on the MBTI, we can see that 53 respondents scored 'Analytical' (TMPQ scale) and the corresponding 'Thinking' (MBTI). However 17 respondents who scored 'Analytical' on the TMPQ scored 'Feelings' on the MBTI. 'Feelings' on the MBTI scale recorded 19 respondents as matching to a 'Beliefs' preference on the TMPQ.

Table 6. Dichotomous distribution of scales (n=93)

TMPQ	E	I	P	C	A	B	S	F
MBTI								
E	36	7						
I	7	43						
S			41	7				
N			4	41				
T					53	4		
F					17	19		
J							38	14
P							8	33

Australian MBA Sample

This research study was a joint project with Deakin University, Victoria. The Research Form of the MBTI was used and 144 respondents were asked to complete both instruments simultaneously. An analysis of the sample shows that 142 respondents completed the TMPQ and 132 completed the MBTI Research Form. Of these, 131 completed both instruments.

Descriptive statistics for this sample are presented in Table 7. The Campbell-Fiske multi-trait multi-method matrix for this sample (Table 8) has again been compiled by using Spearman's rank-order correlation coefficients on the dichotomous data.

This table returns correlation coefficients between the scales considerably lower than the previous two studies. In particular the coefficient between T-F on the MBTI and A-B on the TMPQ indicates orthogonality of these scales (0.24), although this figure should be treated with caution. The other scales showed variances between 20-30%.

Table 7. Australian MBA respondents descriptive data: TMPQ (n=142) and MBTI (n=132)

	Min	Max	Mean	SD
TMPQ				
EI	-23	24	0.07	11.62
PC	-24	20	-2.54	9.77
AB	-24	30	13.47	8.55
SF	-18	25	4.04	9.42
MBTI				
EI	-34	28	-1.45	11.33
SN	-26	30	0.87	11.91
TF	-20	32	7.39	10.53
JP	-20	32	6.84	10.00

Table 8. Campbell-Fiske multi-trait multi-method matrix for MBTI/TMPQ correlations (n=131)

	E-I	P-C	A-B	S-F	E-I	S-N	T-F	J-P
E-I								
P-C	-0.17							
A-B	-0.13	0.00						
S-F	-0.12	0.34	0.03					
E-I	**0.45**	-0.11	-0.06	-0.07				
S-N	-0.19	**0.52**	0.01	0.24	-0.04			
T-F	-0.29	0.08	**0.24**	0.11	-0.16	0.16		
J-P	-0.03	0.08	-0.07	**0.54**	0.04	0.23	0.07	

The number of respondents who scored similarly on each instrument can be analyzed by using Table 9. This table gives interesting indicative data. For example of 65 people who scored Extroversion on the TMPQ, 22 (one-third) scored Introversion on the MBTI. Of 41 who scored Flexible on the TMPQ, 14 (one-third) scored Judging on the MBTI. This is another way of indicating that, for this sample, there is a significant difference in responses between the two instruments.

Table 9. Dichotomous distribution of scales (n=131)

TMPQ	E	I	P	C	A	B	S	F
MBTI								
E	43	14						
I	22	52						
S			39	20				
N			11	61				
T					94	2		
F					30	5		
J							79	14
P							11	27

This study shows highly skewed data for the A-B scale of the TMPQ. In fact, the dichotomous distribution indicates a 95%-5% split of the data. The T-F scale of the MBTI has a less skewed distribution with a 73%-27% split. Despite using the Spearman rank-order correlation coefficient, it is possible that the correlation between the A-B and T-F scales is underestimated, given the significant difference between the two distributions. However it is still possible to conclude that this study shows only a low to moderate correlation between the A-B and T-F scales.

Summary of the Three Studies

The three different studies highlight definite similarities between the scales of the MBTI and the TMPQ, thus confirming the basic construct validity of the two instruments. However significant variations exist between the results of the three studies. The first study (Australian sample) showed independence between the S-F and J-P scales whereas the third study highlighted a low relationship between the T-F and A-B scales. The other scales showed a moderate amount of shared variance.

The three studies confirm that there are substantial differences between the responses to the TMPQ and MBTI and therefore they are measuring significantly different characteristics about people. Interviews with respondents suggest that the main difference lies in the different approaches people have to work and non-work, although there is some evidence in the T-F and A-B scales that the item pools may be measuring different things. The conclusion is that a person's scores on the MBTI cannot reliably predict their work preference in terms of the work functions defined on the Types of Work Wheel.

Key Points of Comparison

There are also interesting differences in the feedback method and philosophies of the TMPQ and the Myers Briggs Type Indicator.

The MBTI feedback is based around 16 categories and the descriptors; personal guidance is obtained from trained facilitators. The TMPQ feedback is based on the Team Management Wheel, with a Handbook and 10-page personal Profile providing the basis for understanding. The main focus is to have individuals discuss their Profile with other team colleagues and their supervisor. It is therefore oriented towards understanding personal work preferences, rather than individual differences per se.

Table 10. Key areas of similarity and difference between the TMPQ and MBTI

	TMPQ	MBTI
Focus upon:	Work preferences	Life orientation
Model:	Teamwork based	Individual based
Measures:	8 key teamwork areas	16 Types
Profiles:	32 major roles & 176 related roles	16 Type Profiles
Visual Model:	The Team Management Wheel	The 16 boxes
Applications:	Personal and team development at work	Individual differences in life

It is for each person to choose what kind of feedback they want and the method by which it is delivered. The Profile based on the TMPQ measure provides feedback that is exclusively work orientated. It provides a Handbook designed to help with personal development.

Visual Team Differences

Another difference between the instruments is the visual models.

The essence of teamwork is that it is task related and, therefore, the eight work functions are the focus for the visual presentation of the data. This is based on the visual model of the Team Management Wheel, which shows the original work functions, together with a personal descriptor of how each person prefers to conduct such work. The visual report shows the three highest scoring Team Management Wheel sectors, which normally account for around 60% of a person's preferences. This is different from the 16 box-type tables presented in the Myers Briggs instrument, which were not originally designed specifically for work applications.

Summary

The TMPQ and the MBTI have grown out of different backgrounds, but share a common intellectual basis in the Jungian concepts. Both the instruments have proved to be powerful tests in helping people understand themselves and their situation. The TMPQ concentrates on the work situation and, should not be used outside of that context, where it has been validated. Ultimately, the value of any instrument and feedback is only as good as the discussion and problem solving it facilitates. It is up to the facilitator to choose that method of feedback and discussion which best suits the needs of the group.

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