MBTI® Form M

MANUAL SUPPLEMENT

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Contents

Introduction

The *Myers-Briggs® Type Indicator* (MBTI®) instrument is one of the most widely used personality assessments in the world. Its typology is composed of four pairs of opposite preferences, called *dichotomies:*

- Extraversion (E) or Introversion (I)—where you focus your attention and get energy
- Sensing (S) or Intuition (N)—how you take in information
- Thinking (T) or Feeling (F)—how you make decisions
- Judging (J) or Perceiving (P)—how you deal with the outer world

The MBTI assessment combines an individual's four preferences—one preference from each dichotomy, denoted by its letter—to yield one of the 16 possible personality types (e.g., ESTJ, INFP, etc.). Each type is equally valuable, and an individual inherently belongs to one of the 16 types. This model differentiates the MBTI assessment from most other personality instruments, which typically assess personality traits. Trait-based instruments measure how much of certain characteristics people possess. Unlike the MBTI assessment, those instruments usually consider one "end" of a trait to be more positive and the other to be more negative.

The MBTI assessment exists in several different forms and many different languages. This manual supplement focuses on the 93-item MBTI Form M assessment in North American English. For information on translations of the MBTI assessment, please refer to *MBTI® Step I™ Manual Supplement, European English Edition* (Kendall, 1998); *MBTI® Step I™ Manual Supplement, European German Edition* (Deakin, 2006); and *MBTI® Step I™ Manual Supplement, European French Edition* (Hackston, 2005). MBTI Form M and Form Q data supplements are also available in Latin and North American Spanish (Schaubhut, 2008), Simplified Chinese (Schaubhut & Thompson, 2009, in press-a), and Traditional Chinese (Schaubhut & Thompson, 2009, in press-b), as well as in U.S. English in South Africa (Taylor & Yiannakis, 2007; Yiannakis & Taylor, 2009).

This supplement reports a number of different analyses related to the measurement properties of the Form M assessment. Its purpose is to provide analyses of data that may have been reported previously in the *MBTI® Manual* (Myers, McCaulley, Quenk, & Hammer, 1998), using additional data collected since the manual was published, and to answer some questions that could not be addressed in the manual at the time due to insufficient data.

Data Collection and Methods

The data reported in this supplement were collected mostly between 2008 and 2009 and drawn primarily from CPP's commercial database. This database comprises results from hundreds of thousands of respondents who have completed the MBTI assessment using the SkillsOne® or MBTI®Complete online platform. Participants who fit the demographic profile needed for each analysis were selected from the commercial database. Participants within each of those groups were then randomly selected to create an analysis sample with an appropriate size and equal numbers of men and women, when possible.

Reliability of the MBTI® Form M Assessment

Reliability refers to the consistency of measurement. An assessment is said to be reliable when it produces a consistent, although not necessarily identical, result. Two measures of reliability are typically used: (1) *internal consistency reliability,* which evaluates the consistency of responses across items intended to measure the same concept or construct, and (2) *test-retest reliability,* which evaluates the stability of a scale or assessment (i.e., replicability of results) over a period of time. Both forms of reliability for the MBTI Form M assessment are examined below.

Internal Consistency

Internal consistency reliability, as measured by Cronbach's alpha, evaluates the consistency of responses to a set of items assessing the same concept (Cronbach, 1951). Generally, assessments intended for use with a general population, such as the MBTI assessment, are considered to be superior when they show similar degrees of internal consistency across diverse samples of participants. To that end, the internal consistency reliability of the MBTI Form M assessment is examined across several different samples based on common demographics, such as individuals' employment status, ethnicity, age, and country or region of origin.

Reliability Based on Employment Status Internal consistency reliability of the MBTI dichotomies was computed for samples of adults who completed the MBTI Form M assessment from June 2008 to May 2009. Samples were generated for each of the following employment categories: employed full-time, employed part-time, full-time student, retired, and not working for income. Each of the five samples was then screened to arrive at 50% women and 50% men, selected randomly. Table 1 shows the reliabilities for the four MBTI dichotomies—Extraversion–Introversion (E–I), Sensing–Intuition (S–N), Thinking–Feeling (T–F), and Judging–Perceiving (J–P)—for each group, as well as the average age of the participants in the sample. The reliabilities for all five employment status categories are high, ranging from .86 (employed part-time, S–N) to .92 (employed full-time, E–I; full-time student, J–P; retired, S–N; and not working for

Table 1 Internal Consistency Reliability of MBTI® Dichotomies by Employment Status

		MBTI® Dichotomy			
Employment Status	**Average Age**	**E–I**	**S–N**	**T–F**	**J–P**
Employed full-time	39	.92	.89	.90	.91
Employed part-time	25	.90	.86	.88	.90
Full-time student	21	.91	.87	.90	.92
Retired	62	.91	.92	.91	.91
Not working for income	35	.92	.88	.90	.91

Note: Employed full-time, employed part-time, full-time student, and not working for income, each n = 1,000; retired n = 572.

Table 2 Internal Consistency Reliability of MBTI® Dichotomies by Ethnic Group

		MBTI® Dichotomy			
Ethnic Group	**Average Age**	**E–I**	**S–N**	**T–F**	**J–P**
African American	29	.90	.83	.85	.90
American Indian/Alaskan Native	33	.90	.83	.89	.90
Asian	25	.89	.85	.90	.90
Caucasian	33	.91	.89	.91	.90
Indian	28	.92	.85	.89	.91
Latino(a)/Hispanic	26	.90	.83	.88	.91
Middle Easterner	25	.88	.85	.89	.90
Pacific Islander/Native Hawaiian	28	.91	.80	.87	.87
Multiethnic	30	.91	.85	.90	.90

Note: Each ethnic group n = 200.

income, E–I). These results indicate that the MBTI instrument can be used reliably to assess type preferences across a variety of employment situations.

Reliability Based on Ethnicity A second demographic variable used to examine internal consistency reliability was respondent ethnicity. Adults who completed the MBTI Form M assessment from September 2008 to April 2009 and self-reported being in one of eight different ethnic groups—African American, American Indian/Alaskan Native, Asian, Caucasian, Indian (from the Indian subcontinent), Latino(a)/Hispanic, Middle Easterner (from the Middle East or North Africa), Pacific Islander/Native Hawaiian—were drawn from the commercial database. A ninth group comprising respondents who self-reported membership in two or more of the ethnic categories was also created. From the larger data set, an equal number of men and women were selected at random to create ethnic samples of 100 men and 100 women. The internal consistency reliabilities for the MBTI dichotomies for each ethnic group are shown in Table 2, as is the average age of each group. The reliabilities are again high, ranging from .80 to .92, and are similar across the nine ethnic groups, suggesting that the MBTI Form M assessment is reliable across a range of ethnic groups.

Reliability Based on Age Group A third demographic variable used to evaluate internal consistency reliability was age. Respondents who completed the MBTI Form M assessment from September 2008 to November 2008 and self-reported their age were drawn from the commercial database; equal-sized age group samples were generated by random selection from the larger database for six different age groups (under 20, 20–29, 30–39, 40–49, 50–59, and over 60). The internal consistency reliabilities of MBTI dichotomies for each age group are presented in Table 3. This sample consisted of 58% women and 40% men (2% did not report gender). Of the respondents, 56% were employed full-time, 8% part-time, and 22% were enrolled as full-time students. The reliabilities are good and appear to be similar across age groups. Historically, slightly lower reliabilities, particularly for the T–F dichotomy, have been found with individuals less than 18 years of age (Myers et al., 1998). This pattern,

Table 3 Internal Consistency Reliability of MBTI® Dichotomies by Age Group

	MBTI® Dichotomy			
Age Group	E–I	S–N	T–F	J–P
<20	.91	.86	.87	.89
20–29	.92	.87	.90	.91
30–39	.92	.88	.91	.91
40–49	.92	.89	.91	.91
50–59	.91	.91	.91	.91
60+	.91	.91	.91	.90

Note: Each age group n = 1,060.

Table 4 Internal Consistency Reliability of MBTI® Dichotomies by Region

		MBTI® Dichotomy			
Region	Average Age	E–I	S–N	T–F	J–P
Africa	36	.91	.86	.88	.91
Asia	25	.88	.82	.86	.89
Australia/New Zealand	36	.90	.88	.88	.90
Europe	34	.89	.87	.88	.89
Latin America	31	.90	.81	.88	.88
Middle East/North Africa	28	.88	.81	.86	.88

Note: N = 1,809; Africa n = 1,957; Asia n = 7,281; Australia/New Zealand n = 2,014; Europe n = 4,492; Latin America n = 1,595; Middle East/North Africa n = 670.

although very slight, is also seen in Table 3. These reliabilities indicate that the MBTI Form M assessment can be used across all age groups with reliable results.

Reliability in International Samples The MBTI assessment is increasingly being administered to people around the globe. While considerable research has been done on the MBTI assessment in a variety of countries (Beuke, Freeman, & Wang, 2006; Deakin, 2006; Hackston, 2005; Kendall, 1998; Schaubhut, 2008; Schaubhut & Thompson, 2009, in press-a, in press-b; Taylor & Yiannakis, 2007; Yiannakis & Taylor, 2009), this analysis was undertaken to examine the internal consistency reliability of the MBTI Form M assessment in various regions of the world when administered using North American English. Samples from several regions of the world were used for this analysis:

- Africa (Botswana, Cameroon, Gabon, Ghana, Ivory Coast, Kenya, Namibia, Nigeria, South Africa, Tanzania, Uganda, Zaire, Zambia, and Zimbabwe)
- Asia (Cambodia, China, Hong Kong, India, Indonesia, Japan, Malaysia, Philippines, Singapore, South Korea, Taiwan, Thailand, and Vietnam)
- Australia and New Zealand
- Europe (Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Spain, Sweden, Switzerland, and United Kingdom)
- Latin America (Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Mexico, Panama, Peru, Puerto Rico, Uruguay, and Venezuela)
- Middle East and North Africa (Afghanistan, Egypt, Iran, Israel, Jordan, Kuwait, Lebanon, Pakistan, Qatar, Saudi Arabia, Syria, and United Arab Emirates)

All data were collected from June 2008 to April 2009. Respondents were included if they indicated, from an exhaustive list of possible countries, that their country of origin and country of residence were the same. The reliability estimates and average age of respondents for each region are presented in Table 4. The internal consistency reliabilities are good, ranging from .81 to .91. Although some variability in reliabilities was found, the patterns are similar across the six regions.

Table 5 MBTI® Form M Test-Retest Correlations

MBTI® Dichotomy	All intervals	Interval			
		≤3 weeks	4 weeks–6 months	6–12 months	>1 year
Extraversion–Introversion (E–I)	.73	.77	.72	.70	.76
Sensing–Intuition (S–N)	.70	.65	.76	.57	.78
Thinking–Feeling (T–F)	.72	.81	.67	.74	.73
Judging–Perceiving (J–P)	.67	.78	.71	.62	.61

Note: N = 409; ≤3 weeks *n* = 70, 4 weeks–6 months *n* = 139, 6–12 months *n* = 115, >1 year *n* = 35.

Table 6 MBTI® Form M Test-Retest Correlations by Gender

MBTI® Dichotomy	All intervals		Interval							
			≤3 weeks		4 weeks–6 months		6–12 months		>1 year	
	Men (*n* = 182)	Women (*n* = 186)	Men (*n* = 39)	Women (*n* = 25)	Men (*n* = 54)	Women (*n* = 71)	Men (*n* = 51)	Women (*n* = 53)	Men (*n* = 38)	Women (*n* = 37)
Extraversion–Introversion (E–I)	.70	.77	.74	.85	.73	.73	.53	.85	.84	.72
Sensing–Intuition (S–N)	.68	.71	.53	.75	.78	.75	.61	.58	.79	.76
Thinking–Feeling (T–F)	.78	.71	.93	.92	.62	.66	.72	.78	.88	.56
Judging–Perceiving (J–P)	.68	.67	.89	.69	.74	.70	.53	.63	.58	.68

Note: N = 368 (not all participants reported gender).

Test-Retest Reliability

Another method for evaluating reliability, termed *test-retest reliability,* examines consistency of scores resulting from a participant completing the same assessment at two different times. Test-retest reliability correlations were determined using a sample of respondents who each completed the MBTI assessment twice between January 2004 and September 2008. The sample consisted of 49% women and 49% men (2% did not report gender). At the time of the first assessment, the average age of respondents was 37 years. The test-retest results from this sample were reported in a previous paper (Schaubhut & Herk, 2009).

The test-retest reliability of the dichotomies was evaluated by correlating the continuous scores from time 1 and time 2. The period between the first and second completion of the assessment ranged from less than one week to more than four years. The test-retest correlations are presented in Table 5, showing four different time intervals—3 weeks or less, 4 weeks–6 months, 6–12 months, and more than 1 year—plus all intervals combined. The correlations with the MBTI dichotomies range from .57 (S–N, 6–12 months interval) to .81 (T–F, ≤3 weeks interval), indicating good reliability for each preference over long periods of time. The test-retest correlations are presented separately for men and women in Table 6. The correlations for men range from .53 (S–N, ≤3 weeks interval; E–I and J–P, 6–12 months interval) to .93 (T–F, ≤3 weeks interval). The correlations for women range from .56 (T–F, >1 year interval) to .92 (T–F, ≤3 weeks interval).

Comparing the Reliability of the MBTI® Assessment to That of Other Assessments

The reliability of the MBTI assessment has been questioned by a number of authors and researchers over the years (Clark & Estes, 2002; Pittenger, 2005; Howes & Carskadon, 1979; McCarley & Carskadon, 1983; Stricker & Ross, 1962). Generally, these criticisms are leveled at earlier versions of the MBTI assessment. The analyses above should address most concerns about the measurement adequacy of the assessment. However, many users of the assessment may not have access to or experience with other personality instruments and thus may not be equipped to evaluate the reported reliability information. Table 7 has been included to show how the MBTI instrument compares to several other commonly used and well-known personality assessments vis-à-vis internal consistency and test-retest reliability. Included are the internal consistency reliabilities (Cronbach's alpha) and test-retest reliabilities of the MBTI Form M

Table 7 Reliability of MBTI® Form M and Other Personality Assessments

	Cronbach's Alpha	Test-Retest Correlations
MBTI® Form M Dichotomy		**4-week interval**
E–I	.91	.95
S–N	.92	.97
T–F	.91	.94
J–P	.92	.95

NEO Scale	**NEO PI-R™ Form S**	**NEO-FFI™ 3-month interval**
Neuroticism	.92	.79
Extraversion	.89	.79
Openness	.87	.80
Agreeableness	.86	.75
Conscientiousness	.90	.83

***Birkman Method*® Scale**		**2-week interval**
Activity	.81	.84
Empathy	.81	.88
Thought	.54	.80
Communication	.80	.87
Interaction	.80	.89
Incentive	.54	.75
Authority	.60	.82

DiSC® Scale	**Adaptive[1]**	**Natural[2]**	
Dominance	.85	.84	—
Influence	.78	.79	—
Steadiness	.78	.69	—
Compliance	.74	.77	—

	Cronbach's Alpha	Test-Retest Correlations
BarOn EQ-i™ Scale	**North American normative sample**	**1-month interval[3]**
ES	.80	—
AS	.81	.83
SR	.89	.92
SA	.80	.88
IN	.79	.86
EM	.75	—
IR	.77	.87
RE	.70	.78
PS	.80	.87
RT	.75	.82
FL	.77	.82
ST	.84	.79
IC	.79	—
HA	.81	.86
OP	.82	—

16PF® (5th ed.) Scale	**Normative sample**	**2-month interval**
Warmth	.69	.77
Reasoning	.77	.65
Emotional Stability	.78	.67
Dominance	.66	.69
Liveliness	.72	.69
Rule-Consciousness	.75	.76
Social Boldness	.85	.79
Sensitivity	.77	.76
Vigilance	.74	.56
Abstractedness	.74	.67
Privateness	.75	.70
Apprehension	.78	.64
Openness to Change	.64	.70
Self-Reliance	.78	.69
Perfectionism	.71	.77
Tension	.76	.68

[1]Based on respondents' selection of "most like me" phrases in the assessment.
[2]Based on respondents' selection of "least like me" phrases in the assessment.
[3]South Africa sample.

assessment from the national sample (Myers et al., 1998), as well as the NEO PI-R™ and NEO-FFI™ (Costa & McCrae, 1992), *Birkman Method*® (Birkman, Elizondo, Lee, Wadlington, & Zamzow, 2008), DiSC (Watson & Klassen, 2004), BarOn EQ-i™ (Bar-on, 1997), and 16PF® (Conn & Rieke, 1994) instruments. Since time intervals of test-retest correlations are different across assessments, it can be difficult to make direct comparisons. However, as shown in Table 7, the internal consistency and test-retest reliabilities of the MBTI Form M assessment are as good as or superior to those reported for the other personality assessments.

Validity of the MBTI® Assessment

The validity of an assessment refers to the accuracy of the inferences that may be made based on the results of the assessment. An instrument is said to be valid when it measures what it has been designed to measure (Ghiselli, Campbell, & Zedeck, 1981; Murphy & Davidshofer, 2005). Additionally, a valid assessment maintains the same relationships with other assessments over time. Validity of personality assessments is often established through construct validity by showing that results of the assessment relate in a predictable manner to results of other similar measures they should be related to (known as *convergent validity*) and are not related to results of measures they should not be related to (known as *divergent validity*). Convergent validity can be demonstrated when results of an assessment are related to results of other similar measures, observations, or other information that assesses the same or a similar concept. Similarly, divergent validity can be demonstrated when results of an assessment fail to relate to other measures, observations, or information they should not be related to.

Correlations with Other Personality Assessments

To further demonstrate convergent and divergent validity of the MBTI dichotomies (over that shown in prior manuals and research), the MBTI Form M assessment dichotomies were correlated with scales of several other assessments, namely the CPI 260®, FIRO-B®, *Adjective Check List, Strong Interest Inventory®, Thomas-Kilmann Conflict Mode Instrument (TKI),* and *Birkman Method®* assessments. Descriptions of the relationships between the MBTI assessment and the other assessments follow.

CPI 260® Assessment The CPI 260 assessment measures personality characteristics intended to provide a clear and accurate description of the respondent to increase self-awareness and understanding (Gough & Bradley, 2005). A sample of 1,460 adults (50% women, 50% men) was generated from a larger data set of individuals who completed the CPI 260 and MBTI Form M assessments. Of these respondents, 48% were employed full- or part-time and 6% were full-time students, and their average age was 35 years. The measures provided by the two assessments were correlated, and the results are shown in Table 8. The correlations reported here are similar to those found in the *CPI 260® Manual* (Gough & Bradley, 2005). The CPI 260 scales are divided into six categories, and the correlations are described by category below.

- **Dealing With Others category.** Includes seven CPI 260 scales measuring different aspects of self-presentation: Dominance, Capacity for Status, Sociability, Social Presence, Self-acceptance, Independence, and Empathy. High scores on all of these scales are related to Extraversion. High scores on Capacity for Status, Empathy, Social Presence, and Self-acceptance are related to Intuition. High scores on Independence and Dominance are related to Thinking.
- **Self-management category.** Includes seven CPI 260 scales measuring characteristics such as self-control, conscientiousness, values, and personal integration: Responsibility, Social Conformity, Self-control, Good Impression, Communality, Well-being, and Tolerance. High scores on Well-being are related to Extraversion. High scores on Self-control and Good Impression are related to Sensing. High scores on all of these scales are related to Judging.
- **Motivations and Thinking Style category.** Includes three CPI 260 scales measuring different motivations and styles of thinking: Achievement via Conformance, Achievement via Independence, and Conceptual Fluency. High scores on these scales are related to Extraversion. High scores on Achievement via Independence and Conceptual Fluency are related to Intuition. High scores on Achievement via Conformance are related to Thinking and Judging.
- **Personal Characteristics category.** Includes the three CPI 260 scales Insightfulness, Flexibility, and Sensitivity. High scores on Flexibility are related to Intuition, Feeling, and Perceiving. High scores on Sensitivity are related to Introversion and Feeling.
- **Work-Related Measures category.** Includes six CPI 260 scales measuring orientations to different aspects of work: Managerial Potential, Work Orientation, Creative Temperament, Leadership, Amicability, and Law Enforcement Orientation. High scores on all scales in this category are related to Extraversion and, with the exception of Creative Temperament, are also related to Judging. High scores on Creative Temperament are related to Intuition and Perceiving. High scores on Law Enforcement Orientation are related to Sensing and Thinking. High scores on Managerial Potential and Leadership are related to Thinking.
- **Higher-Order category.** Includes the three CPI 260 vector scales. Vector 1 (orientation toward others) assesses involvement, participation, and readiness to act at one pole versus desire for privacy, reluctance to commit to a permanent course of action, and sheltering of feelings at the other pole. Vector 2 (orientation toward societal values) assesses perspective of questioning rules and doubting societal norms at one pole versus perspective of accepting rules and favoring societal norms at the other pole. Vector 3 (orientation toward self) assesses feelings of dissatisfaction and inadequacy at one pole versus feelings of competence and resilience at the other pole. High scores on the Vector 1 pole associated with desire for privacy, reluctance to commit to a permanent course of action, and sheltering of feelings are related to Introversion. High scores on the Vector 2 pole associated with

Table 8 Correlations Between MBTI® Dichotomies and CPI 260® Scales

		MBTI® Dichotomy			
CPI 260® Category	**CPI 260® Scale**	**E–I**	**S–N**	**T–F**	**J–P**
Dealing With Others	Dominance	–.61	.11	–.25	–.10
	Capacity for Status	–.53	.35	–.03	.08
	Sociability	–.70	.16	–.03	–.01
	Social Presence	–.49	.33	–.02	.23
	Self-acceptance	–.57	.20	–.16	.05
	Independence	–.41	.18	–.27	.00
	Empathy	–.47	.35	.08	.13
Self-management	Responsibility	–.14	.05	–.12	–.27
	Social Conformity	–.18	–.19	–.12	–.33
	Self-control	.09	–.23	–.08	–.34
	Good Impression	–.16	–.21	–.11	–.38
	Communality	–.06	–.16	–.10	–.26
	Well-being	–.31	–.04	–.16	–.18
	Tolerance	–.19	.10	.00	–.11
Motivations and Thinking Style	Achievement via Conformance	–.22	–.15	–.21	–.51
	Achievement via Independence	–.16	.29	–.05	–.01
	Conceptual Fluency	–.30	.21	–.18	–.12
Personal Characteristics	Insightfulness	–.17	.15	–.18	–.13
	Flexibility	–.05	.45	.25	.46
	Sensitivity	.29	.09	.39	.06
Work-Related Measures	Managerial Potential	–.33	.04	–.21	–.26
	Work Orientation	–.20	–.06	–.14	–.26
	Creative Temperament	–.29	.49	.09	.38
	Leadership	–.51	.07	–.24	–.21
	Amicability	–.18	–.09	–.03	–.24
	Law Enforcement Orientation	–.21	–.32	–.30	–.35
High-Order Measures	Vector 1 (orientation toward others)	.47	–.21	.16	–.07
	Vector 2 (orientation toward societal values)	–.15	–.28	–.21	–.54
	Vector 3 (orientation toward self)	–.21	.14	.00	–.06

Note: Negative correlations are associated with E, S, T, and J; positive correlations are associated with I, N, F, and P.

accepting rules and favoring norms are related to Sensing, Thinking, and Judging. High scores on the Vector 3 pole associated with feelings of competence and resilience are related to Extraversion.

FIRO-B® Assessment The relationship between the FIRO-B assessment, which evaluates interpersonal needs, and the MBTI Form M assessment was examined using a sample of 1,900 individuals (50% women, 50% men) who completed both assessments. Of the respondents, 78% were employed full- or part-time and 8% were full-time students, and their average age was 40 years. The correlations between the MBTI dichotomies and the FIRO-B scales are shown in Table 9. They are consistent with correlations reported in the *FIRO-B® Technical Guide* (Hammer & Schnell, 2000), the *FIRO Business™ Technical Guide* (Herk, Thompson, Morris, & Schaubhut, 2009), and the *MBTI® Manual* (Myers et al., 1998). For example, four of the five interpersonal needs measured by the FIRO-B assessment are related to the E–I dichotomy, with greater interpersonal needs associated with a preference for Extraversion. Higher scores on Affection are related to a preference for Feeling, while higher scores on Expressed Control are related to a preference for Thinking. The S–N and J–P dichotomies have small relationships with the FIRO-B scales.

Table 9 Correlations Between MBTI® Dichotomies and FIRO-B® Scales

	MBTI® Dichotomy			
FIRO-B® Scale	**E–I**	**S–N**	**T–F**	**J–P**
Expressed Inclusion	–.54	.13	.20	.07
Wanted Inclusion	–.33	.13	.15	.09
Expressed Control	–.21	.04	–.24	–.06
Wanted Control	.00	.01	.16	.02
Expressed Affection	–.49	.12	.31	.03
Wanted Affection	–.29	.12	.29	.06

Note: Negative correlations are associated with E, S, T, and J; positive correlations are associated with I, N, F, and P.

Table 10 Correlations Between MBTI® Dichotomies and *Adjective Check List* (ACL) Items

	MBTI® Dichotomy			
ACL Item	**E–I**	**S–N**	**T–F**	**J–P**
Outgoing	–.61			
Reserved	.61			
Talkative	–.58			
Shy	.47			
Artistic		.39		
Conservative		–.22		
Conventional		–.35		
Original		.31		
Logical			–.25	
Opinionated			–.31	
Forgiving			.30	
Sympathetic			.38	
Disorderly				.28
Organized				–.51
Practical				–.24
Spontaneous				.48

Note: Negative correlations are associated with E, S, T, and J; positive correlations are associated with I, N, F, and P.

Adjective Check List The *Adjective Check List* (ACL) consists of 300 different adjectives, such as *intelligent, alert, clear-thinking, poised,* and *noisy,* encompassing a wide variety of behaviors. Respondents are asked to select the ones they believe are self-descriptive (or descriptive of another person). The results provide descriptions of oneself or other people (Gough & Heilbrun, 1983). A sample of 185 respondents (76% women, 24% men) who had completed the ACL (selecting from an additional 69 research adjectives, as well) and MBTI Form M assessments was used to explore relationships between the two assessments. Most respondents (82%) were employed full- or part-time, while 8% were full-time students, and the average age of respondents was 42 years. The ACL items were correlated with the MBTI dichotomies; a selection of these correlations is presented in Table 10. The relationships between the MBTI assessment and the ACL are consistent with those reported in the *MBTI® Manual* (Myers et al., 1998). The table shows four ACL items that correlated with each MBTI dichotomy, two in the negative direction (toward E, S, T, and J) and two in the positive direction (toward I, N, F, and P). For example, Outgoing and Talkative are correlated with Extraversion, while Reserved and Shy are correlated with Introversion.

The ACL can also be used to score measures of the "Big Five" theory of personality: Extraversion, Agreeableness, Conscientiousness, Openness, and Neuroticism. In order to integrate different interpretations of the Big Five factors, John (1989, 1990) mapped them into a common language using the *Adjective Check List*. Using the findings from this research, the adjectives from the ACL can be scored to repre-

Table 11 Correlations Between MBTI® Dichotomies and Big Five Factors Based on the ACL

	MBTI® Dichotomy			
Big Five Factor	**E–I**	**S–N**	**T–F**	**J–P**
Extraversion	–.70	.05	–.03	.16
Agreeableness	–.31	.05	.47	.02
Conscientiousness	.15	–.21	–.04	–.54
Openness	–.20	.44	–.04	.17
Neuroticism	.07	–.11	.03	.06

Note: Negative correlations are associated with E, S, T, and J; positive correlations are associated with I, N, F, and P.

Table 12 Correlations Between MBTI® Dichotomies and *Strong* Personal Style Scales

	MBTI® Dichotomy			
***Strong* Personal Style Scale**	**E–I**	**S–N**	**T–F**	**J–P**
Work Style	–.33	–.01	.39	–.06
Learning Environment	–.07	.43	–.03	–.01
Leadership	–.42	.19	–.10	–.03
Risk Taking	–.15	.08	–.24	.21
Team Orientation	–.29	.04	.02	–.06

Note: Negative correlations are associated with E, S, T, and J; positive correlations are associated with I, N, F, and P.

sent the Big Five factors, and these measures were correlated with MBTI dichotomies. The results are presented in Table 11. These correlations are comparable to those found in the *MBTI® Manual,* where the Big Five factors were measured by the NEO-PI® assessment (Myers et al., 1998). Higher scores on Big Five factors Extraversion and Agreeableness are related to the MBTI preference Extraversion. Higher scores on Openness are related to Intuition, higher scores on Agreeableness to Feeling, and higher scores on Conscientiousness to Judging.

Strong Interest Inventory® Assessment The *Strong Interest Inventory (Strong)* instrument is a widely used vocational interest assessment. Among its interest measures are five Personal Style Scales (PSSs), which measure preferences for styles of living and working (Donnay, Morris, Schaubhut, & Thompson, 2005). Of these, the Work Style scale measures a preference either for working with people or for working with ideas, data, or things. It is related to, although measures something different from, the MBTI Extraversion–Introversion (E–I) dichotomy. Studies have shown correlations between these two scales ranging from about .33 to .47 (Hammer & Kummerow, 1996; Myers & McCaulley, 1985). A sample of 6,000 individuals (50% women, 50% men) who had completed both the *Strong* and MBTI assessments was used to examine relationships between the two assessments. In this sample, 36% of respondents reported being employed full- or part-time, and 47% were full-time students. The average age of respondents was 28 years. Correlations between *Strong* Personal Style Scales and MBTI dichotomies are shown in Table 12. The correlation between Work Style and E–I scales (–.33) is in the same range as reported in previous research, demonstrating that the "Works with people" pole of the Work Style scale is related to Extraversion. The table also shows relationships between Extraversion and Leadership ("Directs others" pole), Intuition and Learning Environment ("Academic" pole), and Perceiving and Risk Taking ("Takes chances" pole). These correlations are consistent with those reported in the *Strong Interest Inventory® Manual* (Donnay et al., 2005) and the *MBTI® Manual* (Myers et al., 1998). The newest Personal Style Scale, Team Orientation ("Accomplishes tasks as a team" pole), is related to Extraversion.

Thomas-Kilmann Conflict Mode Instrument The *Thomas-Kilmann Conflict Mode Instrument* (TKI) measures preferences for five different styles, or modes, of handling conflict: *competing, collaborating, compromising, avoiding,* and *accommodating* (Thomas & Kilmann, 1974). From a sample of 2,600 individuals (50% women, 50% men), the relationships between MBTI dichotomies and TKI conflict modes were examined. Most respondents (81%) in this sample were employed full- or part-time, while 7% were full-time students. The average age of respondents was 40 years. Correlations between MBTI dichotomies and TKI modes are presented in Table 13. Previous research has found that combinations of preferences show more significant patterns of relationships with the conflict modes. For example, ITPs

Table 13 Correlations Between MBTI® Dichotomies and TKI Modes

	MBTI® Dichotomy			
TKI Mode	**E–I**	**S–N**	**T–F**	**J–P**
Competing	–.01	–.05	–.39	–.07
Collaborating	–.15	.08	–.09	–.03
Compromising	–.07	–.01	–.01	–.08
Avoiding	.21	–.09	.18	.05
Accommodating	.00	.08	.40	.14

Note: Negative correlations are associated with E, S, T, and J; positive correlations are associated with I, N, F, and P.

Table 14 Correlations Between MBTI® Dichotomies and *Birkman Method*® Scales

	MBTI® Dichotomy			
***Birkman Method*® Scale**	**E–I**	**S–N**	**T–F**	**J–P**
Social Orientation (Usual)	–.66			
Communication (Usual)	.40			
Interaction (Usual)	–.74			
Process Orientation (Usual)				–.46
Personal Autonomy (Need)		.22		
Activity (Need)			–.22	
Empathy (Need)			.22	

Note: Negative correlations are associated with E, S, T, and J; positive correlations are associated with I, N, F, and P.

score higher on Compromising, EFJs score higher on Collaborating, and IFJs score higher on Accommodating (Percival, Smitheram, & Kelly, 1992). The current sample shows that people with a preference for Thinking score higher on Competing, while those with a preference for Extraversion score higher on Collaborating. People with a preference for Introversion score higher on Avoiding, and those with a preference for Feeling score higher on Accommodating. Compromising is not highly correlated with any of the MBTI preferences.

Birkman Method® Assessment

The *Birkman Method* personality assessment measures occupational preferences (Interests), effective behaviors (Usual behaviors), interpersonal and environmental preferences (Needs), and ineffective behaviors (Stress behaviors) (Birkman et al., 2008). The *Birkman Method* scales were correlated with the MBTI dichotomies using a sample of 216 adults who had completed both assessments. The sample consisted of 55% women and 40% men (5% did not report gender). The majority of respondents (92%) were employed full- or part-time, and the average age was 53 years. Selected correlations are shown in Table 14.

The correlations of three *Birkman Method* scales with the E–I dichotomy are presented. First, Social Orientation (Usual), which measures the degree of social interaction sought by an individual, is related to Extraversion. Second, Communication (Usual), a sensitivity construct that includes things such as shyness, concerns about being embarrassed, correcting others, and being corrected, is related to Introversion. Finally, Interaction (Usual), which measures an individual's desire to be talkative, spend time in groups, and enjoy parties, as well as comfort level in talking to strangers, is related to Extraversion.

Personal Autonomy (Need), which measures the degree to which an individual's responses are conventional or unconventional, is related to Intuition. Activity (Need), which measures how quickly one prefers to take action, think quickly, and express energy physically, is related to Thinking. On the other hand, Empathy (Need), a measure of how comfortable one is with expressing feelings and emotions, is related to Feeling. Lastly, Process Orientation (Need), which measures how much a person wants to give or receive clear directions, follow instructions carefully, use systematic methods, and complete tasks, is related to Judging.

Best-Fit Type or Verified Type

One method for demonstrating the validity of the MBTI instrument that typically is not used with other personality assessments is to allow individuals to consider and deter-

Table 15 Reported Type and Best-Fit Type Distribution

	ISTJ		ISFJ		INFJ		INTJ	
	n	%	*n*	%	*n*	%	*n*	%
Reported type	1,109	12.6	421	4.8	285	3.2	449	5.1
Best-fit type	1,110	12.6	483	5.5	294	3.3	698	7.9
	ISTP		**ISFP**		**INFP**		**INTP**	
	n	%	*n*	%	*n*	%	*n*	%
Reported type	400	4.5	259	2.9	555	6.3	606	6.9
Best-fit type	352	4.0	335	3.8	666	7.5	392	4.4
	ESTP		**ESFP**		**ENFP**		**ENTP**	
	n	%	*n*	%	*n*	%	*n*	%
Reported type	450	5.1	305	3.5	839	9.5	730	8.3
Best-fit type	336	3.8	329	3.7	795	9.0	739	8.4
	ESTJ		**ESFJ**		**ENFJ**		**ENTJ**	
	n	%	*n*	%	*n*	%	*n*	%
Reported type	1,042	11.8	425	4.8	388	4.4	573	6.5
Best-fit type	838	9.5	410	4.6	445	5.0	614	6.9

mine their "best-fit," or verified, type. For the MBTI assessment this step is a critical part of an ethical interpretation process. Verification, which is a key component of the assessment's interpretation process, enables participants to reflect on their placement into a type and identify whether it is the best fit (Myers et al., 1998). Myers et al. (1998) posit that one's true type may not be revealed through a measurement device alone; therefore participants take part in a verification process during which they are given detailed information on their reported type and alternative type descriptions to determine their best-fit type.

A number of studies have been conducted on the validity of the verification process used for the MBTI assessment (Hammer & Yeakley, 1987; Herk & Thompson, 2009; Kummerow, 1988). These studies have revealed rates of agreement between reported type (i.e., the type reported by the instrument) and best-fit type (i.e., the type selected by participants) ranging from 62% (Kummerow, 1988) to 85% (Hammer & Yeakley, 1987).

Data obtained from a study by Herk and Thompson (2009) indicate the rate of agreement between reported type and best-fit type as found via MBTI®Complete, an online administration and interpretation of the MBTI Form M assessment. This method of delivering the MBTI assessment engages participants in an interactive learning session online. Through MBTI®Complete, participants respond to the MBTI items and read information on the theory of type, as well as on each of the eight preferences and overall type characteristics. Participants then answer a series of questions to check their understanding of each of the four dichotomies. Correct answers are affirmed, and incorrect answers are corrected and explained. Participants identify which pole of each dichotomy seems more true for them, before they move on to the discussion of the next dichotomy. Once finished, participants are asked, based on what they have learned, to indicate which type they think will be their best-fit type. Participants state which preferences seem most accurate for them—thereby predicting their type—and their prediction is compared with their scored results on the MBTI assessment. After this initial hypothesis regarding their own type and after reviewing their reported type, respondents are asked to determine their final best-fit type. When needed, respondents are provided with whole type descriptions of their four-letter type and can read descriptions of any other types as well. The best-fit type each participant chooses is the type on which all future applications of results are based.

The Herk and Thompson (2009) sample included 8,836 individuals (52.4% women, 47.6% men) who took the assessment between March 2, 2007, and August 17, 2008. The average age of participants was 38.79 years (*SD* = 11.10). Participants reported taking the assessment for a variety of reasons, including training (46.7%), personal growth (38.4%), career counseling (6.4%), education (4.3%), and other (2.3%). The majority of participants (84.9%) reported being employed full-time.

Table 15 illustrates the number and percentage of individuals in each of the 16 types for both reported type and

Table 16 Reported Type and Best-Fit Type Preferences

Preference		*n*	%
E	Reported type	4,752	53.8
	Best-fit type	4,506	51.0
I	Reported type	4,082	46.2
	Best-fit type	4,330	49.0
S	Reported type	4,411	49.9
	Best-fit type	4,193	47.5
N	Reported type	4,425	50.1
	Best-fit type	4,643	52.5
T	Reported type	5,359	60.6
	Best-fit type	5,079	57.5
F	Reported type	3,477	39.4
	Best-fit type	3,757	42.5
J	Reported type	4,692	53.1
	Best-fit type	4,892	55.4
P	Reported type	4,144	46.9
	Best-fit type	3,944	44.6

Table 17 Agreement Between Reported Type and Best-Fit Type

Agreement on:	*n*	%
0 preferences	9	0.1
1 preferences	171	1.9
2 preferences	607	6.9
3 preferences	1,609	18.2
4 preferences	6,440	72.9

best-fit type, while Table 16 shows the number and percentage of reported and best-fit type by preference. The three most frequently occurring reported types are ISTJ, ESTJ, and ENFP, which are also the three most frequently occurring best-fit types. Preferences for E, S, T, and J are more common in the U.S. than are preferences for I, N, F, and P (Myers et al., 1998). However, in this sample the preferences for S and N are more evenly split.

Table 17 provides the agreement rates between reported type and best-fit type. As shown, 72.9% of participants reported agreement on all four preferences of their type. The number and directionality of changes made from one preference in a dichotomy to another in the verification process are provided in Table 18. The preferences with the largest number of changes include Sensing and Thinking. Specifically, 7.4% of participants whose reported preference was Sensing verified having a preference for Intuition, and 6.5% of participants whose reported preference was Thinking verified having a preference for Feeling.

Table 18 Directionality of Best-Fit Type Changes by Preference

Change from:	*n*	%
E to I	452	5.1
I to E	206	2.3
S to N	655	7.4
N to S	437	4.9
T to F	573	6.5
F to T	293	3.3
J to P	278	3.1
P to J	478	5.4

Note: $N = 8{,}836$.

Table 19 Mean Preference Clarity Indexes for MBTI® Dichotomies

MBTI® Dichotomy	Mean pci No Change	Mean pci Change	*t*
E–I	15.0	6.5	23.5*
S–N	12.3	7.8	17.3*
T–F	12.1	6.5	19.4*
J–P	14.2	6.9	21.9*

Note: $*p > .001$. Preference clarity index range: 1 to 30.

The preference clarity of participants who made a change on a preference in the verification process was also examined; results are shown in Table 19. On all four dichotomies, a significant difference was found between the mean preference clarity index (pci) of participants who did not make a preference change in the verification process and the mean preference clarity index of participants who did. These results are similar to those found by previous researchers (Hammer & Yeakley, 1987; Walck, 1992), as discrepancies between reported type and best-fit type were found to occur more frequently when the preference clarity index had lower values. The preference clarity index has four ranges: Slight (1–5), Moderate (6–15), Clear (16–25), and Very Clear (26–30). Respondents whose pci for a preference is in the Slight range are less likely to verify that preference than are respondents whose pci for a preference falls in the Clear or Very Clear range.

Table 20 Factor Analysis Rotated Component Matrix

Item Code	Factor 1 (E–I)	Factor 2 (T–F)	Factor 3 (J–P)	Factor 4 (S–N)	Item Code	Factor 1 (E–I)	Factor 2 (T–F)	Factor 3 (J–P)	Factor 4 (S–N)
EI1	.76	.01	–.03	–.06	TF1	–.09	.47	.12	.08
EI2	.58	.05	–.02	–.05	TF2	–.11	.47	.07	.17
EI3	.56	.03	.05	–.06	TF3	–.05	.59	.06	.11
EI4	.56	–.10	.01	.10	TF4	.08	.52	.01	.12
EI5	.58	–.08	–.05	.04	TF5	–.10	.64	.10	.00
EI6	.59	.02	.04	–.06	TF6	.01	.60	.00	.05
EI7	.47	–.02	.01	.01	TF7	–.03	.62	.06	–.03
EI8	.68	–.09	–.04	–.05	TF8	–.01	.57	–.02	–.01
EI9	.59	–.02	–.06	–.08	TF9	–.07	.60	.01	–.06
EI10	.69	–.11	–.05	–.06	TF10	–.03	.41	–.07	.02
EI11	.70	–.01	–.07	–.11	TF11	.03	.37	–.02	.03
EI12	.60	.04	–.07	–.14	TF12	.12	.49	–.05	–.01
EI13	.60	–.08	–.06	–.11	TF13	–.15	.52	.05	.14
EI14	.52	–.06	–.07	–.04	TF14	–.05	.57	.04	.08
EI15	.61	–.05	–.06	.00	TF15	–.07	.64	.04	.11
EI16	.54	–.05	–.05	.03	TF16	–.07	.59	.02	.02
EI17	.75	–.03	–.05	–.03	TF17	–.08	.65	.09	–.03
EI18	.57	–.13	–.01	.05	TF18	–.05	.57	.08	.19
EI19	.66	.03	–.03	–.06	TF19	–.02	.61	.06	.00
EI20	.58	.01	.04	–.09	TF20	–.06	.53	.04	.15
EI21	.70	.01	.04	–.07	TF21	.10	.51	.01	.04
SN1	–.03	–.04	.12	.56	TF22	–.03	.56	.11	.07
SN2	–.04	.23	.14	.52	TF23	–.05	.58	.06	.07
SN3	–.03	–.05	.10	.55	TF24	.03	.32	.10	.08
SN4	–.01	–.05	.00	.45	JP1	–.01	–.01	.66	.11
SN5	–.09	.03	.16	.37	JP2	–.01	–.04	.67	.09
SN6	.00	.04	.05	.45	JP3	–.10	.05	.68	.13
SN7	–.07	–.13	.13	.40	JP4	.02	–.02	.58	.18
SN8	–.02	.15	.20	.54	JP5	.04	–.02	.50	.04
SN9	–.04	.16	.13	.61	JP6	–.07	–.12	.28	.14
SN10	.00	.01	.07	.55	JP7	.02	.03	.50	.06
SN11	–.05	.11	.10	.46	JP8	–.02	.04	.55	.09
SN12	.03	–.02	.13	.55	JP9	–.02	.05	.68	.19
SN13	.00	.12	.07	.54	JP10	–.18	.29	.49	.22
SN14	–.04	.22	.09	.60	JP11	–.08	.33	.40	.06
SN15	–.08	.08	.02	.50	JP12	–.06	.21	.45	.18
SN16	–.11	.11	.15	.44	JP13	–.03	–.02	.62	.29
SN17	–.02	.10	.06	.47	JP14	–.09	.26	.41	.14
SN18	–.04	.20	.23	.56	JP15	–.05	–.02	.70	.11
SN19	–.05	.02	.08	.53	JP16	–.06	.07	.70	.13
SN20	–.04	.24	.12	.60	JP17	.00	.04	.65	.12
SN21	.01	.08	.14	.64	JP18	–.15	.07	.67	.20
SN22	–.07	.15	.16	.44	JP19	–.01	.09	.51	.02
SN23	.04	.03	.04	.52	JP20	.00	.02	.67	.12
SN24	–.09	–.02	.11	.61	JP21	.03	.11	.53	.01
SN25	–.02	.01	.08	.56	JP22	.02	.12	.65	.17
SN26	–.02	–.30	–.03	.30					

Factor Analysis

Other methods for studying the construct validity of the MBTI Form M assessment use confirmatory and exploratory factor analysis. In confirmatory factor analysis, variables are specifically selected in order to test a theory about the latent process (Tabachnick & Fidell, 2001). Several studies have conducted confirmatory factor analyses of the MBTI assessment to assess validity. They have indicated that a four-factor model, such as the one theorized and developed by Isabel Briggs Myers, is the most appropriate and offers the best fit (Harvey, Murry, & Stamoulis, 1995; Johnson & Saunders, 1990).

Since research has already established a four-factor model through confirmatory factor analysis, for this supplement researchers conducted an exploratory factor analysis. Exploratory factor analysis describes a set of data by grouping together correlated variables (Tabachnick & Fidell, 2001). The sample used to conduct the exploratory factor analysis consisted of 10,000 individuals (50% women, 50% men) who completed the MBTI Form M assessment from June 2008 to April 2009. The average age of the respondents was 32 years. A principal components factor analysis with varimax rotation was conducted using the 93 MBTI Form M items and a four-factor solution. The rotated factor matrix is presented in Table 20. The shaded cells indicate that factor 1 is E–I, factor 2 is T–F, factor 3 is J–P, and factor 4 is S–N. The four-factor structure produced by this analysis shows that the MBTI Form M items are measuring what they were intended to measure.

Conclusion

This *MBTI® Manual* supplement extends the analyses conducted since publication of the third edition of the *MBTI® Manual* (1998). It includes a number of samples from respondents who completed the assessment in recent years. Analyses conducted using these samples demonstrate that the assessment has good internal consistency and test-retest reliability.

Validity was established in several ways. First, included in this supplement are correlations of the MBTI Form M assessment with six other assessments. The correlations show expected relationships with these other instruments. Next, results of best-fit type analyses are shown to be similar to results from previous research, with high rates of agreement between reported and best-fit types and discrepancies occurring more frequently for those with preference clarity indexes in the Slight range. Finally, factor analysis shows the expected four-factor structure of the assessment.

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