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# Technical Brief for the PERSONALITY DIFFERENCES QUESTIONNAIRE™ TOOL

## Content, Reliability, and Validity

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*Statement of Purpose and Rationale*

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## STATEMENT OF PURPOSE & RATIONALE

The *Personality Differences Questionnaire*<sup>™</sup> (PDQ) tool was developed to meet the expressed needs of organizations with large numbers of employees. These companies use the MBTI<sup>®</sup> assessment with the smaller numbers of middle and top management; however, budgetary restrictions require an instrument less time consuming and less complex for use with the larger numbers of employees. Rather than use an unrelated instrument, they desired an instrument based on the same principles as the MBTI assessment—Jungian psychological type. Such an instrument would permit a seamless transition to the MBTI assessment and bring the same perspective to the entire organization—it would have the whole organization “on the same page.” This has been one of our goals but is rarely achieved.

Such an instrument would fill a niche now empty and waiting to be filled. The difficult challenge was to find a way to do this without harming the integrity of the MBTI assessment.

In her book, *Gifts Differing*, Isabel Briggs Myers closes with the following sentence: “Whatever the circumstances of your life, whatever your personal ties, work and responsibilities, *the understanding of type can make your perceptions clearer, your judgments sounder, and your life closer to your heart’s desire.*”

Her ongoing focus on perception and judgment gave us the clue to the solution as to content. Using those questions from the MBTI assessment with their 65 years of research and development and making use of new statistical procedures to increase predictive accuracy of the

questions would ensure a quality that meets our high standards for the MBTI assessment. It would also focus on the primary theme underlying psychological type.

Isabel had several interests in developing the MBTI assessment. Throughout was her focus on research validating both the instrument and the theory. She was interested in several levels of understanding, which have become Step I, Step II, and Step III. Step I gives access to one’s preference type. Step II represents her interest in individual differences within type. Step III will focus on possible blocks to one’s natural development.

The PDQ represents a new level, at the other end of complexity. We believe that this level will convey the value of recognizing patterns of individual differences that will enhance understanding and constructive use of these differences with yet another audience. Handled well, it will satisfy Isabel’s desire to reach as many people as possible.

*Please note:* In our presentation of and work with the PDQ, it is essential that our focus be not only on applying the insights gained but, equally important, on enticing respondents to move into the next levels of understanding and thus deepen and widen self-understanding and one’s understanding of others.

This has been an ongoing goal for many years for both the Myers-Briggs Type Indicator Trust and CPP. It will remain so. If we succeed in accomplishing this goal, we will have served Isabel’s mission well with this new development.

—Katharine D. Myers and Peter Briggs Myers

## FOCUS ON PRIMARY MENTAL ACTIVITY

The *Introduction to Personality Differences* (IPD) booklet, together with the *Personality Differences Questionnaire™* (PDQ) tool, explores a set of basic human differences: how people take in information and arrive at decisions. These two processes, at the core of Carl G. Jung's theory of personality, are key components of everyday activity. An individual has to take in information and make decisions constantly, for tasks as mundane as choosing breakfast or as complicated as launching a satellite.

The identified scope of the IPD booklet and questionnaire is to provide basic insight into these activities only—showing how people differ in their collection of information and their decision making. It gives the targeted users a new understanding of how these differences affect relationships and interactions in the workplace. Learning about these basic differences provides opportunities for better understanding how people prefer to work, learn, communicate, work on a team, and solve problems, thus reducing conflict among people. By raising awareness of basic personality differences in these two important areas, fostering acceptance of the idea that all preferences are equally valuable, and showing how people with different styles can accommodate one another's needs, IPD helps people accomplish work and interact with others more effectively. Information on how to use IPD with the targeted individuals or groups can be found in *Introduction to Personality Differences User's Guide* (Dunning, 2006).

The IPD booklet and questionnaire were designed as an A-level tool to give the targeted individuals access to the benefits of knowing Jungian patterns of individual differences and the constructive use of those differences. Although no specialized training or educational qualifications are required to use it, a thorough understanding of this document and personality assessment is strongly recommended.

### The Two Mental Activities

The IPD booklet provides an understanding of the very core of psychological type theory, which is the basic, observable differences in mental functioning that account for many differences in people's behaviors. "These basic

differences concern the way people prefer to use their minds, specifically the way they perceive and the way they make judgments" (Myers & Myers, 1995). Simple, jargon-free language is used throughout IPD, and the conventional terms for functions (Sensing–Intuition and Thinking–Feeling), which might initially appear confusing without explanation, are avoided in favor of readily understood descriptors. In the IPD booklet, the two ways of perceiving are termed Futurist and Realist, and the two ways of judging are termed Logician and Champion.

### Getting information

People prefer to take in information in one of two ways: by focusing on facts and concrete information gathered through the five senses, or by focusing on possibilities and ideas to link facts together. *Realist* and *Futurist* are the terms used to denote these two styles, both of which are valuable and useful in different ways.

Realists gather information that can be observed through the five senses. People who prefer the Realist approach tend to focus on the immediate experiences available to their senses. They are very aware of pertinent facts and details, and often communicate by sharing them. Realists often possess characteristics such as an ability to enjoy the present moment, realism, sharp observation skills, memory for details of experiences, and practicality. When too focused on observing and experiencing the present, Realists may not pay enough attention to future possibilities.

Futurists gather information through insight by focusing on possibilities, meanings, and relationships. This style has been characterized as perceiving by way of the unconscious. One may become aware of perceptions as a hunch. Perception through this process goes beyond what is observable to the five senses, and includes possibilities of what might occur in the future. Futurists enjoy learning about theories and ideas, and often communicate by talking about what could be. People who prefer the Futurist approach are often characterized as imaginative, theoretical, future oriented, and original or creative. When too focused on pursuing possibilities, Futurists may overlook facts or what is happening now.

### Making decisions

There are also two ways in which people prefer to evaluate information and make decisions: through logical and

objective analysis, and by taking into account what is important to them and to others. *Logician* and *Champion* are the terms used to denote these two decision-making styles, both of which are valuable and useful in different ways.

Logicians come to decisions by linking ideas together through logical connections. Using an impersonal and objective approach, they rely on principles of cause and effect, impartiality and neutrality with respect to the desires and values of those who may be affected by the decision. They focus their attention on information relevant to a particular decision. Logicians frequently possess characteristics such as objectivity, concern for fairness and justice, criticality, an analytical nature, and an unemotional demeanor. When decisions are too focused on critiquing and questioning, Logicians may appear too impersonal or cold.

Champions make decisions by weighing the values and merits of the issues. This decision-making style is more subjective than the Logician style. Champions rely on an understanding of personal or group values. They are likely to be attuned to their values and feelings as well as the values and feelings of others. They take into account the effects of a decision on the people involved. Often they possess characteristics such as compassion, empathy, a concern for people, and a desire for warmth, harmony, and affiliation. When decisions are too focused on other people, Champions may appear too personal or probing.

Individual preferences for gathering information (Realist–Futurist) and making decisions (Logician–Champion) are assessed in the IPD booklet by way of a 30-item questionnaire (see below), which is included. Respondents can determine their preference for each of the mental activities and then go on to validate their preferences through the descriptions, exercises, and examples contained in the booklet.

## CONSTRUCTION OF THE QUESTIONNAIRE

The *Personality Differences Questionnaire* tool comprises a subset of 30 MBTI Form M items (see “Methods Used for Selecting Items”). The items were used with permission

of the copyright holders, and were selected with their input, advice, and consent. There are 15 items to identify the participant’s Realist–Futurist preference and 15 items to identify the participant’s Logician–Champion preference. The preferences are typically the approaches the participant normally uses to respond first, most often, and most comfortably. The items contained in the PDQ were selected from the larger pool of Form M items that have already undergone decades of rigorous research demonstrating their ability to identify the intended preferences. From this larger pool, the specific items included in the PDQ were selected using item response theory (IRT) analysis.

### Explanation of IRT

“Item response theory is a theory about how item responses are related to the underlying construct in the individual that is presumed to produce those responses” (Myers, McCaulley, Quenk, & Hammer, 1998, p. 134). When using IRT, the focus is on the relationship between a person’s true psychological characteristic or construct, such as personality or a mental preference, and the likelihood of making a particular response to a single item included in an assessment. For example, how likely is it that a person with a clear preference for Realist will choose the Realist response to an item in the Realist–Futurist dichotomy?

In IRT, a set of items included in an assessment represents a set of responses that are determined by some underlying characteristic or construct. Here, that construct is one of the two dichotomies included in the PDQ. Responses to items are obtained from a group of people who complete the assessment in an honest fashion, by indicating their preference for each item in the set. Then the set of responses from the entire sample and all of the items are analyzed. In the case of two-parameter logistic IRT, which was used for the PDQ, two pieces of information are obtained from each item. First is the item’s ability to discriminate or produce information about the construct being measured. Discrimination means that the item can correctly identify or categorize a response to the item. For example, can the item discriminate between a person who prefers Realist and a person who prefers Futurist? A higher value for the discrimination parameter means the item can more clearly differentiate preferences. The sec-

ond parameter in this model measures difficulty. For the PDQ, difficulty describes whether the item can discriminate or work well only for people with a very clear preference for one pole of a dichotomy, or whether the item can discriminate even for people with a much less clear preference for a pole of a dichotomy. Item characteristic curves (ICCs), such as those in Figure 1 for fictitious items, summarize the discrimination and difficulty of an item.

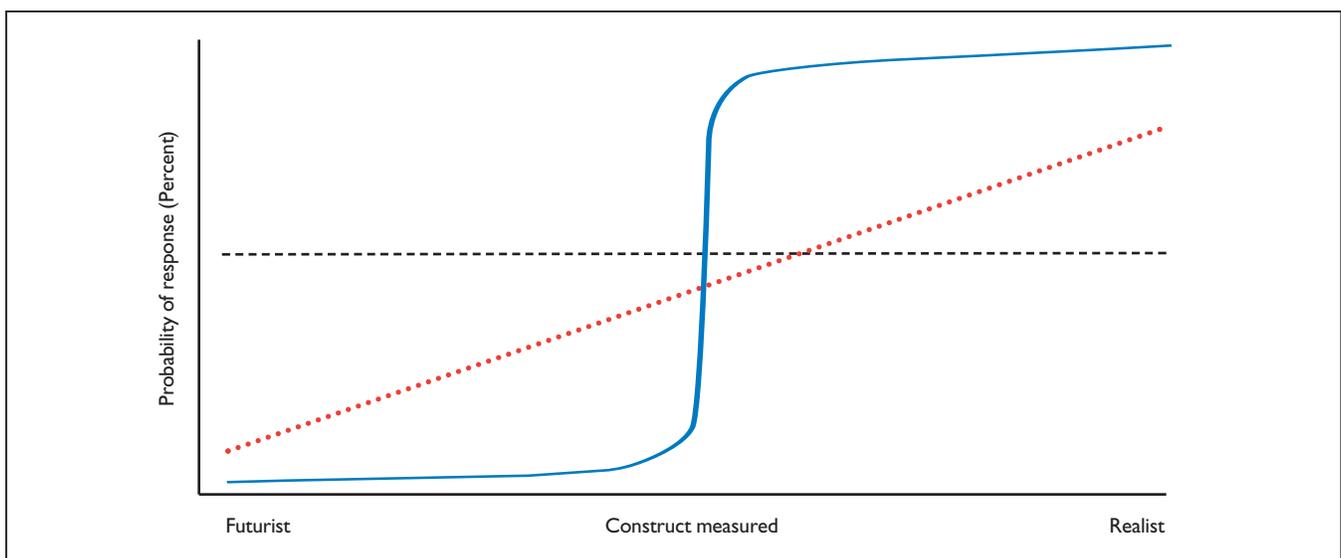
ICCs are simply graphical representations of an item's parameters. If the line for an item were horizontal or flat (dashed line in Figure 1), it would indicate that the item cannot discriminate between the two poles of the dichotomy being measured. Such a line would mean that for this item, a person has an equal probability of choosing one response or the other across the entire range of the construct being measured. A straight line going from the bottom left corner to the top right corner (dotted line in Figure 1) would indicate that the item is able to discriminate at some level. A person with a very clear preference for one pole (e.g., Futurist on the left side of Figure 1) is more likely to answer the item consistently with his or her preference. Similarly, a person with a very clear preference for the other pole (Realist) is also likely to answer the item consistently with his or her preference. However, in the middle of the horizontal axis, a person with an unclear preference is about equally likely to respond to the item consistently or inconsistently with his or her true preference. As the ICC becomes more ver-

tical, it indicates better discrimination. Here, discrimination means the item has a higher probability of being able to distinguish between a person's preferences, and therefore the person is more likely to respond in a manner consistent with his or her true preference.

When there is a curve in the ICC (solid line in Figure 1), the difficulty parameter essentially moves to the point where discrimination occurs along the horizontal axis. Items that work well for a very clear preference are farther to the left or right along the horizontal axis. Items that work better at all levels of a preference have their curve closer to the center of the horizontal axis. In this way, ICCs can communicate how well an item functions for discriminating preferences on the dichotomies measured here.

## Methods Used for Selecting Items

IRT analyses were used to select items from MBTI Form M for inclusion in the PDQ. The larger pool of items from which the PDQ items were chosen comprise the Sensing–Intuition (S–N) and Thinking–Feeling (T–F) dichotomies of the MBTI Form M assessment. This instrument, the most widely used personality assessment in the world, is a powerful tool for lifelong growth and development backed by more than 65 years of empirical research, development, and anecdotal evidence validating not only its excellent psychometric properties but also its significant utility.



**Figure 1. Sample Item Characteristic Curves (ICCs)**

The main criterion for selecting items from the MBTI Form M assessment was IRT analysis results. This method identified the items from the MBTI Form M assessment that are most predictive in determining one's preferences for gathering information (Realist–Futurist) and making decisions (Logician–Champion). Decades of extensive research and analysis on these items have demonstrated their superior psychometric properties (see “Reliability and Validity of the Final Item Set” for more information). Unlike on the MBTI Form M assessment, preferences for the PDQ dichotomies are not calculated using IRT; rather, the items were selected primarily based on two-parameter logistic IRT analyses of the 26 items comprising S–N and the 24 items comprising T–F on the MBTI Form M assessment.

Secondary factors for item consideration included subject matter experts' ratings of the extent to which each item represented its respective dichotomy (Realist–Futurist or Logician–Champion), as well as readability. Psychometric characteristics (e.g., reliability) were also considered. Item format was evaluated, as both phrase and paired items were selected for each of the two dichotomies. Each dichotomy on the PDQ has an odd number of items, which is designed to eliminate ties between two preferences (e.g., Realist and Futurist). Respondents must answer all items in order to avoid a tie. It is important that respondents answer all of the items, and administrators should encourage them to do so.

In cases where all of the items are *not* answered, a respondent may receive a tie between two dichotomies. In these cases, the first and best option is to have the respondent go back and answer all items with missing responses. As a last resort, when the results for the two poles of a dichotomy are tied, refer to the following tie-breaking rule:

- If Realist = Futurist, choose Futurist.
- If Logician = Champion, choose Champion.

It is also important to note that items for the PDQ were not selected based on analyses of the same normative population used to develop the Form M assessment. Instead, a sample more consistent with anticipated end users was obtained.

## Description of the Normative Sample

A sample of employed adults (average age = 39.1, SD = 9.6) was selected from a database of CPP, Inc., customers who completed the MBTI Form M assessment in a six-month period during 2003 and 2004. Racial and ethnic distributions from this sample of 13,174 women and 13,174 men are presented in Table 1. This diverse set of people represents more than 600 specific occupations, with the majority (92%) reporting satisfaction with their

**TABLE 1. RACIAL/ETHNIC CHARACTERISTICS OF PDQ NORMATIVE SAMPLE**

<b>RACIAL/ETHNIC GROUP</b>	<b>N</b>	<b>%</b>
Caucasian/White	19,718	74.8
African American/Black	2,030	7.7
Asian/Pacific islander	1,284	4.9
Indian	1,173	4.5
Latino, Latina/Hispanic	462	1.8
Middle Eastern	156	.6
American Indian/Alaskan native	122	.5
Other	387	1.5
Multiple ethnicities	225	.9
Not reported	791	3.0

Note: N = 26,348

current job. The median education level is a bachelor's degree (41%), followed by a master's degree (23%), and some college but no degree (15%). The average number of years in their current occupation is 11.8 (SD = 8.8). Most reported their current organizational level as non-supervisory (34%) or management (32%).

## Final Item Set and Sample Items

Two-parameter logistic IRT analyses were conducted for the S–N and T–F item responses using the PDQ normative sample. In the analysis of the 26 S–N items, the difficulty parameter ranged from –0.66 to 1.62, and the discrimination parameter ranged from 0.37 to 1.56. The difficulty parameter range for the 24 T–F items was –0.93 to 0.82, and discrimination ranged from 0.41 to 1.45. The typical range for difficulty values is about –2 to 2, and for discrimination values about 0 to 2 (Hambleton, Swaminathan, & Rogers, 1991). Items that work well only for people with a very clear preference for one pole would have a difficulty parameter near –2, while those that work well only for people with a very clear preference for the opposite pole would have a difficulty parameter near 2. A higher discrimination value means the item can clearly differentiate between people with two different preferences.

Based on the criteria described previously, 30 items were chosen to make up the PDQ. The items were chosen primarily on the basis of their superior item parameters and ICCs. On the PDQ, 15 items assess each of the two dichotomies. The Realist–Futurist average for the discrimination parameter is .93, and the average for the difficulty parameter is –.05. This scale consists of 11 word pair items and 4 phrase items. The discrimination parameter average for the Logician–Champion scale is .96, and the average for the difficulty parameter is –.26. This scale has 12 word pair items and 3 phrase items.

Although research has already proven the excellent statistical functioning of the 30 items selected for the questionnaire, additional analyses were conducted to verify the items. To determine the final item parameters, two-parameter logistic IRT analyses were repeated for each final set of 15 items. These ICCs for the Realist–Futurist and Logician–Champion dichotomies do not mirror exactly the initial set from which the final items were

chosen because of the reduced set of items included in the 30-item PDQ, which changed the item parameters and ICCs. As a whole, the curves are centered around the middle of the horizontal axis, demonstrating that the items work well even for those without very clear preferences. The slopes also indicate a high degree of separation between respondents on the two dichotomies indicated.

## Reliability and Validity of the Final Item Set

### Internal consistency

Reliability of the MBTI assessment is well documented in the *MBTI® Manual* (Myers, et al., 1998), as well as other research studies (Salter, Forney, & Evans, 2005; Capraro & Capraro, 2002). However, since the PDQ uses a subset of items from the longer measures in the MBTI Form M assessment, it is necessary to evaluate the internal consistency reliability of this subset of items. Internal consistency reliability is most often measured by Cronbach's alpha, which was used to further assess reliability of the questionnaire. Both the Realist–Futurist (.89) and Logician–Champion (.88) scales demonstrated excellent internal consistency.

### Test-retest

Another measure of reliability is test-retest. Here, two samples of participants completed the PDQ and then responded again 1 to 3 months later (short test-retest) or 12 to 24 months later (long test-retest), respectively. For each sample, their original tabulated preference for each dichotomy was correlated with their later result for the same dichotomy. The outcomes of this analysis are summarized in Table 2. The reliability statistics for 1 to 3 months and the much longer 12- to 24-month period are nearly identical, demonstrating stability of preferences over periods of up to two years. Furthermore, a large percentage of respondents in the short test-retest period received the same preference of each dichotomy in time one as they did in time two (83% Realist–Futurist and 82% Logician–Champion). For the long test-retest period, the percentage of the same preferences in both dichotomies is 82%. When interpreting the values in Table 2, it is important to recall that the PDQ is intended as a

primer for understanding the basics of personality differences. Further, each of the dichotomies is composed of only 15 dichotomous items that were selected from a larger pool of MBTI Form M items. As a result, the shorter length of the scales can make achieving high levels of test-retest reliability a challenge; however, these test-retest correlations indicate satisfactory reliability.

### Validity

The validity of the MBTI assessment is well established by more than 50 years of research studies documented in Chapter 9 of the *MBTI® Manual*. The MBTI instrument is regularly used as the standard for measuring validity of Jungian type assessments (Sato, 2005; Piotrowski & Armstrong, 2002; Kelly & Jugovic, 2001; Arnau, Rosen, & Thompson, 2000). Given that the items on the PDQ were chosen directly from the MBTI Form M assessment, the decades of research establishing the validity of the MBTI assessment should extend to the PDQ.

Construct validity of the questionnaire can be shown by comparing results from the PDQ with those from the MBTI assessment. The PDQ is hand-tabulated and therefore cannot be calculated using more precise IRT methods. The goal, however, was to maximize accuracy by matching the results generated from the IRT method as closely as possible. A correspondence rate was calculated to compare how frequently preferences indicated by the PDQ and MBTI Form M assessment were consistent in the PDQ normative sample. For the Realist–Futurist dichotomy, preferences indicated by the PDQ and Form M were consistent 89% of the time, and for Logician–Champion they were consistent 95% of the time. The vast majority of cases that do not have concordance with the IRT method are those in which people endorsed approximately the same number of responses for both poles of a dichotomy (e.g., eight endorsements

for Realist and seven endorsements for Futurist). These cases have low preference clarity indexes (pcis) on the MBTI Form M assessment as well. Pcis indicate the clarity of preference on each dichotomy; the range of pcis is 1 to 30. Lower pci values demonstrate a lower clarity of preference. Ninety-four percent of cases that switched over time for the Realist–Futurist dichotomy had pci values of 5 or less, indicating only a slight preference, and 96% of cases that switched over time for Logician–Champion had pcis of 5 or less. People with lower pci values are more likely than those who are clear in their preference to receive different results on a dichotomy when completing the PDQ (or the MBTI assessment) more than once. Indicated preferences on the PDQ are very similar to those on the MBTI Form M assessment. However, the two assessments differ in important respects.

### Comparison of the PDQ and MBTI® Form M

The PDQ is different from the Form M assessment in several ways. First, the PDQ assesses preferences on two of the dichotomies (Realist–Futurist and Logician–Champion) as opposed to the four dichotomies embedded in whole type (Extraversion–Introversion, Sensing–Intuition, Thinking–Feeling, and Judging–Perceiving). Next, unlike the PDQ, the Form M instrument uses IRT scoring to indicate preferences, and therefore is more likely to yield more precise results for people with unclear preferences. Finally, the PDQ may be administered by those without specific qualifications training or certification, while the Form M assessment must be administered and interpreted by a qualified type professional. Careful reading of this technical brief or the *MBTI® Manual* is recommended prior to using the PDQ with clients.

**TABLE 2. TEST-RETEST RELIABILITY FOR PDQ DICHOTOMIES**

<b>DICHOTOMY</b>	<b>Short test-retest reliability 1–3 months</b>	<b>Long test-retest reliability 12–24 months</b>
Realist–Futurist	.67	.66
Logician–Champion	.63	.63

Note: Short test-retest sample N = 144 (49% female); Long test-retest sample N = 60 (48% female).

**TABLE 3. PREFERENCE TERMINOLOGY USED BY JUNG AND THE IPD**

JUNG'S TERMINOLOGY	IPD TERMINOLOGY
Sensing (S)	Realist
Intuition (N)	Futurist
Thinking (T)	Logician
Feeling (F)	Champion

Because the PDQ differs from the MBTI assessment in terms of its focus, and does not provide a whole type based on all four of the dichotomies included in the MBTI assessment, unique descriptive names were developed to designate these four basic mental functions. The correspondence of Jung's terminology to that used in the IPD booklet and questionnaire is summarized in Table 3.

## CONCLUSION

The IPD booklet and questionnaire provide an easy-to-understand basic introduction to personality differences for large numbers of entry-level workers and others who traditionally have not been targeted for development training in organizations due to budgetary restrictions and time and resource constraints. The PDQ identifies preferences for taking in information and arriving at decisions—preferences that lie at the core of personality type. Because they are based on Jung's theory of personality, the IPD booklet and questionnaire offer a seamless transition to the MBTI Form M assessment typically used with middle and top-level management, thus allowing organization-wide use of instrumentation based on the same underlying theory. As an A-level tool, the IPD booklet and questionnaire allow access to the value of recognizing patterns of individual differences in two key areas that will enhance understanding and constructive use of those differences for yet another audience as they, too, begin their lifelong journey of personality exploration and development.

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