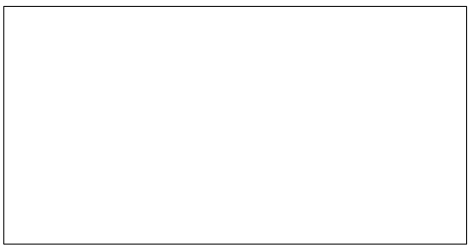

The Francis Psychological Type Scales (FPTS): Factor structure, internal consistency reliability, and concurrent validity with the MBTI

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Abstract

The Francis Psychological Type Scales (FPTS) were developed to operationalise psychological type theory in a way appropriate for and accessible to survey-style research, administered either online or offline. For the present study two samples of adults participating in short courses relevant for Christian ministry (N = 185 and 392) completed the FPTS at least one day after completing the Myers-Briggs Type Indicator (MBTI®). The data: confirmed the basic factor structure of the FPTS; demonstrated the satisfactory internal consistency reliability of the indices of introversion and extraversion, sensing and intuition, feeling and thinking, judging and perceiving; and supported the concurrent validity of this measure against the MBTI® in terms of both correlations between continuous scale scores and allocation to type categories.

Keywords: Francis Psychological Type Scales, factor structure, internal consistency reliability, concurrent validity

Introduction

Psychological type theory

Within the broad tradition of the psychology of personality and individual differences, psychological type theory offers a highly distinctive approach. The psychological type theory approach does not purport to offer a comprehensive overview of individual differences in personality in a way similar to the claims of the major three dimensions model of personality proposed by Eysenck and Eysenck (1975, 1991) in the measurement of extraversion, neuroticism and psychoticism, or to the claims of the Big Five factor model of personality proposed by Costa and McCrae (1985, 1992, 1996). Rather, psychological type theory concentrates on distinguishing between two core psychological processes (concerned with perceiving and with judging) and on distinguishing between two core orientations or sources of psychological energy (concerned with the inner and with the outer world).

The definitions of the two psychological processes (perceiving and judging) are rooted in the classic formulations of Jung (1971). In essence the perceiving process is concerned with the way in which information is gathered, while the judging process is concerned with the way in which information is evaluated. Within this system Jung defined two contrasting perceiving functions and two contrasting judging functions.

The two perceiving functions are defined as sensing and as intuition. A psychological preference for sensing is recognised in the following characteristics. Sensing types develop keen awareness of present experience. They have acute powers of observation, good memory for facts and details, the capacity for realism, and the ability to see the world as it is. They rely on experience rather than theory. They put their trust in what is known and in the conventional. A psychological preference for intuition is recognised in the following characteristics. Intuitive types develop insight into complexity. They have the ability to see abstract, symbolic and theoretical relationships, and the capacity to see future possibilities.

They put their reliance on inspiration rather than on past experience. Their interest is in the new and untried. They trust their intuitive grasp of meanings and relationships.

The two judging functions are defined as thinking and as feeling. A psychological preference for thinking is recognised in the following characteristics. Thinking types develop clear powers of logical analysis. They develop the ability to weigh facts objectively and to predict consequences, both intended and unintended. They develop a stance of impartiality. They are characterised by a sense of fairness and justice. A psychological preference for feeling is recognised in the following characteristics. Feeling types develop a personalised emphasis on values and standards. They appreciate what matters most to themselves and what matters most to other people. They develop an understanding of people, a wish to affiliate with people, and a desire for harmony. They are characterised by their capacity for warmth, and by qualities of empathy and compassion.

The definition of the two psychological orientations (extraversion and introversion) are also rooted in the classic formulations of Jung (1971). In essence the orientations are concerned with the source of psychological energy. A psychological preference for extraversion is recognised in the following characteristics. Extraverts prefer to focus their attention on the outer world of people and things, and draw their energy from that outer world. When extraverts are tired and need energising they look to the outer world. Extraverts like variety and action. They want to be able to shut off the distractions of the inner world and turn outward. A psychological preference for introversion is recognised in the following characteristics. Introverts prefer to focus their attention on the inner world of ideas and draw their energy from that inner world. When introverts are tired and need energising they look to the inner world. Introverts like quiet for concentration. They want to be able to shut off the distractions of the outer world and turn inwards.

Jung's close observation of human behaviour also noted the interaction between the two orientations and the two processes (as expressed through the four functions). In particular Jung noted the differences in behaviour between the operation of the judging functions in the outer world and the operation of the perceiving functions in the outer world. This differentiation became more clearly formulated in later work to distinguish between two attitudes (see Francis, 2005, pp. 64-65), the attitude of judging that extraverts one of the judging functions (thinking or feeling) and the attitude of perceiving that extraverts one of the perceiving functions (sensing or intuition). A psychological preference for extraverted judging is recognised in the following characteristics. Judging types present a planned and orderly approach to life. They prefer to have a settled system in place and display a preference for closure. Judging types schedule projects so that each step gets done on time. They like to get things finished and settled, and to know that the finished product is in place. They work best when they can plan their work in advance and follow that plan. A psychological preference for extraverted perceiving is recognised in the following characteristics. Perceiving types present a flexible and spontaneous approach to life. They prefer to keep plans and organisations to a minimum and display a preference for openness. Perceiving types adapt well to changing situations. They make allowances for new information and for changes in the situation in which they are living or acting. They work best under pressure and get a lot accomplished at the last minute.

Throughout his life, Jung seems to have been attracted by symbolism and fascinated by the power of opposites (Jung, 1963). Built into the theory of psychological type initiated by Jung is the view that individuals are either classified as extraverts or introverts, as sensing types or intuitive types, as thinking types or feeling types, as judging types or perceiving types.

Measuring psychological type

Jung's theory of psychological type has resulted in several attempts to develop psychometrically sound instruments to measure individual preferences within this system of four bipolar constructs. These instruments generate two kinds of information. First, they generate continuous scale scores for each of the eight constructs: extraversion, introversion, sensing, intuition, thinking, feeling, judging, and perceiving. Second, they provide a mathematical formula for comparing the scores on the opposite bipolar constructs in order to assign individuals to categories as either extraverts or introverts, as either sensing types or intuitive types, as either thinking types or feeling types, as either judging types or perceiving types.

The best known and best established psychometric instrument concerned with psychological type is the Myers-Briggs Type Indicator (MBTI®; Myers & McCaulley, 1985). Key reviews of the psychometric properties of the MBTI® have been reported by Capraro and Capraro (2002), Salter, Forney, and Evans (2005), and Randall, Isaacson, and Ciro (2017). According to the test constructors the validity of this instrument was established against its ability to sort individuals into type categories against a reference group of people of known types. In other words, known introverts would be classified as introverts by the type indicator, while known extraverts would be classified as extraverts. What, of course, remains problematic is how the type characteristics of the reference group were established in the first place. Controversy exists as to whether the theory of type categories can be properly operationalised and validated or not (Bayne, 1995, 2005).

While the validity of the MBTI® may prove problematic to examine, established statistical methods are available to examine its reliability. Reliability of the MBTI® has been assessed in two ways. The first way to test the reliability of the MBTI® takes as its starting point the view that the purpose of the indicator is to sort individuals into the sixteen complete types. Reliability in this sense can only be calculated on the test-retest basis of assessing the

stability of such categorisations. If the instrument assigned type entirely at random, the probability of assigning the same type twice would be 0.4% (1/16 x 1/16), so results need to be viewed against this baseline. Data of this nature is reported, for example by Stricker and Ross (1964), Levy, Murphy, and Carlson (1972), Howes and Carskadon (1979), McCarley and Carskadon (1983), Johnson (1992), Silberman, Freeman, and Lester (1992), Bents and Wiershke (1996), and Tsuzuki and Matsui (1997). The proportion of subjects classified with identical categorisations at the retest varies considerably from one study to another. For example, Levy, Murphy, and Carlson (1972), in a study among 433 undergraduates, found that after a two-month period 53% were assigned the same type on both occasions, while 35% differed on one of the four scales, 10% on two scales, and the remaining 2% on three scales. Howes and Carskadon (1979), in a study among 117 undergraduates, found that after a five-week period 49% were assigned the same type on both occasions, while 38% differed on one scale, and the remaining 14% differed on two scales. McCarley and Carskadon (1983) found that after a five-week period 47% of their subjects retained their specific dichotomous type preferences across all four scales. Silberman, Freeman, and Lester (1992), administered MBTI® to 161 dental students before the beginning of their first year and again near the end of their fourth year. They found that 24% were assigned the same type on both occasions, while the remaining 76% differed on at least one of the four scales. This study fails to report on the number of scales on which differences occurred. Bents and Wierschke (1996) administered the MBTI® to 40 adults twice over a six-week period. They found that 68% were assigned the same type on both occasions, while 25% differed on one scale, and the remaining 8% differed on two scales. Tsuzuki and Matsui (1997) administered the MBTI® to 88 students twice over a three-month period. They found that 33% were assigned the same type on both occasions, while 48% differed on one scale, 16% differed on two scales, and 3%

differed on three scales. Cumulatively these studies raise important questions about the reliability of assignment of individuals to the sixteen complete types.

The second way to test the reliability of the MBTI® takes as its starting point the recognition that, in order to sort individuals into the sixteen complete types, the indicator relies on the generation of eight continuous scores, comprising scales of extraversion, introversion, sensing, intuition, thinking, feeling, judging, and perceiving. Moreover, these eight continuous scores can be combined to generate four bipolar continuous scales, from high extraversion to high introversion, from high sensing to high intuition, from high thinking to high feeling, and from high judging to high perceiving. At this level test-retest reliability can be calculated on the basis of the correlations between continuous scores at two points in time. Test-retest reliability concerned with continuous scores has been reported by many studies, including Stricker and Ross (1964), Levy, Murphy, and Carlson (1972), Steele and Kelly (1976), Carskadon (1977, 1979, 1982), Howes and Carskadon (1979), Kaiser (1981), Levy and Padilla (1982), McCarley and Carskadon (1983), Johnson (1992), Bents and Wierschke (1996), Salter, Evans, and Forney (1997), and Tsuzuki and Matsui (1997). For example, in early studies, Stricker and Ross (1964) reported test-retest reliabilities of continuous scores across a two-month interval for three separate samples of .80, .83 and .73 for EI, .69, .78 and .69 for SN, .73, .82 and .43 for TF, and .80, .82 and .69 for JP. Steele and Kelly (1976) reported test-retest reliabilities of continuous scale scores across a one week period of .89 for EI, .86 for TF, and.88 for SN. Carskadon (1977) reported test-retest reliabilities of continuous scores across an eight-week interval. For females test-retest correlations ranged from .73 to .78 on the four scales, while for males they ranged from .56 to .79. Turning to more recent studies, Bends and Wierschke (1996) reported test-retest reliabilities of continuous scores across a six-week period of .89 for EI, .80 for SN, .87 for TF, and .91 for JP. Salter, Evans, and Forney (1997) reported test-retest reliabilities of

continuous scores over a 20-month period of .77 for EI, .75 for SN, .69 for TF, and .77 for JP. Tsuzuki and Matsui (1997) reported test-retest reliabilities of continuous scores over a 3-month period for male respondents of .79 for EI, .84 for SN, .48 for TF, and .63 for JP. Overall, these test-retest reliabilities demonstrate both the relative stability of the underlying constructs and the success of the scales in accessing and assessing these constructs.

Consideration of the continuous scale scores also opens the way for more sophisticated processes of assessing reliability, based on theories of internal consistency and item homogeneity (DeVellis, 2003; Kline, 2000; Rust & Golombok, 1989). There is also a long and well established tradition of examining the MBTI scales in this way, as exampled by Stricker and Ross (1963), Tzeng, Ware, Outcalt, and Boyer (1985), Cowan (1989), Harvey and Murry (1994), Saggino and Kline (1995), Harvey (1996), Tsuzuki and Matsui (1997), Francis and Jones (1999), Barbuto and Plummer (2000), Boozer, Forete, Maddox, and Jackson (2000), Kelly and Lee (2005), and van Zyl and Taylor (2012). While such studies tend to report the overall performance of the individual scales they also tend to fail to comment on the performance of individual items. For example, in early studies, drawing on four samples of high school students and undergraduates, Stricker and Ross (1963) reported alpha coefficients of .78, .83, .76, and .78 for EI, .77, .74, .75 and .80 for SN, .64, .70, .74, and .71 for TF, and .78, .81, .84 and .81 JP. Turning to more recent studies, drawing on a sample of 429 adult churchgoers, Francis and Jones (1999) reported alpha coefficients of .80 for extraversion, .79 for introversion, .87 for sensing, .82 for intuition, .79 for thinking, .72 for feeling, .85 for judging, and .86 for perceiving. In a sample of 157 continuing education students, Barbuto and Plummer (2000) reported alpha coefficients of .81 for EI, .81 for SN, .73 for TF, and .80 for JP. In a sample of 1,117 members of the Association for Psychological Type, Boozer, Forte, Maddox, and Jackson (2000) reported alpha coefficients of .90 for EI, .87 for SN, .86 for TF, and .81 for JP. In a sample of 10,705 South African participants Van

Zyl and Taylor (2012) reported alpha coefficients of .92 for EI, .88 for SN, .88 for TF, and .91 for JP. From the studies surveyed it may be concluded that the MBTI® indices are generally internally consistent, in that they tend to achieve Cronbach (1951) alpha coefficients around the level deemed satisfactory by Kline (2000) or by DeVellis (2003) of .70 and .65 respectively.

Two main conclusions emerge from the foregoing review of previous research. On the one hand, the empirical evidence points to the relative unreliability of the MBTI® as a type allocator. In other words, it is a relatively unstable instrument when employed to sort individuals into discrete type categories. On the other hand, the empirical evidence points to the relative reliability of the MBTI® as an indicator of psychological traits. In other words, it is a relatively stable instrument when employed to grade individuals on the four continua assessing orientation, perceiving, judging, and attitude toward the outer world.

A second well known instrument concerned with psychological type is the Keirsey Temperament Sorter (KTS; Keirsey & Bates, 1978). The research literature on the KTS is less well established than that on the MBTI® (see Abramson, 2010; Berens, 1996; Dodd & Bayne, 2007; Waskel, 1995). Moreover, little research has been invested in documenting the empirical relationship between these two instruments (Francis, Robbins, and Craig, 2007; Kelly & Jugovic, 2001; Quinn, Lewis, & Fischer, 1992; Tucker & Gillespie, 1993).

Major disincentives against using Jung's theory of psychological type in empirical research may arise from the fact that neither the MBTI® nor the KTS are instruments that were designed primarily for use in survey research. The MBTI® is best suited for personal administration by a registered practitioner, while the KTS is best suited for self-administration and personal reflection. The Francis Psychological Type Scales (FPTS), on the other hand were specifically developed as a way of operationalising Jung's theory of psychological type for research purposes within the context of questionnaire-based surveys,

either online or in pencil and paper administration. To avoid infringement of copyright, three points need to be emphasised. The Francis Psychological Type Scales have been developed from the basic theory of psychological type as originated by Jung (Francis, 2005). These scales have not been derived from the MBTI®, and they do not purport to provide individuals with an accurate reading of their 'MBTI® type'.

The FPTS assess preferences for extraversion, introversion, sensing, intuition, thinking, feeling, judging, and perceiving by identifying ten clear characteristics associated with each preference and by pairing such characteristics in forced-choice format against the opposite preference. The resulting eight scale scores are then weighted to transform continuous scale scores into categorical preferences. The eight preferences are characterised by the following descriptors.

Extraverts: active, sociable, having many friends, like parties, energised by others, happier working in groups, socially involved, talkative, an extravert, speak before thinking.

Introverts: reflective, private, a few deep friendships, dislike parties, drained by too many people, happier working alone, socially detached, reserved, an introvert, think before speaking.

Sensing types: interested in facts, practical, the concrete, prefer to make, conventional, concerned about details, sensible, present realities, keep things as they are, down to earth.

Intuitive types: interested in theories, inspirational, the abstract, prefer to design, inventive, concerned for meaning, imaginative, future possibilities, improve things, up in the air.

Thinking types: justice, analytic, thinking, firm, critical, logical, truthful, sceptical, seek for truth, fair-minded.

Feeling types: harmony, sympathetic, feeling, gentle, affirming, humane, tactful, trusting, seek for peace, warm-hearted.

Judging types: happy with routine, structured, act on decisions, like to be in control, orderly, organised, punctual, like detailed planning, happier with certainty, systematic.

Perceiving types: unhappy with routine, open-ended, act on impulse, like to be adaptable, easy going, spontaneous, leisurely, dislike detailed planning, happier with uncertainty, casual.

Designed primarily as a research instrument, the FPTS needed to be accessible and straightforward to read, to interpret, and to complete. The items comprising the FPTS were generated in three stages. First, careful reading and analysis of the psychological type literature generated a list of the descriptors of the eight preferences: introversion, extraversion, sensing, intuition, thinking, feeling, judging, and perceiving. Second, participants in workshops designed to enhance awareness of psychological type debated and critiqued these descriptors. Third, both cognitive testing and small pilot studies were used to refine and to reduce the number of items.

Against this background, the aims of the present study are to test the factor structure of the FPTS, to test the internal consistency reliability of the four pairs of indices (introversion and extraversion, sensing and intuition, feeling and thinking, judging and perceiving), and to test the concurrent validity of these indices against the MBTI®. The latter objective is crucial for the interpretation of research findings using the FPTS alongside research findings using the MBTI®, especially in the light of the study reported by Francis, Robbins, and Craig (2007) demonstrating the incompatibility of the type classifications proposed by the KTS with those proposed by the MBTI®.

The aims of the present study are met by drawing together the findings from two sets of data. Both sets of data were compiled over a period of years in the same way. Participants engaged in a number of short courses designed for individuals exploring Christian ministry, engaged in initial ministerial education programmes, or participating in continuing ministerial

education programmes (lay or ordained from a range of denominations) completed the MBTI® as part of the course requirements and also volunteered to complete the FPTS. At least one day lapsed between the completion of the two instruments: the first dataset comprised 185 participants from 11 short courses, and the second dataset comprised 392 participants from 22 short courses.

The first data set was employed to develop weightings from the FPTS to adjust the dichotomous scoring to reflect the categories proposed by the MBTI®. The second dataset was employed to check the effectiveness of these weightings.

Method: Study one

Participants

Data on both instruments were provided by 185 participants from 11 short courses. The participants comprised 65 males and 120 females; 20% were under the age of thirty, 26% were in their thirties or forties, 37% were in their fifties or sixties, and 17% were aged sixty or over.

Measures

The MBTI® (Myers & McCaulley, 1985) uses a forced-choice questionnaire format to indicate preferences between extraversion or introversion, sensing or intuition, thinking or feeling, and judging or perceiving. The 126-item Form G (Anglicised) was used in this research.

The FPTS (Francis, 2005) assess preferences for extraversion, introversion, sensing, intuition, thinking, feeling, judging, and perceiving by identifying ten clear characteristics associated with each preference and by pairing such characteristics in forced-choice format against the opposite preference.

Results: Study one

Factor structure

- insert table 1 about here -

The first step in testing the psychometric properties of the FPTS employed confirmatory factor analysis using principal component extraction followed by varimax rotation constrained to four factors. Table 1 presents the four factor solution that accounted for 47.2% of the variance. In this table all loadings below .30 have been suppressed for clarity of presentation, except for those loadings on the hypothesised factors that are presented in italics. These data show that confirmatory factor analysis located 39 of the 40 items on the hypothesised factors with weightings above .30, and that there were significant cross loadings on three items.

Internal consistency reliability

- insert table 2 about here -

The second step in testing the psychometric properties of the Francis Psychological Type Scales calculated the alpha coefficient (Cronbach, 1951) as a measure of internal consistency reliability. The alpha coefficients for the eight continuous scale scores are presented in table 2 together with the means and standard deviations. As scales computed from forced choice binary options, the alpha coefficients are identical for both instruments within each pair, and the two mean scores for each pair sum to ten. All eight alpha coefficients exceed .80, demonstrating a good level of internal consistency reliability.

Concurrent validity of scale scores

- insert table 3 about here -

Table 3 presents the correlations between the continuous scale scores proposed by the FPTS and the continuous scale scores proposed by the MBTI®. Within the FPTS the two scales within each pair are perfectly matched (as demonstrated by the identical alpha coefficients). Since the MBTI® is not constructed in the same way, identical correlations cannot be assumed. The correlations between the two measures are satisfactory for all eight

scales, although lower for the measures of thinking and feeling. These data support the concurrent validity of the FPTS against the MBTI® in terms of operationalising continuous scale scores measuring introversion, extraversion, sensing, intuition, thinking, feeling, judging, and perceiving.

Type distribution

- insert tables 4 and 5 about here -

In order to map type categories recorded by the FPTS onto type categories recorded by the MBTI®, weightings were applied to the FPTS continuous scale scores as detailed in Appendix 1. Table 4 employs the conventional type table format to present full data of the psychological type profile of the 185 participants as reported by the MBTI®. Core data presented in this table include the sixteen complete types, the dichotomous preferences, the eight Jungian types, the four dominant types, and the pairs and temperaments. The basic profile is consistent with that of other Christian groups in England and Wales (see Francis, 2009) showing preferences for introversion (63%) over extraversion (37%), for feeling (68%) over thinking (32%), and for judging (68%) over perceiving (32%), and a balance between sensing (52%) and intuition (48%).

Table 5 employs the conventional type table format to present full data of the psychological type profile of the 185 participants as reported by the FPTS. At the same time, table 5 employs the Selection Ratio Index, as developed by McCaulley (1985), to test the statistical significance of differences between the data presented in this table from the FPTS with the data presented in table 4 from the MBTI®. This analysis tests whether the weightings calculated for the initial sample do what they were intended to do and align type allocations with those from the MBTI®. In terms of the dichotomous preferences, the pairs and temperaments, the Jungian types, and the dominant types no significant differences were found between the two measures. For example, the dominant type preferences reported by the

MBTI® and the FPTS were respectively: dominant sensing, 34% and 37%; dominant feeling, 29% and 29%; dominant intuition, 26% and 25%; and dominant thinking, 11% and 9%. Two significant differences, however, emerged within the sixteen complete types: a lower proportion of ISFP were reported by the FPTS (2% compared with 7%); and a higher proportion of ESFJ were reported by the FPTS (12% compared with 6%). Thus, overall the two measures produced highly similar results, further supporting the concurrent validity of the FPTS against the MBTI® in defining psychological type categories, and justifying the weightings applied to the FPTS.

Levels of agreement in type classification

- insert table 6 about here -

The previous studies reviewed in the introduction to this paper indicated the relatively low reproducibility of type classifications when the MBTI® was applied for the second time. The data demonstrated that the proportion of participants who were assigned the same location on all four dichotomous preferences (the two orientations, the two perceiving functions, the two judging functions, and the two attitudes) on two administrations of the MBTI® ranged between 33% and 68%, with the following specific findings: 33% (Tsuzuki & Matsui, 1997), 47% (McCarley & Carskadon, 1983), 49% (Howes & Carskadon, 1999), 53% (Levy, Murphy, & Carlson, 1982), and 68% (Bents & Wierschke, 1996). It is reasonable to subject the present data (generated by two administrations of different measures of psychological type to the same participants) to similar analysis. These data are presented in table 6. According to these data, around four-fifths of the participants were assigned the same location by both instruments on each of the dichotomous preferences (between 80% and 84%). The proportion fell to 49% who were assigned the same location on all four dichotomous preferences. These data are comparable with the findings from two

administrations of the MBTI® in other studies, and thus provide further confirmation for the concurrent validity of the FPTS against the MBTI® in terms of type categorisation.

Method: Study two

Participants

Data on both instruments were provided by 392 participants from 22 short courses. The participants comprised 181 males, 191 females, and 20 individuals for whom sex was not recorded. Of those for whom age was available, 27% were under the age of thirty; 32% were in their thirties or forties, 34% were in their fifties, and 8% were aged sixty or over.

Measures

The MBTI® (Myers & McCaulley, 1985) uses a forced-choice questionnaire format to indicate preferences between extraversion or introversion, sensing or intuition, thinking or feeling, and judging or perceiving. The 126-item Form G (Anglicised) was used in this research.

The FPTS (Francis, 2005) assess preferences for extraversion, introversion, sensing, intuition, thinking, feeling, judging, and perceiving by identifying ten clear characteristics associated with each preference and by pairing such characteristics in forced-choice format against the opposite preference.

Results: Study two

- insert table 7 about here -

Table 7 confirms the factor structure of the FPTS on the second dataset, again employing confirmatory factor analysis using principal component extraction followed by varimax rotation constrained to four factors. Table 7 presents the four factor solution that accounted for 45.0% of the variance. In this table all loadings below .30 have been suppressed for clarity of presentation, except for those loadings on the hypothesised factors that are presented in italics. Again, these data show that confirmatory factor analysis located

39 of the 40 items on the hypothesised factors with weightings above .30, and that this time there was significant cross loading on only one item.

- insert table 8 about here -

Table 8 confirms the internal consistency reliability of the FPTS in the second dataset. Again, all eight alpha coefficients exceed .80, demonstrating a good level of internal consistency reliability.

- insert table 9 about here -

Table 9 confirms the correlations between the continuous scale scores proposed by the FPTS and the continuous scale scores proposed by the MBTI®. The correlations between the two measures are satisfactory for all eight scales, although once again lower for the measure of thinking and feeling. These data support the concurrent validity of the FPTS against the MBTI® in terms of operationalising continuous scale scores measuring introversion, extraversion, sensing, thinking, feeling, judging, and perceiving.

- insert tables 10 and 11 about here -

Table 10 employs the conventional type table format to present full data of the psychological type profile of the 392 participants in the second dataset as reported by the MBTI®. Comparison between table 10 and table 4 reveal two differences between the two datasets in terms of dichotomous type preferences. The second dataset contains a higher proportion of extraverts (46% compared with 37%) and a higher proportion of intuitive types (55% compared with 48%). In terms of the other two dichotomous preferences similar profiles emerged from both data sets: 68% of feeling types in the first dataset and 66% in the second dataset; 68% of judging types in the first dataset and 65% in the second dataset. The differences between the two datasets are helpful in testing whether the same differences are reported in the profiles generated by the FPTS.

Table 11 now employs the conventional type table framework to present full data of the psychological type profile of the 392 participants in the second dataset as reported by the FPTS. At the same time table 11 employs the Selection Ration Index, as developed by McCaulley (1985), to test the statistical significance of difference between the data presented in this table from the FPTS and the data presented in table 10 from the MBTI®. This analysis acts as an independent test of whether the weightings applied to the FPTS can be used more generally to align the type allocation with those that would be expected from the MBTI®. On this occasion no significant differences emerged in terms of the dichotomous preferences, the pairs and temperaments, the Jungian types, the dominant types, and the sixteen complete types. Thus, overall the two measures produced highly similar results, further supporting the concurrent validity of the FPTS against the MBTI® in defining psychological type categories and thereby justifying the weightings applied to the FPTS during work on the first dataset.

- insert table 12 about here -

Table 12 examines the levels of agreement in type classification by the FPTS and the MBTI® on the second dataset. These data are consistent with the findings reported in table 6 on the first dataset. According to the data in table 12, around four-fifths of the participants were assigned the same location by both instruments on each of the dichotomous preferences (between 82% and 86%). The proportion fell to 54% who were assigned the same location on all four dichotomous preferences. These data are comparable with the findings from two administrations of the MBTI® in other studies, and thus provide further confirmation for the concurrent validity of the FPTS against the MBTI® in terms of type categories.

Conclusion

The present study set out to examine the psychometric properties of the FPTS in terms of three criteria: the factor structure of the forty forced-choice items that comprise the instrument; the internal consistency reliability recorded by the four sets of scales, namely

introversion and extraversion, sensing and intuition, thinking and feeling, judging and perceiving; and the concurrent validity of the instrument against the MBTI® as assessed in two ways, namely the correlation between the continuous scale scores, and the assignment of participants to the sixteen complete types.

The context for this empirical investigation was set by an extensive review of the research literature concerned with exploring the reliability of the MBTI®. It is this review that establishes the benchmark against which the new data concerning the FPTS can be assessed. Four main conclusions can be drawn regarding the psychometric performance of the FPTS in light of this contextualisation. First, the continuous scale scores of the FPTS display good levels of internal consistency reliability, as indicated by the alpha coefficients, that are generally as strong as or stronger than the alpha coefficients recorded by the considerably longer scales proposed by the MBTI®. Second, the correlation recorded between the eight scales proposed by the FPTS and the eight scales proposed by the MBTI® are within a similar range to those reported by test and retest correlations recorded by two administrations of the MBTI®. This finding supports the concurrent validity of the FPTS against the longer-established MBTI®. Third, the levels of agreement in type classifications by the FPTS and MBTI® are not dissimilar from the levels of agreement in type classification achieved by two applications of the MBTI®. This finding adds further support to the concurrent validity of the FPTS against the MBTI®. Fourth, the type distributions reported for the present participants by the MBTI® and by the FPTS were highly comparable. This finding suggests that for research purposes similar sample profiles are generated by the two instruments.

Additionally, the present study provided further evidence for the factor structure of the FPTS highly similar to the evidence provided by the three earlier studies reported by Francis, Laycock, and Brewster (2017) among 722 Anglican clergy serving in England, by

Payne, Lewis, and Francis (2021) among 364 Anglican clergy serving in Wales, and by Village (2021) among 1,522 clergy and 2,474 laity from the Church of England.

These four main conclusions need to be read against the rationale for the development of the Francis Psychological Type Scales. This instrument was specifically developed as a way of operationalising Jung's theory of psychological type for research purposes within the context of questionnaire-based surveys, either online or in pencil and paper administration. Given that there is an established research literature employing the MBTI®, these data suggest that it is reasonable to consider research findings generated by the two instruments to be comparable.

The limitations with the present study include the relatively small number of participants in the two datasets (N = 185 and 392) and the specific context within which the participants were recruited, namely participants in various courses concerned with aspects of Christian ministry. Replication of the present study within other contexts is needed to redress these acknowledged limitations.

Disclosure Statement

No potential conflict of interest was reported by the authors.

Appendix

Weights were applied to the FPTS continuous scale scores as follows:

Sensing +1

Thinking +1

Judging +2

Perceiving -2

After applying these weighting the type categories were applied by the following SPSS syntax:

```
IF      (E GT I)      ORI = 1 (extraversion)
IF      (E LE I)      ORI = 2 (introversion)
IF      (S GT N)      PER = 1 (sensing)
IF      (S LE N)      PER = 2 (intuition)
IF      (T GT F)      JUD = 1 (thinking)
IF      (T LE F)      JUD = 2 (feeling)
IF      (J GT P)      ATD = 1 (judging)
IF      (J LE P)      ATD = 2 (perceiving)
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Table 1

Study one: Rotated factors

	factor 1	**factor 2**	**factor 3**	**factor 4**
Orientation				
Active — Reflective	.69			
Sociable — Private	.87			
Having many friends — A few deep friendships	.62			
Like parties — Dislike parties	.66			
Energised by others — Drained by too many people	.75			
Working in groups — Working alone	.65			
Socially involved — Socially detached	.78			
Talkative — Reserved	.74			
An extravert — An introvert	.85			
Speak before thinking — Think before speaking	.49			
Attitude to outer world				
Happy with routine — Unhappy with routine		.66		
Structured — Open-ended		.77		
To act on decisions — To act on impulse		.57		
In control — Adaptable		.30		.46
Orderly — Easygoing		.69		
Organised — Spontaneous		.77		
Punctual — Leisurely		.62		
Like detailed planning — Dislike detailed planning		.69		
Certainty — Uncertainty		.57		
Systematic — Casual		.74		

Perceiving process			
Facts — Theories		.74	
Practical — Inspirational		.72	
The concrete — The abstract		.74	
Prefer to make — Prefer to design		.53	
Conventional — Inventive		.65	
Concerned about details — Concerned for meaning		.43	
Sensible — Imaginative	.32	.70	
Focused on present realities — Focused on future possibilities		.63	
Keep things as they are — Improve things		*.12*	
Down to earth — Up in the air	.34	.50	
Judging process			
Justice — Harmony			.54
Analytic — Sympathetic			.69
Thinking — Feeling			.67
Tend to be firm — Tend to be gentle			.61
Critical — Affirming			.50
Logical — Humane			.62
Truthful — Tactful			.44
Sceptical — Trusting			.50
Seek for truth — Seek for peace			.60
Fair-minded — Warm-hearted			.69

Note: All loadings below .30 have been suppressed for clarity of presentation except for those loadings on the hypothesised factors

Table 2

Study one: Internal consistency reliability, means and standard deviations of the FPTS scales

	Alpha	Mean	SD
Extraversion	.90	4.17	3.50
Introversion	.90	5.83	3.50
Sensing	.83	4.83	2.94
Intuition	.83	5.17	2.94
Thinking	.81	3.87	2.91
Feeling	.81	6.13	2.91
Judging	.88	6.21	3.26
Perceiving	.88	3.79	3.26

Table 3

Study one: Correlations between continuous scale scores generated by the FPTS and the MBTI

	r
Extraversion	.81***
Introversion	.81***
Sensing	.75***
Intuition	.77***
Thinking	.66***
Feeling	.70***
Judging	.83***
Perceiving	.81***

Note: *** $p < .001$

Table 4

Study one: Type distribution according to the MBTI

The Sixteen Complete Types

ISTJ *n* = 20 (10.8%) +++++ +++++ +	ISFJ *n* = 36 (19.5%) +++++ +++++ +++++ +++++	INFJ *n* = 16 (8.6%) +++++ ++++	INTJ *n* = 12 (6.5%) +++++ ++
ISTP *n* = 3 (1.6%) ++	ISFP *n* = 12 (6.5%) ++++++ ++	INFP *n* = 13 (7.0%) +++++ ++	INTP *n* = 4 (2.2%) ++
ESTP *n* = 2 (1.1%) +	ESFP *n* = 5 (2.7%) +++	ENFP *n* = 14 (7.6%) +++++ +++	ENTP *n* = 6 (3.2%) +++
ESTJ *n* = 7 (3.8%) ++++	ESFJ *n* = 11 (5.9%) +++++ +	ENFJ *n* = 18 (9.7%) +++++ +++++	ENTJ *n* = 6 (3.2%) +++

Dichotomous Preferences

E	*n* =	69	(37.3%)
I	*n* =	116	(62.7%)
S	*n* =	96	(51.9%)
N	*n* =	89	(48.1%)
T	*n* =	60	(32.4%)
F	*n* =	125	(67.6%)
J	*n* =	126	(68.1%)
P	*n* =	59	(31.9%)

Pairs and Temperaments

IJ	*n* =	84	(45.4%)
IP	*n* =	32	(17.3%)
EP	*n* =	27	(14.6%)
EJ	*n* =	42	(22.7%)
ST	*n* =	32	(17.3%)
SF	*n* =	64	(34.6%)
NF	*n* =	61	(33.0%)
NT	*n* =	28	(15.1%)
SJ	*n* =	74	(40.0%)
SP	*n* =	22	(11.9%)
NP	*n* =	37	(20.0%)
NJ	*n* =	52	(28.1%)
TJ	*n* =	45	(24.3%)
TP	*n* =	15	(8.1%)
FP	*n* =	44	(23.8%)
FJ	*n* =	81	(43.8%)
IN	*n* =	45	(24.3%)
EN	*n* =	44	(23.8%)
IS	*n* =	71	(38.4%)
ES	*n* =	25	(13.5%)
ET	*n* =	21	(11.4%)
EF	*n* =	48	(25.9%)
IF	*n* =	77	(41.6%)
IT	*n* =	39	(21.1%)

Jungian Types (E)			**Jungian Types (I)**			**Dominant Types**		
	n	%		*n*	%		*n*	%
E-TJ	13	7.0	I-TP	7	3.8	Dt.T	20	10.8
E-FJ	29	15.7	I-FP	25	13.5	Dt.F	54	29.2
ES-P	7	3.8	IS-J	56	30.3	Dt.S	63	34.1
EN-P	20	10.8	IN-J	28	15.1	Dt.N	48	25.9

Note: *N* = 185 (NB: + = 1% of *N*)

Table 5

Study one: Type distribution according to the FPTS compared with the MBTI

The Sixteen Complete Types

ISTJ *n* = 29 (15.7%) *I* = 1.45 +++++ +++++ +++++ +	ISFJ *n* = 32 (17.3%) *I* = 0.89 +++++ +++++ +++++ ++	INFJ *n* = 14 (7.6%) *I* = 0.88 +++++ +++	INTJ *n* = 13 (7.0%) *I* = 1.08 +++++ ++
ISTP *n* = 2 (1.1%) *I* = 0.67 +	ISFP *n* = 4 (2.2%) *I* = 0.33* ++	INFP *n* = 13 (7.0%) *I* = 1.00 +++++ ++	INTP *n* = 2 (1.1%) *I* = 0.50 +
ESTP *n* = 3 (1.6%) *I* = 1.50 ++	ESFP *n* = 5 (2.7%) *I* = 1.00 +++	ENFP *n* = 16 (8.6%) *I* = 1.14 +++++ ++++	ENTP *n* = 3 (1.6%) *I* = 0.50 ++
ESTJ *n* = 5 (2.7%) *I* = 0.71 +++	ESFJ *n* = 23 (12.4%) *I* = 2.09* +++++ +++++ ++	ENFJ *n* = 13 (7.0%) *I* = 0.72 +++++ ++	ENTJ *n* = 8 (4.3%) *I* = 1.33 ++++

Dichotomous Preferences

E	*n* = 76	(41.1%)	*I* = 1.10
I	*n* = 109	(58.9%)	*I* = 0.94
S	*n* = 103	(55.7%)	*I* = 1.07
N	*n* = 82	(44.3%)	*I* = 0.92
T	*n* = 65	(35.1%)	*I* = 1.08
F	*n* = 120	(64.9%)	*I* = 0.96
J	*n* = 137	(74.1%)	*I* = 1.09
P	*n* = 48	(25.9%)	*I* = 0.81

Pairs and Temperaments

IJ	*n* = 88	(47.6%)	*I* = 1.05
IP	*n* = 21	(11.4%)	*I* = 0.66
EP	*n* = 27	(14.6%)	*I* = 1.00
EJ	*n* = 49	(26.5%)	*I* = 1.17
ST	*n* = 39	(21.1%)	*I* = 1.22
SF	*n* = 64	(34.6%)	*I* = 1.00
NF	*n* = 56	(30.3%)	*I* = 0.92
NT	*n* = 26	(14.1%)	*I* = 0.93
SJ	*n* = 89	(48.1%)	*I* = 1.20
SP	*n* = 14	(7.6%)	*I* = 0.64
NP	*n* = 34	(18.4%)	*I* = 0.92
NJ	*n* = 48	(25.9%)	*I* = 0.92
TJ	*n* = 55	(29.7%)	*I* = 1.22
TP	*n* = 10	(5.4%)	*I* = 0.67
FP	*n* = 38	(20.5%)	*I* = 0.86
FJ	*n* = 82	(44.3%)	*I* = 1.01
IN	*n* = 42	(22.7%)	*I* = 0.93
EN	*n* = 40	(21.6%)	*I* = 0.91
IS	*n* = 67	(36.2%)	*I* = 0.94
ES	*n* = 36	(19.5%)	*I* = 1.44
ET	*n* = 19	(10.3%)	*I* = 0.90
EF	*n* = 57	(30.8%)	*I* = 1.19
IF	*n* = 63	(34.1%)	*I* = 0.82
IT	*n* = 46	(24.9%)	*I* = 1.18

Jungian Types (E)				**Jungian Types (I)**				**Dominant Types**			
	n	%	*Index*		*n*	%	*Index*		*n*	%	*Index*
E-TJ	13	7.0	1.00	I-TP	4	2.2	0.57	Dt.T	17	9.2	0.85
E-FJ	36	19.5	1.24	I-FP	17	9.2	0.68	Dt.F	53	28.6	0.98
ES-P	8	4.3	1.14	IS-J	61	33.0	1.09	Dt.S	69	37.3	1.10
EN-P	19	10.3	0.95	IN-J	27	14.6	0.96	Dt.N	46	24.9	0.96

Note: $N = 185$ (NB: + = 1% of N)

*$p < .05$

Table 6

Study one: Levels of agreement in type classification by FPTS and MBTI

	Agreement %
Binary comparisons	
Orientations (extraversion or introversion)	84.3
Perceiving (sensing or intuition)	84.3
Judging (thinking or feeling)	80.0
Attitudes (judging or perceiving)	83.2
Building complete types	
Orientation	84.3
Orientation and Perceiving	71.9
Orientation, Perceiving, and Judging	57.8
Orientation, Perceiving, Judging, and Attitude	49.2

Table 7

Study two: Rotated factors

	factor 1	**factor 2**	**factor 3**	**factor 4**
Orientation				
Active — Reflective	.64			
Sociable — Private	.81			
Having many friends — A few deep friendships	.53			
Like parties — Dislike parties	.68			
Energised by others — Drained by too many people	.73			
Working in groups — Working alone	.67			
Socially involved — Socially detached	.78			
Talkative — Reserved	.76			
An extravert — An introvert	.82			
Speak before thinking — Think before speaking	.49			
Perceiving process				
Facts — Theories		.72		
Practical — Inspirational		.72		
The concrete — The abstract		.74		
Prefer to make — Prefer to design		.63		
Conventional — Inventive		.61		
Concerned about details — Concerned for meaning		.48		
Sensible — Imaginative		.72		
Focused on present realities — Focused on future possibilities		.66		
Keep things as they are — Improve things		*.27*		
Down to earth — Up in the air		.47		

Attitude to outer world			
Happy with routine — Unhappy with routine	.38	.51	
Structured — Open-ended		.73	
To act on decisions — To act on impulse		.52	
In control — Adaptable		.48	
Orderly — Easygoing		.72	
Organised — Spontaneous		.74	
Punctual — Leisurely		.52	
Like detailed planning — Dislike detailed planning		.59	
Certainty — Uncertainty		.52	
Systematic — Casual		.78	
Judging process			
Justice — Harmony			.58
Analytic — Sympathetic			.70
Thinking — Feeling			.71
Tend to be firm — Tend to be gentle			.65
Critical — Affirming			.56
Logical — Humane			.62
Truthful — Tactful			.56
Sceptical — Trusting			.43
Seek for truth — Seek for peace			.60
Fair-minded — Warm-hearted			.69

Note: All loadings below .30 have been suppressed for clarity of presentation except for those loadings on the hypothesised factors

Table 8

Study two: Internal consistency reliability, means and standard deviations of the FPTS scales

	Alpha	Mean	SD
Extraversion	.88	4.72	3.45
Introversion	.88	5.28	3.45
Sensing	.84	4.41	3.00
Intuition	.84	5.59	3.00
Thinking	.82	3.84	3.00
Feeling	.82	6.16	3.00
Judging	.85	5.62	3.21
Perceiving	.85	4.38	3.21

Table 9

Study two: Correlations between continuous scale scores generated by the FPTS and the MBTI

	r
Extraversion	.79***
Introversion	.80***
Sensing	.75***
Intuition	.74***
Thinking	.69***
Feeling	.62***
Judging	.80***
Perceiving	.78***

Note: *** $p < .001$

Table 10

Study two: Type distribution according to the MBTI

The Sixteen Complete Types

ISTJ *n* = 39 (9.9%) +++++ +++++	ISFJ *n* = 44 (11.2%) +++++ +++++ +	INFJ *n* = 39 (9.9%) +++++ +++++	INTJ *n* = 22 (5.6%) +++++ +
ISTP *n* = 9 (2.3%) ++	ISFP *n* = 14 (3.6%) ++++	INFP *n* = 34 (8.7%) +++++ ++++	INTP *n* = 11 (2.8%) +++
ESTP *n* = 7 (1.8%) ++	ESFP *n* = 7 (1.8%) ++	ENFP *n* = 46 (11.7%) +++++ +++++ ++	ENTP *n* = 8 (2.0%) ++
ESTJ *n* = 21 (5.4%) +++++	ESFJ *n* = 37 (9.4%) +++++ ++++	ENFJ *n* = 37 (9.4%) +++++ ++++	ENTJ *n* = 17 (4.3%) ++++

Dichotomous Preferences

E	*n* =	180	(45.9%)
I	*n* =	212	(54.1%)
S	*n* =	178	(45.9%)
N	*n* =	214	(54.6%)
T	*n* =	134	(34.2%)
F	*n* =	258	(65.8%)
J	*n* =	256	(65.3%)
P	*n* =	136	(34.7%)

Pairs and Temperaments

IJ	*n* =	144	(36.7%)
IP	*n* =	68	(17.3%)
EP	*n* =	68	(17.3%)
EJ	*n* =	112	(28.6%)
ST	*n* =	76	(19.4%)
SF	*n* =	102	(26.0%)
NF	*n* =	156	(39.8%)
NT	*n* =	58	(14.8%)
SJ	*n* =	141	(36.0%)
SP	*n* =	37	(9.4%)
NP	*n* =	99	(25.3%)
NJ	*n* =	115	(29.3%)
TJ	*n* =	99	(25.3%)
TP	*n* =	35	(8.9%)
FP	*n* =	101	(25.8%)
FJ	*n* =	157	(40.1%)
IN	*n* =	106	(27.0%)
EN	*n* =	108	(27.6%)
IS	*n* =	106	(27.0%)
ES	*n* =	72	(18.4%)
ET	*n* =	53	(13.5%)
EF	*n* =	127	(32.4%)
IF	*n* =	131	(33.4%)
IT	*n* =	81	(20.7%)

Jungian Types (E)			**Jungian Types (I)**			**Dominant Types**		
	n	%		*n*	%		*n*	%
E-TJ	38	9.7	I-TP	20	5.1	Dt.T	58	14.8
E-FJ	74	18.9	I-FP	48	12.2	Dt.F	122	31.1
ES-P	14	3.6	IS-J	83	21.2	Dt.S	97	24.7
EN-P	54	13.8	IN-J	61	15.6	Dt.N	115	29.3

Note: *N* = 392 (NB: + = 1% of *N*)

Table 11

Study two: Type distribution according to the FPTS compared with the MBTI

The Sixteen Complete Types

ISTJ *n* = 42 (10.7%) *I* = 1.08 +++++ +++++ +	ISFJ *n* = 38 (9.7%) *I* = 0.86 +++++ +++++	INFJ *n* = 39 (9.9%) *I* = 1.00 +++++ +++++	INTJ *n* = 29 (7.4%) *I* = 1.32 +++++ ++
ISTP *n* = 6 (1.5%) *I* = 0.67 ++	ISFP *n* = 9 (2.3%) *I* = 0.64 ++	INFP *n* = 27 (6.9%) *I* = 0.79 +++++ ++	INTP *n* = 13 (3.3%) *I* = 1.18 +++
ESTP *n* = 2 (0.5%) *I* = 0.29 +	ESFP *n* = 16 (4.1%) *I* = 2.29 ++++	ENFP *n* = 40 (10.2%) *I* = 0.87 +++++ +++++	ENTP *n* = 12 (3.1%) *I* = 1.50 +++
ESTJ *n* = 28 (7.1%) *I* = 1.33 +++++ ++	ESFJ *n* = 47 (12.0%) *I* = 1.27 +++++ +++++ ++	ENFJ *n* = 29 (7.4%) *I* = 0.78 +++++ ++	ENTJ *n* = 15 (3.8%) *I* = 0.88 ++++

Dichotomous Preferences

E	*n* = 189	(48.2%)	*I* = 1.05
I	*n* = 203	(51.8%)	*I* = 0.96
S	*n* = 188	(48.0%)	*I* = 1.06
N	*n* = 204	(52.0%)	*I* = 0.95
T	*n* = 147	(37.5%)	*I* = 1.10
F	*n* = 245	(62.5%)	*I* = 0.95
J	*n* = 237	(68.1%)	*I* = 1.04
P	*n* = 125	(31.9%)	*I* = 0.92

Pairs and Temperaments

IJ	*n* = 148	(37.8%)	*I* = 1.03
IP	*n* = 55	(14.0%)	*I* = 0.81
EP	*n* = 70	(17.9%)	*I* = 1.03
EJ	*n* = 119	(30.4%)	*I* = 1.06
ST	*n* = 78	(19.9%)	*I* = 1.03
SF	*n* = 110	(28.1%)	*I* = 1.08
NF	*n* = 135	(34.4%)	*I* = 0.87
NT	*n* = 69	(17.6%)	*I* = 1.19
SJ	*n* = 155	(39.5%)	*I* = 1.10
SP	*n* = 33	(8.4%)	*I* = 0.89
NP	*n* = 92	(23.5%)	*I* = 0.93
NJ	*n* = 112	(28.6%)	*I* = 0.97
TJ	*n* = 114	(29.1%)	*I* = 1.15
TP	*n* = 33	(8.4%)	*I* = 0.94
FP	*n* = 92	(23.5%)	*I* = 0.91
FJ	*n* = 153	(39.0%)	*I* = 0.97
IN	*n* = 108	(27.6%)	*I* = 1.02
EN	*n* = 96	(24.5%)	*I* = 0.89
IS	*n* = 95	(24.2%)	*I* = 0.90
ES	*n* = 93	(23.7%)	*I* = 1.29
ET	*n* = 57	(14.5%)	*I* = 1.08
EF	*n* = 132	(33.7%)	*I* = 1.04
IF	*n* = 113	(28.8%)	*I* = 0.86
IT	*n* = 90	(23.0%)	*I* = 1.11

Jungian Types (E)				**Jungian Types (I)**				**Dominant Types**			
	n	%	*Index*		*n*	%	*Index*		*n*	%	*Index*
E-TJ	43	11.0	1.13	I-TP	19	4.8	0.95	Dt.T	62	15.8	1.07
E-FJ	76	19.4	1.03	I-FP	36	9.2	0.75	Dt.F	112	28.6	0.92
ES-P	18	4.6	1.29	IS-J	80	20.4	0.96	Dt.S	98	25.0	1.01
EN-P	52	13.3	0.96	IN-J	68	17.3	1.11	Dt.N	120	30.6	1.04

Note: $N = 392$ (NB: + = 1% of N)

Table 12

Study two: Levels of agreement in type classification by FPTS and MBTI

	Agreement %
Binary comparisons	
Orientations (extraversion or introversion)	84.4
Perceiving (sensing or intuition)	84.2
Judging (thinking or feeling)	81.9
Attitudes (judging or perceiving)	85.5
Building complete types	
Orientation	84.4
Orientation and Perceiving	70.9
Orientation, Perceiving, and Judging	59.7
Orientation, Perceiving, Judging, and Attitude	54.3