Accepted 12.3.2026: *Journal of Beliefs & Values*

Testing the factor structure, internal consistency reliability and construct validity of the Revised Turkish adaptation of the Francis Psychological Type Scales

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Abstract

The Francis Psychological Type Scales were developed during the early 2000s to operationalise the four components of psychological type theory within survey-style research, proposing measures of introversion and extraversion, sensing and intuition, feeling and thinking, judging and perceiving. Drawing on data provided by 743 university students, the present study examines the factor structure, internal consistency reliability, and construct validity of the Revised Turkish adaptation of this instrument, as part of an integrated programme designed to facilitate empirical research in Türkiye rooted in psychological type theory. These data afford a solid foundation for further work in this field.

Keywords: psychological type, Francis Psychological Type Scales, factor structure, Türkiye, psychometrics, extraversion

Introduction

Psychological type theory occupies an interesting space within the wider field of psychological enquiry concerned with personality and individual differences. Psychological type theory does not offer a model of human personality in the same sense as the Eysenckian three dimensional model of personality or the big five factor model of personality purport to do so. Psychological type theory is both more limited and more focused. The Eysenckian three dimensional model of personality (extraversion, neuroticism, and psychoticism) intentionally conflates personality with psychopathology as suggested deliberately by two of the personality constructs (Eysenck & Eysenck, 1975, 1976). The big five factor model (openness, conscientiousness, extraversion, agreeableness, and neuroticism) as proposed by Costa and McCrea (1985) perhaps unintentionally conflates personality with character (Lloyd, 2015). Psychological type theory, on the other hand, is tightly focused on cognitive functioning and avoids contamination with either psychopathology or character development. At its core, as originally developed by Jung (1971), psychological type theory distinguished between two cognitive processes styled in the literature as perceiving and judging. Both of these terms require careful nuancing in order to avoid confusion with more general colloquial usage. In psychological type theory the perceiving process concerns the way in which the human psyche gathers information (it is the irrational process), while the judging process concerns the way in which the human psyche evaluates information (it is the rational process).

Jung's core insight, grounded in therapeutic practice, is that each of these two core processes is expressed through two contrasting functions. The perceiving process is expressed through the two functions styled sensing and intuition. The judging process is expressed through the two functions styled thinking and feeling. Once again these terms require careful nuancing. In psychological type theory the sensing function focuses on the details and

gradually perceives the bigger picture emerging from these details; the intuitive function focuses on the bigger picture and gradually perceives the details in light of that bigger picture. In psychological type theory the thinking function focuses first and foremost on applying logical analysis; the feeling function focuses first and foremost on applying personal and interpersonal values. Jung recognised that optimal human functioning required all four functions, but observed that within each process individuals tend to rely on one of the two functions with consequent neglect of the other.

In psychological type theory, as developed from Jung's work (see Ross & Francis, 2020), these two cognitive processes are nested within theory regarding the differentiation between the inner world and the outer world. Recent renditions of this theory differentiate between orientation and attitude. Orientation refers to the source of psychological energy. Attitude refers to the direction of psychological processes. Orientation distinguishes between introversion and extraversion. Introverts gain their energy from their own inner world and find too much engagement with the outer world draining. Extraverts gain their energy from engagement with the outer world and find too much time separated from the outer world draining. Attitude distinguishes between perceiving and judging. Perceiving types prefer to direct their preferred perceiving function (sensing or intuition) to the outer world and thus appear to others as flexible and spontaneous. Judging types prefer to direct their preferred judging function (thinking or feeling) to the outer world and thus appear to others as organised and well-prepared.

At this point one defining characteristic of psychological type theory that sets it apart from common practice within the science of personality and individual differences needs to be acknowledged and assessed. While common practice tends to conceptualise personality dimensions or factors as continua, psychological type theory conceptualises individual differences in terms of discrete categories. Here is a debate about the power of conflicting

metaphors (continua or typology) to capture hypothetical psychological constructs that are reflected in distinctive human behaviour. The approach favoured by psychological type theory affords fertile exploration that includes discussion of the four binary preferences, the 16 complete types, and the four dominant types. These basic building blocks of psychological type theory were extended further by Keirsey and Bates (1978) to distinguish among four temperament styles. While type theory favours discussion of discrete types, the tools developed to assess psychological types first provide continuous scale scores that facilitate scientific analysis compatible with the continua approach: the Myers-Briggs Type Indicator (Myers & McCaulley, 1985), the Keirsey Temperament Sorter (Keirsey & Bates, 1978), and the Francis Psychological Type Scales (Francis, 2005).

Although psychological type theory is highly fertile and holds serious potential for contributing to the empirical science of individual differences, this model is much less likely to have been used in empirical studies than the competing models offered by the Eysenckian three dimensional approach or the big five factor approach. This difference can be explained by the lack of appropriate instruments specifically tailored for research purposes. From the outset the Eysenck Personality Questionnaire (Eysenck & Eysenck, 1975) and the Eysenck Personality Questionnaire Revised (Eysenck et al., 1985) were designed for research purposes. Similarly, the NEO Personality Inventory (Costa & McCrae, 1985) and subsequent operationalisations of the big five factor model were designed for research purposes. By way of contrast the primary operationalisation of psychological type theory, the Myers-Briggs Type Indicator (Myers & McCaulley, 1985), was designed primarily for clinical practice and was not well suited for incorporation within the kind of research studies generally evident within the field of personality and individual differences. A second well-known instrument, the Keirsey Temperament Sorter (Keirsey & Bates, 1978), was designed primarily for self-assessment and again was not well suited for incorporation within the kind of research studies

generally evident within the field of personality and individual differences. Moreover, while these two instruments (the Myers-Briggs Type Indicator and the Keirsey Temperament Sorter) have been employed in some empirical studies, and the findings treated as comparable, Francis, Robbins, and Craig (2007) demonstrated that the methods proposed by these two instruments failed to assign individuals in a reliable fashion to the same type among the 16 complete types.

The Francis Psychological Type Scales (FPTS) were designed specifically to provide an instrument well suited for incorporation within the kind of research studies generally evident within the field of personality and individual differences. 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 initial development of the FPTS was reported by Francis (2005) and had by this time begun to appear in studies reported within the peer-reviewed literature and mainly located within the wider field of the psychology of religion (see Craig, 2005; Craig et al., 2005; Craig et al., 2003; Craig et al., 2006; Francis & Pegg, 2007; Francis, Robbins, et al., 2003; Francis, Robbins, et al. 2007).

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.

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.

Since 2005, the FPTS have been used extensively within the fields of congregation studies, clergy studies, and individual differences in the psychology of religion (for overview see Village & Francis, 2023). Considered together these studies have provided a good basis on which to test and to report on the internal consistency, reliability, factor structure, and construct validity of the FPTS across a range of different groups. Overall these four underlying scales (orientation, E and I; perceiving process, S and N; judging process, T and F; attitude, J and P) have generated alpha coefficients (Cronbach, 1951) well in excess of the threshold recommended by DeVellis (2003). For example, in Australia among 212 clergywomen from 14 denominations, Robbins, Francis, and Powell (2012) reported alpha coefficients of .84 for the EI scale, .79 for the SN scale, .71 for the TF scale, and .81 for the JP scale. In England among 1,047 Anglican clergy, Village (2011) reported alpha coefficients of .85 for the EI scale, .77 for the SN scale, .72 for the TF scale, and .81 for the JP scale.

Francis, Laycock, and Brewster (2017) tested the factor structure of the FPTS among a sample of 722 Anglican clergy in England (540 clergymen and 182 clergywomen). Confirmatory factor analysis demonstrated that 74 of the 80 items were located within the hypothesized four-factor structure of the instrument with loadings of or above .38 on the hypothesized factors. Payne et al. (2021) replicated the analysis in a sample of 364 Anglican clergy in Wales and found that 78 of the 80 items were located within the hypothesized four-factor structure of the instrument with loadings of or above .38 on the hypothesized factors.

In a third study, Village (2021) examined the factor structure of the FPTS employing structural equation modelling and confirmatory factor analyses among samples of 1,522 clergy and 2,474 laity from the Church of England. Although most items loaded satisfactorily on their intended dimension, a few loaded poorly, and in two cases these were also items that loaded poorly in the study reported by Francis, Laycock, and Brewster (2017). The two items were ‘Do you prefer to speak before thinking (E) or think before speaking’ (I) from the

orientations, and ‘Do you prefer to: keep things as they are (S) or improve things (N)’ from the perceiving process. Village (2021) suggested that these two items may suffer from some social desirability bias, as listening to others first and improving things may be seen as virtues.

A fourth study (Francis & Village, 2022) replicated the analyses among two samples of adults participating in short courses relevant for Christian ministry (N = 185 and 392). In both samples, 39 of the 40 items were located within the hypothesized structure of the instrument with loadings of or above .30 on the hypothesized factors, with few cross-loadings. This study also tested the concurrent validity of the FPTS alongside the 126-item Form G (Anglicized) of the MBTI (Myers & McCaulley, 1985). The two measures aligned well with the proportion of same-type categorizations matching those reported for test-retest of the MBTI (see, for example, Bents & Wierschke, 1996; Howes & Carskadon, 1979; Johnson, 1992; Levy et al., 1972; McCarley & Carskadon, 1983; Silberman et al., 1992; Tsuzuki & Matsui, 1997).

The Turkish adaptation of the Francis Psychological Type Scales

İpek and Güleryüz-Erken (2025) developed the Francis Psychological Type Scales for application among teachers of religious education in Türkiye. A comprehensive adaptation process was undertaken to adapt the FPTS culturally to the Turkish context, involving two preliminary studies and a subsequent main study. The first preliminary study was conducted among 130 participants. In this study satisfactory alpha coefficients were reported for the attitude (α = .73) and for the orientation (α = .78). The alpha coefficients were less satisfactory for the judging process (α = .54) and for the perceiving process (α = .35). After further refinement of these measures, the second preliminary study was conducted among 259 religious education teachers. In this study the following alpha coefficients were reported: the attitude (α = .71), the orientation (α = .83), the judging process (α = .62), and the

perceiving process (α = .45), indicating that further refinement was still required. After further refinement, the main study was conducted among 441 religious education teachers (273 women and 168 men). In this study the following alpha coefficients were reported: the attitude (α = .81), the orientation (α = .82), the judging process (α = .79), and the perceiving process (α = .64). Confirmatory factor analysis confirmed the four-factor structure of the instrument.

Reviewing the findings of the main study, İpek and Güleryüz-Erken (2025) made the following two main recommendations for improving the applicability and reliability of the Turkish adaptation of the FPTS. The first recommendation was to continue to refine those items that were not performing as well as others, giving special attention to the perceiving process. The second recommendation was to test the evolving instrument among diverse populations in different cultural settings in order to provide deeper insights into the strengths and weaknesses of the cultural adaptation.

Research question

Against this background, and as part of a wider research programme designed to facilitate the application of psychological type theory within the empirical psychology of religion in Türkiye, the aim of the present study is to respond to the two recommendations advanced by İpek and Güleryüz-Erken (2025). The original studies developing the Turkish adaptation of the FPTS were conducted among teachers of religious education. The present study complements those original studies by exploring the factor structure, internal consistency reliability and construct validity of the Turkish adaptation of the FPTS among a mixed constituency of university students. Close re-examination of the performance of the 80 items within the main study among 441 religious education teachers identified items that could benefit from further refinement. More specifically the present study builds on and extends the work of İpek and Güleryüz-Erken (2025) in four ways:

- by testing the factor structure of the Revised Turkish adaptation of the FPTS
- examining the scale properties of the Revised Turkish adaptation of the FPTS
- examining the sex differences in the psychological type profile as reported by the Revised Turkish adaptation of the FPTS
- examining the construct validity of the Revised Turkish adaptation of the FPTS.

Method

Procedure

The items within the main study among 441 teachers of religious education identified as in need of further refinement were thoroughly revised and a new version of the FPTS was prepared for online administration to a random sample of university students across Türkiye. Participation was entirely voluntary and respondents were assured of both anonymity and confidentiality.

Participants

- insert table 1 about here -

A total of 743 university students participated in the study. Among the participants, 461 were studying in theology faculties, 198 in education faculties, and 84 in other faculties (Health, Law, Politics, Engineering Faculties). The sample comprised 573 females (77.1%) and 170 males (22.9%); 57 were in prep year, 127 were in year one, 185 were in year two, 178 were in year three, 178 were in year four, and 18 were in years five or six (see table 1).

Measures

The revised Turkish adaptation of the Francis Psychological Type Scales (FPTS) was employed in this study (Francis, 2005; İpek & Güleryüz-Erken, 2025). FPTS comprises four sets of ten pairs of items to distinguish between the two orientations (extraversion and introversion), the two perceiving functions (sensing and intuition), the two judging functions (thinking and feeling), and the two attitudes (judging and perceiving). Each item presents two

contrasting characteristics, and participants are invited to pick the one that best matches their personal preference. The FPTS uses a forced-choice format.

Analysis

The data were analysed by the SPSS statistical package employing the frequency, reliability, and factor routine. Confirmatory factor analysis (varimax rotated solution with Kaiser normalisation) was employed, with the solution constrained to four factors. The research literature concerning the empirical investigation of psychological type has developed a highly distinctive method for analysing, handling, and displaying statistical data in the form of 'type tables'. This convention has been adopted in the following presentation in order to integrate these new data within the established literature and to provide all the detail necessary for secondary analysis and further interpretation within the rich theoretical framework afforded by psychological type. Type tables have been designed to provide information about the sixteen discrete psychological types, about the four dichotomous preferences, about the six sets of pairs and temperaments, about the dominant types, and about the introverted and extraverted Jungian types. Commentary on these tables will, however, be restricted to those aspects of the data strictly relevant to the research question. In the context of type tables, the statistical significance of the difference between two groups is established by means of the selection ratio index (*I*), an extension of chi-square (McCaulley, 1985).

Results and discussion

The first step in data analysis examined the suitability of the data for factor analysis by means of the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Bartlett's Test of Sphericity. The KMO value was calculated as .86, indicating sampling adequacy, while Bartlett's Test of Sphericity yielded a significant result ($p < .001$). These results confirmed the suitability of the dataset for factor analysis.

- insert table 2 about here -

The second step in data analysis examined the factor structure of the FPTS. Confirmatory Factor Analysis (CFA) was conducted to test the four-factor structure of the FPTS. Principal component extraction, constrained to a four-factor solution, with varimax rotation was applied to allow for potential correlations between factors. The data presented in table 2 show that confirmatory factor analysis located 39 of the 40 items on the hypothesised factors with weightings above .30, and that there were no significant cross loadings. This four-factor solution explained 38.9% of the variance.

- insert table 3 about here -

Given the clear recovery of the factor structure of the proposed four scales intended to operationalise psychological type theory, the third step in data analysis examined the psychometric properties of these scales. These data are presented in table 3 in terms of the alpha coefficients (as proposed by Cronbach, 1951) and the means and standard deviations. All eight scales recorded an alpha coefficient in excess of the threshold of .65 proposed by DeVellis (2003), although the two scales operationalising the perceiving process functioned with lower reliability than the scales operationalising the judging process, the orientations, and the attitudes. 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. The mean scale scores identify a group of students who score more highly on introversion than extraversion, on sensing than intuition, on feeling than thinking, and on judging than perceiving.

- insert table 4 about here -

The fourth stage of data analysis examines in greater detail the individual items within the four pairs of scales, in terms of the correlations between the individual items and the other nine items within the scale and the item endorsements. Table 4 presents the correlations for the pairs of items and the item endorsement for the scales in the left-hand column

(introversion, sensing, feeling, and thinking). Set alongside the earlier data from the 441 teachers of religious education reported by İpek and Güleryüz-Erken (2025). These data demonstrate where some improvement has been made in all four pairs of scales. In the orientations (introversion and extraversion) the reformulation of the item ‘think before speaking’ versus ‘speak before thinking’ improved the correlation from .13 to .39. In the attitudes (judging and perceiving) the reformulation of the item ‘punctual’ versus ‘leisurely’ improved the correlation from .44 to .53. In the judging process (thinking and feeling) the reformulation of the item ‘humane’ versus ‘logical’ improved the correlation from .55 to .64. In the perceiving process (sensing and intuition) the reformulation of the item ‘interested in facts’ versus ‘interested in theories’ improved the correlation from .25 to .52. Nonetheless there remained four correlations below .30 in the perceiving process, suggesting that further work was still needed on this measure.

- insert table 5 and 6 about here -

The final step in data analysis assumes that the weightings developed for the original English language version of the FPTS to assign individuals to the 16 complete types remain valid for the Turkish adaptation. On this assumption tables 5 and 6 employ the conventional type table format to present full data on the psychological type profile of the 170 male participants (table 5) and the 573 female participants (table 6). Moreover table 6 employs the Selection Ratio Index, as developed by McCaulley (1985) to test the statistical significance of differences between the psychological type profile of female participants compared with male participants. Attention will now be drawn to the salient details within the two tables.

Table 5 demonstrates that in terms of the dichotomous preferences these male students preferred introversion (66%) over extraversion (34%), sensing (57%) over intuition (44%), thinking (63%) over feeling (37%), and judging (67%) over perceiving (34%). In terms of dominant types, 33% were dominant intuitive types; 28% dominant sensing types,

21% dominant thinking types, and 19% dominant feeling types. In terms of the 16 complete types, the most frequently occurring types were INTJs (21%) and ISTJs (14%). In terms of the four temperaments, 37% reported as Epimethean (SJ), 31% as Promethean (NT), 20% as Dionysian (SP), and 12% as Apollonian (NF).

Table 6 demonstrates that in terms of the dichotomous preferences these female students preferred introversion (40%) over extraversion (60%), sensing (66%) over intuition (34%), feeling (59%) over thinking (41%), and judging (72%) over perceiving (28%). In terms of dominant types, 39% were dominant sensing types, 27% dominant feeling types, 18% dominant intuitive types, and 16% dominant thinking types. In terms of the 16 complete types, the most frequently occurring types were ISFJs (17%) and ISTJs (14%). In terms of the four temperaments, 48% reported Epimethean (SJ), 20% Apollonian (NF), 18% Dionysian (SP), and 14% Promethean (NF).

Table 6 also draws attention to the significant differences between the psychological type profile of the female and male students. In terms of the dichotomous preferences, the most salient difference ($p < .001$) concerns the judging process: while 63% of male students preferred thinking, the proportion fell to 41% of female students; while 37% of male students preferred feeling, the proportion rose to 59% of female students. This finding reflects the well attested sex difference in the judging process (see, for example, Kendall, 1998). There is also a significant difference in the perceiving process ($p < .05$): while 44% of male students preferred intuition, the proportion fell to 34% of female students; while 57% of male students preferred sensing, the proportion rose to 66% of female students. In terms of the 16 complete types, the two most significant findings ($p < .001$) concerned ISFJs and INTJs: while 21% of male students reported INTJ, the proportion fell to 7% of female students; while 6% of male students reported ISFJ the proportion rose to 17% of female students. In terms of dominant types, the two most significant findings ($p < .01$) are these: among female students there is a

higher proportion of dominant sensing types (39% compared with 28%) and among male students there is a higher proportion of dominant intuitive types (33% compared with 18%). In terms of the four temperaments, the two most significant findings ($p < .01$) are these: among female students there is a higher proportion of the Epimethean temperament (48% compared with 37%); among male students there is a higher proportion of the Promethean temperament (31% compared with 14%).

Conclusion

The present study was conducted as the fourth stage of an ongoing project designed to construct and to test a comprehensive adaptation of the FPTS for the Turkish context. The first two stages comprised pilot studies conducted among 130 participants and 259 religious education teachers. The third stage, fully reported by İpek and Güleryüz-Erken (2025), produced and published a satisfactory Turkish adaptation of the FPTS conducted among 441 teachers of religious education. The fourth stage (the present study) builds on and extends the work of İpek and Güleryüz-Erken (2025) in two ways: it tested improvements made to some of the less satisfactory items; it tested the developing instrument among a different constituency of users. Both of these broad objectives were shaped in response to suggestions made by İpek and Güleryüz-Erken (2025). To achieve these broad objectives, the present study identified four specific aims.

The first specific aim was to test the factor structure of the Revised Turkish adaptation of the FPTS. The factor structure was perfectly recovered by varimax rotation, constrained to a four-factor solution without any significant cross loadings among the factors and with only one loading fully below the .30 threshold. This was a clear improvement on the earlier version published by İpek and Güleryüz-Erken (2025). This outcome in similar to that reported on the original English version of the FPTS by Francis and Village (2022).

The second specific aim was to test the scale properties of the Revised Turkish adaptation of the FPTS. The internal consistency reliability of the eight scales was supported by highly satisfactory alpha coefficients (Cronbach, 1951) for the measures of introversion, extraversion, thinking, feeling, judging, and perceiving and by adequate alpha coefficients for the measures of sensing and intuition. Detailed inspection of the correlations between individual items and the sum of the remaining items demonstrate that improvements had been made over the earlier version for each of the eight scales. However, the less satisfactory performance in respect of the perceiving process (sensing and intuition) suggested scope for further improvement.

The third specific aim was to examine the sex differences in the psychological type profiles of male and female students as reported by the Revised Turkish adaptation of the FPTS. This aim was expressed by employing the conventional format of type tables and the Selection Ratio Index developed by McCaulley (1985). This exercise was conducted on the assumption that the weightings developed from the original English version of the FPTS as reported by Francis and Village (2022) held good for the Revised Turkish adaptation. The two type tables for male and female students confirmed some significant differences between the two sexes and offered some clear insights from psychological type theory.

The fourth specific aim was to examine the construct validity of the Revised Turkish adaptation of the FPTS. This is a complex aim to which the present data set can make only a small contribution. One of the best-established findings from empirical studies employing measures of psychological type theory concerns sex differences on preferences in the judging function. For example, the UK norms published for the MBTI by Kendall (1998) show that while 70% of women prefer feeling, the proportion falls to 35% among men. On this criterion, the sex differences recorded on the Revised Turkish adaptation of the FPTS began the process of establishing the construct validity of this measure.

Limitations

As the fourth stage of an ongoing project designed to test a comprehensive adaptation of the FPTS for the Turkish context, further work remains to be undertaken. Specifically, there are three limitations with the present study that can be addressed by further research. The first limitation concerns the operationalisation of the perceiving process (sensing and intuition). In the present study these two scales recorded lower alpha coefficients (α = .66). However, while this is a problem noted specifically in connections with the Revised Turkish adaptation of the FPTS, it is also a problem recognised in the original English language edition of the instrument. For example, in an analysis of four separate data sets Village and Francis (2023) reported the following data for the sensing scale and the intuition scale: among 1,523 Anglican clergy, α = .72; among 291 Baptist clergy, α = .72; among 1,296 churchgoers, α = .69; among 879 churchgoers, α = .73. Further research is still needed in the twin fields of conceptual clarification and scientific operationalisation.

The second limitation is more serious and concerns the assumption on which the type tables were constructed. This assumption was that the weightings developed for the original English language version of the FPTS to assign individuals to the 16 complete types remain valid for the Turkish adaptation. The weightings were developed in studies that employed the FPTS alongside the MBTI. This assumption, however, is highly vulnerable since levels of item endorsement are subject to the precise nuances of language. Further studies are now needed among a sample of people fluent in both Turkish and English to check and possibly to correct these weightings.

The third limitation is one also noted by İpek and Güleryüz-Erken (2025) in their foundation study. At that stage the Turkish adaptation of the FPTS had been tested among only one population (teachers of religious education). The situation now is that the adaptation has been tested among only two populations (teachers of religious education and a sample of

university students heavily weighted to those studying in theology faculties). Further studies are now needed to widen the cultural contexts among which the instrument has been tested.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

The research received no specific grant from any funding agency in the public, commercial, or not-for-profit sector.

Data availability

Data are available from the corresponding author upon reasonable request.

Ethical approval

Ethical approval was granted by Ethics Committee of Republic of Türkiye Ankara Hacı Bayram Veli University.

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Table 1

Demographic characteristics of participants

Characteristic	N	%
Gender		
Female	573	77.1
Male	170	22.9
Education level		
Prep Class	57	7.7
First Year	127	17.1
Second Year	185	24.9
Third Year	178	24.0
Fourth Year	178	24.0
Fifth or Sixth Year	18	2.5
Department		
Theology Faculty Students	461	62.0
Education Faculty Students	198	26.6
Other Faculties (Health, Law, Politics, Engineering)	84	11.4

N = 743

Table 2

Rotated factors (Varimax)

	Component			
	1	2	3	4
Attitude				
Happy with routine – Unhappy with routine	.73			
Structured – Open-ended	.81			
To act on decisions – To act on impulse	.39			
Like to be in control – Like to be adaptable	.72			
Orderly – Easygoing	.62			
Organised – Spontaneous	.74			
Punctual – Leisurely	.63			
Like detailed planning – Dislike detailed planning	.51			
Happier with certainty – Happier with uncertainty	.46			
Systematic – Casual	.70			
Orientation				
Active – Reflective		.67		
Sociable – Private		.74		
Having many friends – A few deep friendships		.68		
Like parties – Dislike parties		.52		
Energised by others – Drained by too many people		.61		
Happier working in groups – Happier working alone		.47		
Socially involved – Socially detached		.74		
Talkative – Reserved		.69		
An extravert – An introvert		.73		
Speak before thinking – Think before speaking		.47		
Judging (evaluating) process				
Concerned for justice – Concerned for harmony			.57	
Analytic – Sympathetic			.61	
Thinking – Feeling			.65	
Tend to be firm – Tend to be gentle			.71	
Critical – Affirming			.48	
Logical – Humane			.75	
Truthful – Tactful			.48	
Sceptical – Trusting			.66	
Seek for truth – Seek for peace			.46	
Fair-minded – Warm–hearted			.66	
Perceiving process				
Interested in theories – Interested in facts				.73
Inspirational – Practical				.48
The abstract– The concrete				.70
Prefer to design – Prefer to make				.36
Inventive – Conventional				.26
Concerned for meaning – Concerned about details				.52
Imaginative – Sensible				.49
Future possibilities – Present realities				.55
Improve things – Keep things as they are				.33
Up in the air – Down to earth				.44

Note: All loadings below .26 have been suppressed for clarity of presentation

N = 743

Table 3

Internal consistency reliability and descriptive statistics for scales

	Means	SD	Alpha	N items
Extraversion	4.43	3.13	.84	10
Introversion	5.56	3.13	.84	10
Sensing	5.21	2.42	.66	10
Intuition	4.79	2.42	.66	10
Thinking	4.41	3.00	.81	10
Feeling	5.59	3.00	.81	10
Judging	5.77	3.16	.85	10
Perceiving	4.23	3.16	.85	10

N = 743

Table 4

Reliability and percentage endorsement

		r	%
Introversion	*(Extraversion)*		
Reflective	(Active)	.58	51
Private	(Sociable)	.65	59
A few deep friendships	(Having many friends)	.57	65
Dislike parties	(Like parties)	.43	64
Drained by too many people	(Energised by others)	.51	51
Happier working alone	(Happier working in groups)	.40	71
Socially detached	(Socially involved)	.65	46
Reserved	(Talkative)	.58	37
An introvert	(An extravert)	.63	57
Think before speaking	(Speak before thinking)	.39	54
Sensing	*(Intuition)*		
Interested in facts	(Interested in theories)	.52	64
Practical	(Inspirational)	.28	59
The concrete	(The abstract)	.47	64
Prefer to make	(Prefer to design)	.22	58
Conventional	(Inventive)	.19	57
Concerned with detail	(Concerned for meaning)	.34	33
Sensible	(Imaginative)	.33	56
Present realities	(Future possibilities)	.38	58
Keep things as they are	(Improve things)	.23	31
Down to earth	(Up in the air)	.30	39
Feeling	*(Thinking)*		
Harmony	(Justice)	.45	65
Sympathetic	(Analytic)	.48	57
Feeling	(Thinking)	.55	53
Gentle	(Firm)	.58	63
Affirming	(Critical)	.38	48
Humane	(Logical)	.64	58
Tactful	(Truthful)	.38	56
Trusting	(Sceptical)	.55	47
Seek for peace	(Seek for truth)	.37	47
Warm-hearted	(Fair-minded)	.55	65
Judging	*(Perceiving)*		
Happy with routine	(Unhappy with routine)	.63	44
Structured	(Open-ended)	.73	57
To act on decisions	(To act on impulse)	.33	74
Like to be in control	(Like to be adaptable)	.62	61
Orderly	(Easy going)	.56	53
Organised	(Spontaneous)	.65	59
Punctual	(Leisurely)	.53	51
Like detailed planning	(Dislike detailed planning)	.42	55
Happier with certainty	(Happier with uncertainty)	.39	64
Systematic	(Casual)	.60	60

Note: *r* = correlation between the individual item and the sum of the other nine items in the scale. Items were paired choices, responses in parentheses were those for the opposite preference to the preference for which statistics are provided in this table. % = percentage endorsement for the item in the first column.

Table 5

Type distribution for male students

The Sixteen Complete Types				Dichotomous Preferences		
ISTJ	ISFJ	INFJ	INTJ	E	*n* = 58	(34.1%)
n = 24	*n* = 10	*n* = 10	*n* = 35	I	*n* = 112	(65.9%)
(14.1%)	(5.9%)	(5.9%)	(20.6%)			
+++++	+++++	+++++	+++++	S	*n* = 96	(56.5%)
+++++	+	+	+++++	N	*n* = 74	(43.5%)
++++			+++++			
			+++++	T	*n* = 107	(62.9%)
			+	F	*n* = 63	(37.1%)
				J	*n* = 113	(66.5%)
				P	*n* = 57	(33.5%)
ISTP	ISFP	INFP	INTP			
n = 9	*n* = 12	*n* = 6	*n* = 6	**Pairs and Temperaments**		
(5.3%)	(7.1%)	(3.5%)	(3.5%)	IJ	*n* = 79	(46.5%)
+++++	+++++	++++	++++	IP	*n* = 33	(19.4%)
	++			EP	*n* = 24	(14.1%)
				EJ	*n* = 34	(20.0%)
				ST	*n* = 54	(31.8%)
				SF	*n* = 42	(24.7%)
				NF	*n* = 21	(12.4%)
ESTP	ESFP	ENFP	ENTP	NT	*n* = 53	(31.2%)
n = 5	*n* = 8	*n* = 3	*n* = 8			
(2.9%)	(4.7%)	(1.8%)	(4.7%)	SJ	*n* = 62	(36.5%)
+++	+++++	++	+++++	SP	*n* = 34	(20.0%)
				NP	*n* = 23	(13.5%)
				NJ	*n* = 51	(30.0%)
				TJ	*n* = 79	(46.5%)
				TP	*n* = 28	(16.5%)
				FP	*n* = 29	(17.1%)
				FJ	*n* = 34	(20.0%)
ESTJ	ESFJ	ENFJ	ENTJ			
n = 16	*n* = 12	*n* = 2	*n* = 4	IN	*n* = 57	(33.5%)
(9.4%)	(7.1%)	(1.2%)	(2.4%)	EN	*n* = 17	(10.0%)
+++++	+++++	+	++	IS	*n* = 55	(32.4%)
++++	++			ES	*n* = 41	(24.1%)
				ET	*n* = 33	(19.4%)
				EF	*n* = 25	(14.7%)
				IF	*n* = 38	(22.4%)
				IT	*n* = 74	(43.5%)

Jungian Types (E)			Jungian Types (I)			Dominant Types		
	n	%		*n*	%		*n*	%
E-TJ	20	11.8	I-TP	15	8.8	Dt.T	35	20.6
E-FJ	14	8.2	I-FP	18	10.6	Dt.F	32	18.8
ES-P	13	7.6	IS-J	34	20.0	Dt.S	47	27.6
EN-P	11	6.5	IN-J	45	26.5	Dt.N	56	32.9

Note: $N = 170$ (NB: + = 1% of N)

Table 6

Type distribution for female students compared with male students

The Sixteen Complete Types			
ISTJ *n* = 81 (14.1%) *I* = 1.00 +++++ +++++ ++++	ISFJ *n* = 99 (17.3%) *I* = 2.94*** +++++ +++++ +++++ ++	INFJ *n* = 37 (6.5%) *I* = 1.10 +++++ ++	INTJ *n* = 38 (6.6%) *I* = 0.32*** +++++ ++
ISTP *n* = 21 (3.7%) *I* = 0.69 ++++	ISFP *n* = 37 (6.5%) *I* = 0.91 +++++ ++	INFP *n* = 17 (3.0%) *I* = 0.84 +++	INTP *n* = 14 (2.4%) *I* = 0.69 ++
ESTP *n* = 14 (2.4%) *I* = 0.83 ++	ESFP *n* = 31 (5.4%) *I* = 1.15 +++++	ENFP *n* = 21 (3.7%) *I* = 2.08 ++++	ENTP *n* = 6 (1.0%) *I* = 0.22** +
ESTJ *n* = 36 (6.3%) *I* = 0.67 +++++ +	ESFJ *n* = 59 (10.3%) *I* = 1.46 +++++ +++++	ENFJ *n* = 39 (6.8%) *I* = 5.79** +++++ ++	ENTJ *n* = 23 (4.0%) *I* = 1.71 ++++

Dichotomous Preferences			
E	*n* = 229	(40.0%)	*I* = 1.17
I	*n* = 344	(60.0%)	*I* = 0.91
S	*n* = 378	(66.0%)	*I* = 1.17*
N	*n* = 195	(34.0%)	*I* = 0.78*
T	*n* = 233	(40.7%)	*I* = 0.65***
F	*n* = 340	(59.3%)	*I* = 1.60***
J	*n* = 412	(71.9%)	*I* = 1.08
P	*n* = 161	(28.1%)	*I* = 0.84
Pairs and Temperaments			
IJ	*n* = 255	(44.5%)	*I* = 0.96
IP	*n* = 89	(15.5%)	*I* = 0.80
EP	*n* = 72	(12.6%)	*I* = 0.89
EJ	*n* = 157	(27.4%)	*I* = 1.37*
ST	*n* = 152	(26.5%)	*I* = 0.84
SF	*n* = 226	(39.4%)	*I* = 1.60***
NF	*n* = 114	(19.9%)	*I* = 1.61*
NT	*n* = 81	(14.1%)	*I* = 0.45***
SJ	*n* = 275	(48.0%)	*I* = 1.32**
SP	*n* = 103	(18.0%)	*I* = 0.90
NP	*n* = 58	(10.1%)	*I* = 0.75
NJ	*n* = 137	(23.9%)	*I* = 0.80
TJ	*n* = 178	(31.1%)	*I* = 0.67***
TP	*n* = 55	(9.6%)	*I* = 0.58*
FP	*n* = 106	(18.5%)	*I* = 1.08
FJ	*n* = 234	(40.8%)	*I* = 2.04***
IN	*n* = 106	(18.5%)	*I* = 0.55***
EN	*n* = 89	(15.5%)	*I* = 1.55
IS	*n* = 238	(41.5%)	*I* = 1.28*
ES	*n* = 140	(24.4%)	*I* = 1.01
ET	*n* = 79	(13.8%)	*I* = 0.71
EF	*n* = 150	(26.2%)	*I* = 1.78**
IF	*n* = 190	(33.2%)	*I* = 1.48**
IT	*n* = 154	(26.9%)	*I* = 0.62***

Jungian Types (E)				Jungian Types (I)				Dominant Types			
	n	%	*Index*		*n*	%	*Index*		*n*	%	*Index*
E-TJ	59	10.3	0.88	I-TP	35	6.1	0.69	Dt.T	94	16.4	0.80
E-FJ	98	17.1	2.08**	I-FP	54	9.4	0.89	Dt.F	152	26.5	1.41*
ES-P	45	7.9	1.03	IS-J	180	31.4	1.57**	Dt.S	225	39.3	1.42**
EN-P	27	4.7	0.73	IN-J	75	13.1	0.49***	Dt.N	102	17.8	0.54***

Note: $N = 573$ (NB: + = 1% of N)
$^{*}p < .05$, $^{**}p < .01$, $^{***}p < .001$