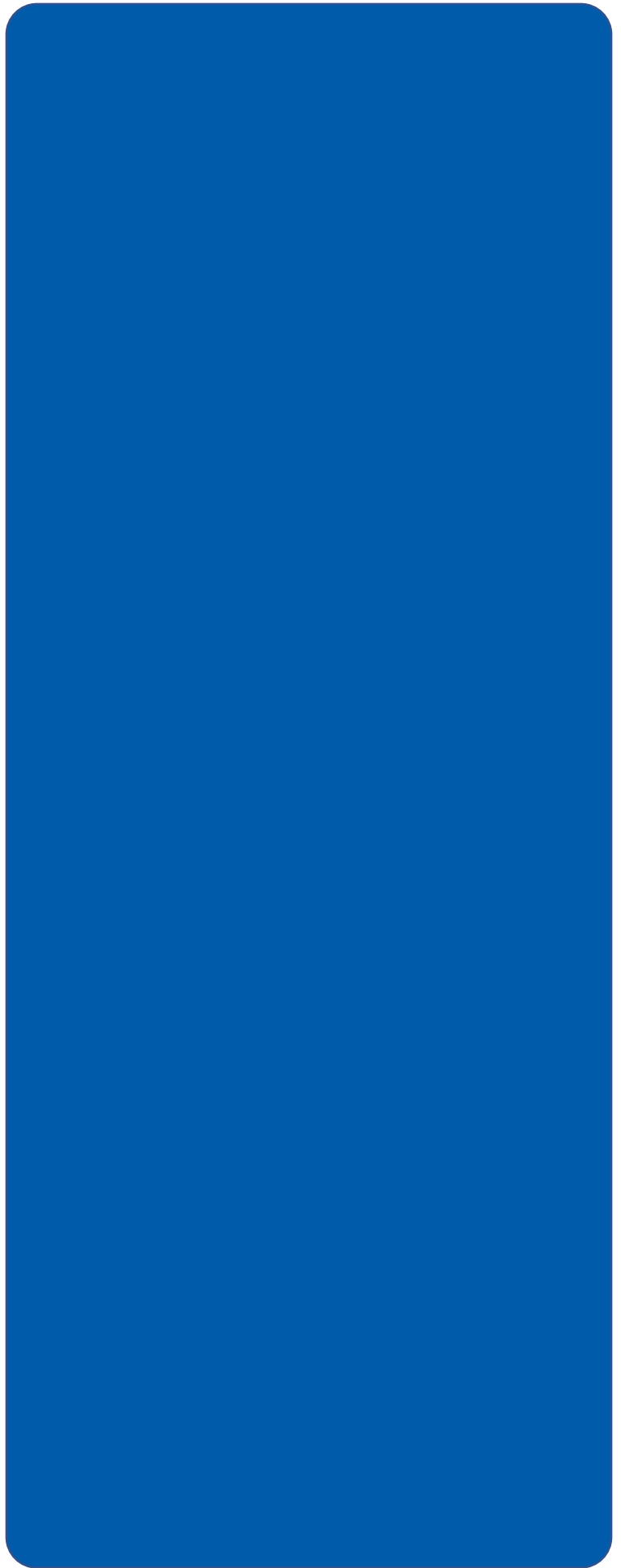




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**EVALUATION OF THE  
TRUE TILT PERSONALITY PROFILE**



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## EXECUTIVE SUMMARY

We evaluated the psychometric properties of the revised version of the True Tilt Personality Profile (TTP). This assessment is a measure based on the Tilt Framework, which describes 12 laudable character strengths. Each person has a natural preference for six of the strengths, and this natural preference is referred to as that person's True Tilt. The natural preference does not change, but the Tilt Framework recognizes that people can and should use different strengths depending on the situation. The TTP measures the stable preference, or True Tilt.

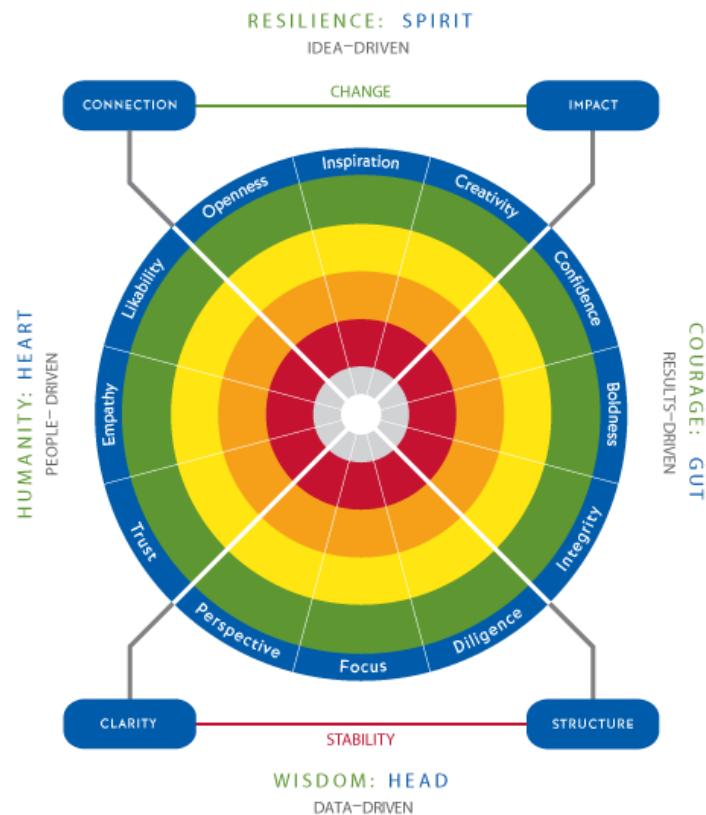
The TTP was evaluated using two different samples – one sample of students (Sample 1) and a larger sample of workers recruited through Amazon's Mechanical Turk (MTurk; Sample 2). In each sample we evaluated the TTP's consistency over time by comparing results from two different online administrations. Participants were not shown their results to preclude any bias in their responses during time two. We found that 73% of people in Sample 1 and 68% of people in Sample 2 had the same True Tilt at both time points. Only 3-4% of each sample was categorized as the opposite Tilt. Additionally, the average consistency of each of the forced-choice items was about 78% in each sample, and no single item had low consistency to warrant replacement or revision. Collectively, this is evidence for the TTP's consistency over time.

We found evidence for construct validity in both samples. In Sample 1, True Tilt had a statistically significant relationship with participant-endorsed thinking preference, feeling preference, and Tilt description. In Sample 2, convergent validity evidence was assessed using preference items and established personality scales. All of the Tilts, except Clarity, endorsed their respective preference items more strongly than the other Tilts. The lack of clear preference in Clarity is a direction that should be investigated further. The relationship between three of the Big Five personality factors and Tilt provided additional convergent validity evidence. Tilts with a preference for strengths in the wisdom quadrant scored higher in conscientiousness, Tilts with a preference for humanity strengths scored higher in agreeableness, and Tilts that endorse the strengths resilience quadrant had higher openness to experience.

In addition, discriminant validity evidence was established by examining the relationship between Tilt and two well-being constructs: life satisfaction and flourishing. No True Tilt is inherently superior because with self-awareness and conscious effort people are able to use all 12 strengths in the Tilt Framework. Thus, no Tilt should be related to inherently positive outcomes. Indeed, we found no significant relationship between Tilt and either life satisfaction ( $F(3, 536) = 0.92, p = .42$ ) or flourishing ( $F(3, 536) = 1.89, p = .13$ ).

## THE TILT FRAMEWORK & THE TRUE TILT PERSONALITY PROFILE

The Tilt Model draws on research in character science to provide a wholistic framework of 12 core character strengths. It describes both people’s natural strengths and the degree to which they can balance all 12 strengths in a given situation. Natural preference and balance are ascertained with two different assessments, The True Tilt Personality Profile (TTP) and Positive Influence Predictor, respectively. This report focuses on the assessment of natural preference using the TTP. This preference should not be conceptualized as a “type” that defines a person. Rather, it is an indication of a natural personality preference for utilizing a certain set of character strengths. However, people can (and should) develop all 12 character strengths so that they can use the strengths which are most appropriate for any situation.



### Thinking and Feeling Preferences: The Four Quadrants

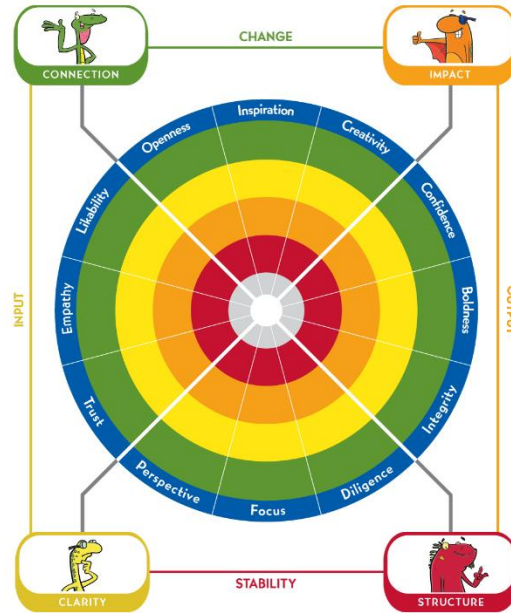
Each person has a natural thinking preference and a natural feeling preference. The combination of a thinking and a feeling preference is a person’s True Tilt or preference for using certain subset of the 12 core Character Strengths. The two thinking preferences are resilience and wisdom, which are depicted on the vertical axis of the model. People who naturally favor the character strengths in the resilience quadrant are driven by creating novel ideas and focus on the big picture. People with a preference for the strengths in the wisdom quadrant are data-driven and focus on precise details.

The two feeling preferences are humanity and courage, which are depicted on the horizontal axis of the model. Individuals with a preference for the character strengths in the humanity

quadrant are people-driven. They seek to maintain harmony and please others. People with the preference for the character strengths in the courage quadrant are results-driven and are willing to push through people to ensure that tasks are completed.

### The Four True Tilts

The four True Tilts are shown on the corners of the model. A Connection Tilt is a combination of a preference for resilience and humanity. These people are called “Cross Pollinators” because they have ideas that they love sharing with others. The combination of resilience and courage is an Impact Tilt. These “Change Catalysts” actively seek to push their creative ideas into actionable results. A Structure Tilt is referred to as the “Master Mind,” and it is made up of courage and wisdom. People with this Tilt focus on efficient execution. A combination of wisdom and humanity preferences is a Clarity Tilt. The “Quiet Genius” is grounded analysis of the data and values maintaining supportive, harmonious relationships with other people.



### The True Tilt Personality Profile

The TTP is an assessment that is used to ascertain a person’s True Tilt. It is comprised of 18 forced-choice items and four rank order items. It is typically completed in less than ten minutes. The result of the assessment is categorization into one of the True Tilts. The TTP was recently updated by two subject matter experts in the Tilt Framework. The method of ranking ordering was modified, and many of the forced-choice items were altered to be more consistent with the Tilt Framework. This new version was evaluated with two different samples.

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## DATA COLLECTION AND PROCEDURE

### SAMPLE 1 - STUDENTS

The revised TTP was initially evaluated using data gathered from students in a large university. Students completed measures at two different time points. Participants were randomly assigned to complete either the previous or new version of the TTP (see *the content validity evidence section for summary of revisions*). Randomization was executed through the Qualtrics platform such that each participant had a higher probability of being assigned to complete the new version of the TTP ( $\frac{2}{3}$ ) than the old version of the TTP ( $\frac{1}{3}$ ). The new TTP has already been implemented, so only the validity of the new version was assessed, but some participants were given the old version to allow for a direct comparison of consistency. Thus, more people were assigned to the new version to maximize the sample size for the validity analyses.

At the first time point (T1) participants completed demographic information, the TTP (new or old), items to measure careless responding, and several validation questions. They were not given their results on the TTP so that their second administration would not be biased by that knowledge. Participants were emailed exactly 28 days after completing T1 with the information necessary to complete Time 2 (T2). The average amount of time between participants completing T1 and T2 was 32.3 days. At T2 participants completed the same version of the TTP as T1.

#### Sample Characteristics

The sample for at T1 included 399 students, but 113 were removed for careless responding. Careless responding was assessed using: Mahalanobis Distance, an Instructed Response item, Psychometric Synonyms, Even-Odd Consistency, and the infrequency and inconsistency scales from the Attentive Responding Scale (ARS; Maniaci & Rogge, 2014). Instructed response items and the two ARS scales are designed with cut scores, but the other indices are continuous. We established cut scores of more than two standard deviations from the mean for the continuous indicators (see Francavilla, Meade, & Young, 2018; for more information on detecting careless responding see Curran, 2016; Meade & Craig, 2012). A subset of the sample who completed the new version of the TTP and were not flagged for careless responding (193 participants) was used for the validity analyses. Seventy-three percent of the original participants completed T2. Of those returning, 84 were removed for careless responding. Analyses regarding consistency of True Tilts over time were conducted using the 209 responses who completed both time points and were not removed for careless responding.

Fifty-six percent of the T1 sample of 286 students who did not respond carelessly were female. The mean age of the participants was 19.27 years old ( $SD = 2.94$ ). Approximately 80% of the sample identified as White, 5% as Black or African American, 8% as Asian or Asian American, 4% Mixed, and 3% as other races. Five percent of the sample identified as Hispanic or Latino. Fifty-two percent of the sample were freshmen, 26% were sophomores, 13% were juniors, 8% were seniors, and 1% were non-degree seeking students. Thirty percent of respondents indicated that they were employed. Most of the participants at T1

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were categorized as either a Clarity (39%) or Connection (36%) True Tilt. Only 10% of the sample were Impact, and only 15% were Structure.

## **SAMPLE 2 - MTURK**

Following preliminary analyses for the student sample, a larger sample was collected using Amazon's Mechanical Turk (MTurk). MTurk workers completed the new TTP at two different time points, but it was presented on the Tilt 365 platform. These participants completed the TTP, preference items, personality items, and well-being items at T1. They were not shown their results so that they could not bias their responses at T2. Participants were notified via MTurk after 2 weeks that the T2 was available. The average time between T1 and T2 was 14.6 days.

### **Sample Characteristics**

Seven hundred twenty-two MTurk workers completed the first time point. Of these, 182 were removed for careless responding. In this sample careless responding was assessed using: an Instructed Response item, Psychometric Synonyms (with two standard deviation cut off), response time, and two self-report items asking participants how much effort they put into responding and whether their data should be used (Meade & Craig, 2012). This sample of 540 workers was used for the validity analyses. Seventy-five percent of the original participants completed T2. Of those returning, 147 were removed for careless responding. Consistency analyses used the sample of 391 workers who completed T1 and T2 and were not flagged for careless responding.

Sixty-five percent of the T1 sample of 540 workers was female. The average age of the participants was 36.82 years old ( $SD = 11.46$ ). Approximately 76% of the sample identified as White, 11% as Black or African American, 8% as Asian or Asian American, 4% multiracial, and 1% as other races. Ten percent of the sample identified as Hispanic or Latino. Seventy-five percent of respondents indicated that they were employed full-time, 18% were employed part-time, 6% were unemployed, and 1% were retired. Most of the participants at T1 were categorized as a Clarity (50%) True Tilt. Ten percent of the sample were Impact, 23% were Connection, and 17% were Structure.

## CONSISTENCY OVER TIME

The Tilt framework asserts that a person's True Tilt is a natural preference that should, barring very extreme life events, stay the same over time. Thus, results should be consistent over time in order to have meaningful implications. The TTP is a forced-choice ipsative measure, so a typical assessment of test-retest reliability (e.g. correlation of scores at two time points) is inappropriate.<sup>1</sup> Because the result of the assessment is categorization of the respondent into a True Tilt, we examined the consistency of this categorization.

Additionally, the True Tilts are related. Each Tilt has two adjacent Tilts with which it shares either a thinking or feeling preference. For example, Structure and Clarity both share the wisdom thinking preference. Each Tilt also has an opposite with which it differs in both thinking and feeling preferences. Because adjacent Tilts share a quadrant in the model, changing to an adjacent Tilt should be more likely than a more drastic change to the opposite Tilt. This pattern held for both samples.

### SAMPLE 1

The student sample completed two different versions of the TTP, so consistency was assessed separately. There was no statistically significant difference between the consistency of the old and new versions ( $\chi^2 = 0.02$ ,  $p = 1.00$ ;  $p$ -value simulated based on 2000 replicates). This shows that the current version of the TTP is just as consistent as the previous version.

#### Consistency of Sample 1

	New TTP	Old TTP
Frequency Same	103	49
Total N	141	68
Percent Same	73%	72%
Percent Adjacent	24%	25%
Percent Opposite	3%	3%

In addition to consistency of the True Tilt, we also examine the consistency of the responses to each item. The average consistency at the item level was 78.05% for the new version and 78.76% for the old version.

### SAMPLE 2

The MTurk sample only completed the new version of the TTP, so consistency analyses were not divided. The proportion of participants categorized as the same True Tilt in this sample (68%) is not significantly different than the proportion of people who received the sample

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<sup>1</sup> This assessment of consistency is similar to test-retest reliability, but it cannot technically be considered reliability as described by classical test theory because the TTP is a forced-choice ipsative measure. For more information on psychometric implications of ipsative measures, see Meade (2004).



True Tilt in Sample 1 (73%;  $\chi^2 = 1.12, p = .29$ ). Thus, both samples yielded approximately equal consistency for the new TTP. In addition, the average consistency at the item-level for Sample 2 was 78.10%.

### Consistency of Sample 2

	New TTP
Frequency Same	265
Total N	391
Percent Same	68%
Percent Adjacent	28%
Percent Opposite	4%

## VALIDITY EVIDENCE

Validity refers to the degree of evidence that supports an assessment’s appropriateness for drawing certain inferences. Validity is not an inherent property of an assessment. Rather, an assessment can be valid for one purpose and not for another. In addition, validity is not all or nothing; it is a continuum. Thus, an assessment can never be called a “valid assessment,” but researchers can provide evidence that it is valid for a given purpose. Therefore, we examine different types of evidence showing the degree to which the TTP is a valid measure of personality patterns. There are different ways to provide validity evidence, and the appropriate type depends on the intended use of the assessment. There are three basic types of validity evidence: content validity, construct validity, and criterion-related validity.

Criterion-related validity is the degree to which a measured construct is correlated with theoretically related outcomes. The purpose of the TTP is to provide information to increase awareness of one’s patterns, preferences, and motives. Behaviors in specific situations are determined by balance on the 12 character strengths (measured by the Tilt 365 Positive Influence Predictor), not the natural preferences described by a True Tilt. Thus, a focus on outcomes (i.e. criterion-related validity) is not as consistent with the purpose of the TTP as the other two types of validity evidence. Therefore, we focused this evaluation on content and construct validity evidence.

### CONTENT VALIDITY EVIDENCE

Content validity is the degree to which an assessment represents the construct being measured. A construct is defined as “a hypothesis about which behaviors will reliably covary” (Binning & Barrett, 1989, p. 479), and it is not something that can be measured directly (i.e., length can be measured directly with a ruler, but there is no physical measure of personality). A True Tilt indicates a preference for using the strengths in one thinking quadrant and one feeling quadrant, so content validity evidence for the TTP would show that the TTP representatively samples from each character strength in the model. The assessment is designed so that each quadrant is represented by the same number of items.

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The purpose of revising the assessment was to improve its content validity. The revisions were completed by two subject matter experts (SMEs) in the Tilt Framework. The SMEs reviewed the items in the previous version of the TTP both to determine their relevance to their respective character strength and the appropriateness of item pairings. The SMEs came to a consensus on how essential each item was to the definition of the relevant character strength<sup>2</sup>. Items that were not essential to the character strength they represented were either moved to a more appropriate strength or removed from the assessment.

Finally, item pairs were revised. Item pairs are not intended to be “opposites” because both are commendable character traits when balanced. Pairs are intended to represent a trait that will be negatively affected by overuse or underuse of the paired trait. For example, being grounded and idealistic are both valuable and lead to positive outcomes but becoming too idealistic limits how grounded you can be. Additionally, becoming overly grounded limits the degree to which a person can be idealistic. Item pairs that did not reflect this relationship were altered.

## **CONSTRUCT VALIDITY EVIDENCE**

Construct validity is the degree to which the assessment measures the construct it claims to measure. This type of validity can be broken down into convergent and discriminant validity. Convergent validity evidence is established by showing that the assessment is highly related to different assessments of the same construct or significantly related to similar constructs. Discriminant validity evidence is established by showing that the assessment is not the same as or redundant to theoretically different constructs.

### **Sample 1 – Convergent Validity Evidence**

Convergent validity was evaluated by assessing the relationship between the True Tilt indicated by the TTP and several “validity items” that asked respondents to indicate their thinking preference, feeling preference, and a general description of themselves. The full text of each item is available in Appendix A.

Only the 193 respondents who were not removed for careless responding and completed the new version of the assessment were included in validity analyses. Only respondents who completed the new TTP were included because validity evidence for the currently implemented version of the assessment is of interest, and the results from the new and old version cannot be combined because they are different assessments. We examined both the percent of people who indicated the response consistent with their indicated True Tilt and whether the proportion of people who chose the response consistent with their True Tilt was higher than the proportion expected by chance. We tested the latter using a two-sample test for equality of proportions with continuity correction. The thinking and feeling items had

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<sup>2</sup> The commonly used method of collecting individual ratings of how essential each item is and computing Lawshe’s (1975) content validity ratio was not used because both SMEs are familiar with psychometric evaluation and knew that only items rated as “essential” would be scored in the calculation. This knowledge would have skewed the results. Thus, a more direct consensus was used to determine whether the item was essential.

two response options, so the number expected by chance is 50% or 97 out of the 193 respondents. The general description item had four response options, so the expected proportion was 25% or 49 out of 193 respondents.

### Sample 1 Construct Validity Evidence

Item	Percent "Correct"	$\chi^2$ For Equality of Proportions	p-value
Feeling Preference	65%	8.33	.004
Thinking Preference	62%	4.64	.03
General Description	44%	13.26	<.001

The results above indicate that although the percent of responses that are consistent with the individual's True Tilt are slightly less than could be desired, the match between feeling preference, thinking preference, and general description items are significantly higher than would be expected by chance. This indicates evidence of construct validity for the TTP.

### Sample 2 – Convergent Validity Evidence

Convergent validity was evaluated by examining the relationship between True Tilt and responses to both preference scales and personality scales. Rather than simply selecting a preference, as was done in the validity items in Sample 1, participants were asked to rate two items per Tilt describing general behaviors and stress reactions (see Appendix B) on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). The sum of these two items for each Tilt acted as an indicator of the degree to which participants identified with each Tilt. Thus, the relationship between these preference sums and True Tilt can act as a direct assessment of whether the TTP measures what it is intended to measure. We expected participants categorized in a certain True Tilt to have a higher preference sum for that True Tilt than participants categorized as another Tilt. For example, we would expect participants categorized as Structure to have a higher sum for the two Structure preferences items, on average, than the Structure sum of participants categorized as one of the other three Tilts. We assessed these relationships using four two-sample t-tests, one for each of the four preference sums.

### Sample 2 Preference Sums

True Tilt	t	DF	Structure	Preference Sums		
				Connection	Impact	Clarity
Structure	4.29***	125.24	11.02	9.56	10.67	9.84
Connection	3.67***	210.81	8.75	9.71	9.27	8.76
Impact	5.80***	70.22	7.55	9.43	10.44	8.07
Clarity	0.88	536.69	9.64	9.21	9.43	9.56

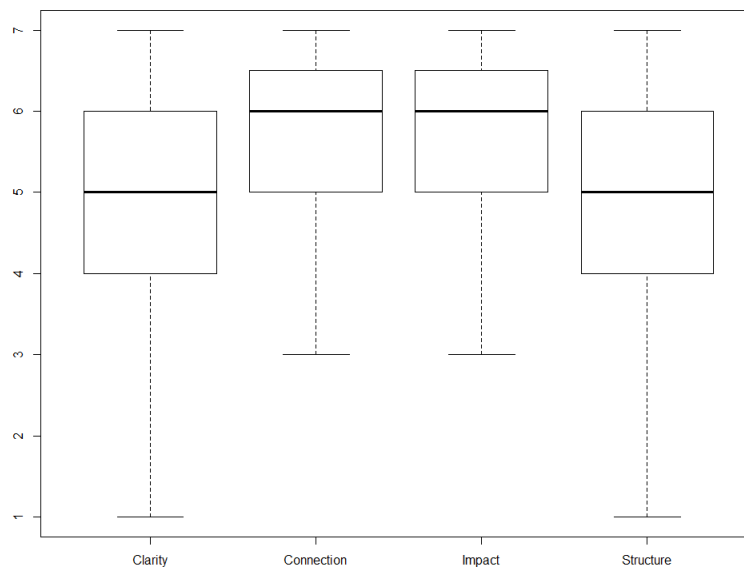
The results supported the relationship between the Structure, Connection, and Impact Tilts and their respective sums, compared to the average sum of the other three Tilts. However, the preference sum for the Clarity Tilt was not significantly higher than the preference sum for the other three Tilts. Inspection of the average preference sums for participants with a Clarity True Tilt reveals that there is very little variance. The range for all three other True

Tilts is larger, but participants with a Clarity Tilt seemed to equally endorse all 8 preference items. This result could reflect a characteristic of people with a Clarity True Tilt, a characteristic of the TTP, or the wording used in the Clarity preference items. People with a Clarity True Tilt could be more flexible, less self-aware, or less likely to choose the most extreme response option. The TTP could be more effective categorizing the other Tilts, or people who have fewer clear preferences could be more likely to be categorized as Clarity. A large portion of this sample was characterized as Clarity ( $N=271$  as compared to 126 Connection, 89 Structure and 54 Impact), which could reflect either people with more ambiguous responses accounting for the higher number of Clarity Tilts or a bias in people who are likely to successfully complete a survey on MTurk. Thus, although the majority of True Tilts provided evidence for convergent validity, the inconsistencies with the Clarity Tilt warrant further investigation.

In addition to asking direct preferences, participants also responded to the Ten Item Personality Inventory (Gosling, Rentfrow, & Swann, 2003), which measure the Big-Five personality traits: openness to experience, conscientiousness, extraversion, agreeableness, and emotional stability. Openness, conscientiousness, and agreeableness are all reflected in one of the quadrants of the Tilt Framework.

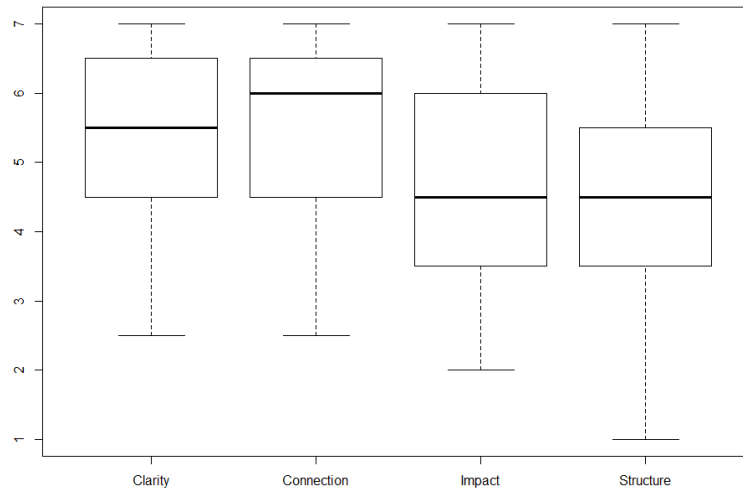
Openness is one of the strengths in the Resilience quadrant, so we would expect the two Tilts containing that quadrant (Connection and Impact) would be higher in openness to experience than the other two Tilts. We found that people with a Connection and Impact Tilt did indeed score higher on openness to experience ( $t(439.92) = 9.44, p < .001$ ).

### Openness to Experience by Tilt



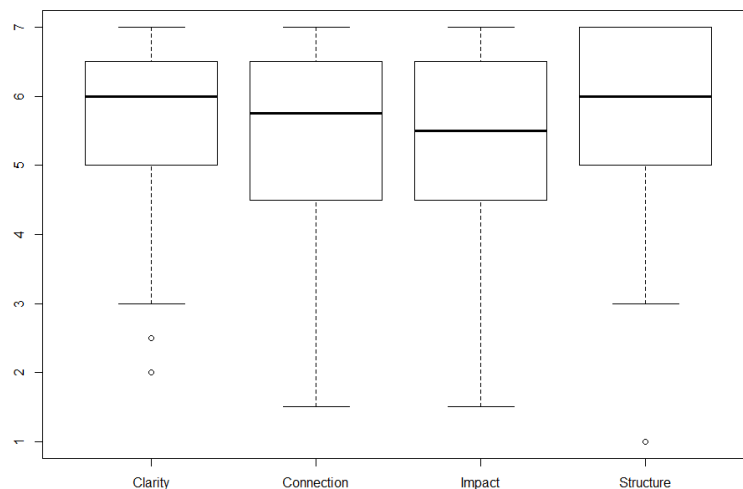
Agreeableness is a result of the strengths in the Humanity quadrant. Therefore, individuals categorized as the Connection and Clarity True Tilts should have scored higher on agreeableness than individuals with Structure and Impact True Tilts. We found exactly this pattern ( $t(211.99) = 7.42, p < .001$ ).

### Agreeableness by Tilt



Conscientiousness is reflected in the strengths of the Wisdom quadrant. Thus, we expected individuals with the Structure and Clarity True Tilts to have higher levels of conscientiousness than those with the Connection and Impact True Tilts, which is what we found ( $t(303.76) = 3.59, p < .001$ ).

### Conscientiousness by Tilt



### Sample 2 – Discriminant Validity Evidence

Discriminant validity was evaluated by examining the relationship between True Tilt and responses to several scales that reflect well-being. Because no True Tilt is superior to any other, there should be no relationship between True Tilt and inherently positive outcomes

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such as life satisfaction or flourishing. These constructs were measured with the Satisfaction with Life Scale (Diener et al., 1985) and Flourishing Scale (Diener et al., 2010). Consistent with our hypothesis, two ANOVAs with True Tilt as the predictor and life satisfaction ( $F(3, 536) = 0.92, p = .42$ ) and flourishing ( $F(3, 536) = 1.89, p = .13$ ) as the outcomes showed no relationship between True Tilt and either well-being measure. This provides evidence for discriminant validity.

## **CONCLUSIONS**

The present study provided evidence of the psychometric properties of the True Tilt Personality Profile using two samples of participants. Examination of consistency over time, which is theoretically similar to test-retest reliability, showed that 73% of participants in Sample 1 and 68% of participants in Sample 2 were categorized as the same tilt at two time points. We also found validity evidence for the TTP. The revised version was adapted by SMEs to maximize content validity. We found evidence for construct validity in both samples. In Sample 1, participants were significantly more likely to endorse validity items consistent with their Tilt, which provided evidence for convergent validity. In Sample 2 three of the four Tilts were related to their respective preference sums. In addition, the Tilts related to the personality traits (openness to experience, agreeableness, and conscientiousness) consistently with the Tilt Framework, which provides evidence for convergent validity. Finally, discriminant validity evidence was demonstrated as the Tilts were unrelated to the theoretically distinct constructs of life satisfaction and flourishing. Overall, the TTP appears to be a relatively stable measure that reflects the Tilt Framework.

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## **APPENDIX A: SAMPLE 1 VALIDITY ITEMS**

### **Thinking Preference Item:**

Do you prefer to focus on big ideas or do you prefer to focus on details?

- Big ideas
- Details

### **Feeling Preference Item:**

Do you prefer to focus communicating with people or do you prefer to push work forward to get results?

- People
- Results

### **General Description Item:**

Which of the following is most descriptive of how you act most of the time?

- Cheerful & optimistic (Connection)
- Strong-willed & action-oriented (Impact)
- Patient & respectful (Clarity)
- Forceful & protective (Structure)



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## APPENDIX B: SAMPLE 2 PREFERENCE ITEMS

Items were rated on a 7-point agreement scale from *strongly disagree* to *strongly agree*.

### Structure Items:

- You know how to focus and efficiently execute work that requires complex reasoning. You are demotivated by people who waste your time or change their mind without good reasons.
- You become obsessive and take control. You do all of the work yourself because no one can do it as well as you.

### Impact Items:

- You are comfortable with risk, uncertainty and ambiguity and like driving novel ideas into action quickly. You are demotivated by people who are skeptical of your ideas or try to slow you down.
- You become impulsive and follow your gut. You move the plan forward because if you have to wait for everyone else to check every detail nothing will get done.

### Connection Items:

- You have a natural intuition for reading other people and enjoy spreading original ideas. You are demotivated by people who are judgmental, critical, or overly rules-based.
- You become indecisive and feel overwhelmed. You have too many ideas in motion, too many people need you, and you can't do it all.

### Clarity Items:

- You enjoy collecting, interpreting and analyzing facts, data or information that can ultimately affect people. You are demotivated by people who are rude, dismissive, or impulsive.
- You become resistant and withdraw. People are moving too quickly and ignoring all of the potential problems, and you need them to slow down.