



Results from the 2017-18 Torrance® Tests of Creative Thinking

Executive Summary

During the 2017-18 academic year, 113 students at Washburn University participated in the Torrance® Tests of Creative Thinking (TTCT)®.¹ The TTCT measures Figural and Verbal creativity by asking examinees to draw and give titles to their drawings (the figural component) and to write questions, reasons, consequences, and different uses for objects (the verbal component). The scoring includes national norms with standard scores and national percentiles by grade/level and age. The results for the TTCT Figural and Verbal, the Creativity Index, and the overall results by grade (Grade 13) were:

TTCT Figural Results

- Average standard scores ranged from 60 to 128 with a mean of 93.6 (*sd* = 12.9).
- Washburn students scored better than 36.4% of the students tested nation-wide.

TTCT Verbal Results

- Average standard scores ranged from 68 to 143 with a mean of 102.7 (*sd* = 18.0).
- Washburn students scored better than 52.5% of the students tested nation-wide.

Creativity Index Results

- Average standard scores on the ranged from 69 to 141 with a mean of 103.1 (*sd* = 14.5).
- Washburn students scored better than 32.2% of students tested nation-wide.

When independent samples *t*-tests and simple linear regression were used, it was found that Gender, Race/Ethnicity, Residency, Student Level Classification, Age, and GPA were not statistically significant in differences at the $p = .05$ level on the Creativity Index. First Generation and Program were found to be statistically significant on the Creativity Index in that First Generation students scored higher than non-first generation students, and Nursing students scored lower than students in other programs.

Overall Results

When comparing AY 2015 vs AY 2018 Washburn students on the same seven measures selected from the TTCT Figural and Verbal, six of the seven measures presented statistically significant differences; the AY 2015 Washburn students scored higher. The measure for which there were no statistically significant differences was TTCT Figural Local Percentile (Grade Based).

Average standard scores and mean nation percentiles associated with the TTCT Figural, TTCT Verbal, and Creativity Index indicated that the 113 Washburn students that participated in the TTCT assessments during 2017-18 had higher standard scores than would statistically be expected and performed better compared to other students tested nation-wide.

¹ Torrance, E. Paul, 1915-2003. (1966). Torrance tests of creative thinking. Princeton, N.J.: Personnel Press.

Introduction

The Torrance Tests of Creative Thinking (TTCT)[®] measures Figural and Verbal creativity by asking examinees to draw and give titles to their drawings (the figural component) and to write questions, reasons, consequences, and different uses for objects (the verbal component). For the Figural: Thinking Creatively with Pictures, students have 30 minutes to complete three picture-based exercises that assess fluency, elaboration, originality, resistance to premature closure, and abstractness of titles. Students taking the Verbal: Thinking Creatively with Words are given 45 minutes to take six word-based exercises to assess three mental characteristics: fluency, flexibility, and originality.

The TTCT assessments determine how proficient Washburn University (Washburn) seniors are in the University Student Learning Outcome (USLO) of Critical and Creative Thinking (CCT). The results are used for student assessment evidence for university accreditation and reviewed by faculty to determine if additional emphasis on critical and creative thinking should be incorporated into curriculum.

During the 2017-18 academic year (AY), Washburn students designated as seniors were recruited to register for the assessments using an online survey via Qualtrics. Seniors selected a date and time to participate in the TTCT assessments in the Fall (October and November 2017) or the Spring (February and March 2018). The hard-copy test booklets were administered in Morgan Hall Room 053. Seniors were given a \$5 Starbucks e-gift certificate for completing the assessments.

Participation

There were 112 Washburn students who completed in the TTCT Figural Streamlined Form A and 113 who completed the TTCT Verbal Form A. More students participated in the Spring 2018 administration ($n = 68, 60.2\%$) than the Fall 2017 administration ($n = 45, 39.8\%$).

Demographic Information

Of the 112 Washburn students who participated in both the TTCT Figural and Verbal assessments, 73.2% were female and 26.8% were male. In reference to federal reporting race/ethnicity categories, 64.3% were White, 6.3% were Hispanic/Latino, 2.7% were Black or African American, 1.8% were mixed race/ethnicity, 0.9% were Asian, and 0.9% were American Indian; 17.0% were unknown or unreported race/ethnicity, and 6.3% were nonresident alien. The average age of students on the day they completed the assessments was 24.9. First generation to college students comprised 23.2% of this population. The majority of students were Kansas residents (91.1%).

During the semester they took the TTCT assessments (Fall 2017 or Spring 2018), most students were classified as Seniors (87.5%), while others were Post-Baccalaureate (9.8%) and Junior (2.7%) classifications. The average GPA for their classification was 3.34; all were in good academic standing (100%). More than half of the students were in the Nursing program (53.6%), while Social Work (10.7%), Marketing (5.4%), Management (3.6%), Accounting (3.6%), Ceramics and Sculpture (2.7%), and International Business (2.7%) majors comprised the largest percentages of the remaining students.

TTCT Figural Results

The TTCT Figural consists of three picture-based exercises that assess five indicators of creativity:

1. Fluency - based upon the total number of relevant responses;
2. Originality - based upon the statistical infrequency and unusualness of the response;
3. Abstractness of Title - related to synthesizing and organizing processes of thinking;
4. Elaboration - based on the minimum primary response to the stimulus figure is a single response, and the imagination and exposition of detail is a function of creative ability;
5. Resistance to Premature Closure - ability to keep open/delay closure long enough to make the mental leap that makes possible original ideas.

Each of these five dimensions of creativity are assessed by the TTCT Figural and are given standard scores. The standard scores are averaged and normalized, reported on a scale with a mean of 100 and a standard deviation of 20. In addition, percentile ranks are provided to compare results with the results of others in the same grade level from a nation-wide sample of test takers.

The Washburn TTCT Figural average standard scores based on grade (Grade 13) ranged from 60 to 128 with a mean (\bar{x}) of 93.6 and a standard deviation (sd) of 12.9. About a third of Washburn students scored in the 90-99 range ($n = 34$, 30.4%). The indicator Originality had 2 scores above 150 (1.8%); however, the indicator Closure yielded the highest mean score at 102.9 ($sd = 16.6$). Washburn students scored the lowest on the indicator Elaboration ($\bar{x} = 67.8$, $sd = 11.7$) with the majority of scores at the 50-59 score interval ($n = 42$, 37.5%). See Table 1 below for the Grade Based Standard Score Summary that shows the percentage of the 112 Washburn students tested scoring within 10-point score intervals for the five indicators of creativity, and the average standard score.

Table 1. Grade Based Standard Score Summary for TTCT Figural 2017-18

Score Intervals	Group Summary Statistics for Score Intervals					
	Fluency	Originality	Titles	Elaboration	Closure	Average
150 +	0 (0.0%)	2 (1.8%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
140-149	4 (3.6%)	2 (1.8%)	0 (0.0%)	0 (0.0%)	1 (0.9%)	0 (0.0%)
130-139	4 (3.6%)	5 (4.5%)	4 (3.6%)	0 (0.0%)	5 (4.5%)	0 (0.0%)
120-129	7 (6.3%)	6 (5.4%)	17 (15.2%)	0 (0.0%)	12 (10.7%)	2 (1.8%)
110-119	18 (16.1%)	16 (14.3%)	12 (10.7%)	1 (0.9%)	21 (18.8%)	12 (10.7%)
100-109	11 (9.8%)	22 (19.6%)	32 (28.6%)	1 (0.9%)	32 (28.6%)	22 (19.6%)
90-99	24 (21.4%)	25 (22.3%)	20 (17.9%)	1 (0.9%)	20 (17.9%)	34 (30.4%)
80-89	23 (20.5%)	12 (10.7%)	12 (10.7%)	20 (17.9%)	10 (8.9%)	24 (21.4%)
70-79	11 (9.8%)	13 (11.6%)	12 (10.7%)	18 (16.1%)	9 (8.0%)	15 (13.4%)
60-69	9 (8.0%)	9 (8.0%)	3 (2.7%)	29 (25.9%)	1 (0.9%)	3 (2.7%)

Table 1. Grade Based Standard Score Summary for TTCT Figural 2017-18 (continued)

50-59	1 (0.9%)	1 (0.9%)	0 (0.0%)	42 (37.5%)	1 (0.9%)	0 (0.0%)
< 50	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
<i>m</i>	97.2	98.2	101.7	67.8	102.9	93.6
<i>sd</i>	19.8	20.3	17.0	11.7	16.6	12.9

The percentile ranks ranged from the 1st to 98th percentile with a mean of 36.4 (*sd* = 26.6). These results indicate that on average, Washburn students scored better on the TTCT Figural than 36.4% of the students assessed nation-wide in the same grade (Grade 13). In relation to their ages, percentile ranks ranged from 1st to 99th with a mean of 36.0 (*sd* = 26.9), again indicating on average Washburn students scored better on this assessment than 36.0% of students assessed nation-wide of the same age.

TTCT Verbal Results

The TTCT Verbal provides three separate norm-referenced assessments of creativity including:

1. Fluency - ability to produce a large number of ideas with words; each task attempting to tap into a different ability or mental process;
2. Flexibility - ability to produce a variety of ideas, shift from one approach to another, or use a variety of strategies;
3. Originality - ability to produce ideas well beyond the obvious, commonplace, banal, or established.

These assessments generated scores that were converted to standard scores to allow the computation of an average which serves as a single composite for the TTCT Verbal assessment. Again, the standard scores are normalized, reported on a scale with a mean of 100, and a standard deviation of 20. Percentile ranks are provided to compare results with the results of others in the same grade level from a nation-wide sample of test takers.

Table 2, Grade Based Standard Score Summary for TTCT Verbal 2017-18, on the following pages shows the percentage of the 113 Washburn students tested scoring within 10-point score intervals for the three norm-referenced verbal assessments and the average standard score. The TTCT Verbal average standard scores based on grade (Grade 13) from Washburn students ranged from 68 to 143 with a mean of 102.7 (*sd* = 18.0). The highest mean of the assessments was Fluency with a mean of 104.8 (*sd* = 19.2); the lowest score was for Flexibility (*m* = 100.6, *sd* = 16.1). Originality was scored in between Fluency and Flexibility with a mean of 102.7 (*sd* = 20.4).

Table 2. Grade Based Standard Score Summary for TTCT Verbal 2017-18

Score Intervals	Group Summary Statistics for Score Intervals			
	Fluency	Flexibility	Originality	Average
150 +	0 (0.0%)	0 (0.0%)	8 (7.1%)	0 (0.0%)
140-149	6 (35.3%)	3 (2.7%)	8 (7.1%)	4 (3.5%)

Table 2. Grade Based Standard Score Summary for TTCT Verbal 2017-18 (continued)

130-139	15 (13.3%)	5 (4.4%)	9 (8.0%)	9 (8.0%)
120-129	3 (2.7%)	4 (3.5%)	1 (0.9%)	9 (8.0%)
110-119	10 (8.8%)	20 (17.7%)	20 (17.7%)	10 (8.8%)
100-109	27 (23.9%)	22 (19.5%)	24 (21.2%)	26 (23.0%)
90-99	28 (24.8%)	29 (25.7%)	22 (19.5%)	31 (27.4%)
80-89	14 (12.4%)	22 (19.5%)	13 (11.5%)	12 (10.6%)
70-79	9 (8.0%)	8 (7.1%)	11 (9.7%)	11 (9.7%)
60-69	1 (0.9%)	0 (0.0%)	5 (4.4%)	1 (0.9%)
50-59	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
< 50	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
<i>m</i>	104.8	100.6	102.7	102.7
<i>sd</i>	19.2	16.1	20.4	18.0

The TTCT Verbal national percentile ranks ranged from the 5th to 98th percentile with a mean of 52.5 (*sd* = 27.1) for those in a national sample at the same grade level (Grade 13). The age based national percentile ranged from 2nd to 99th with a mean of 49.2 (*sd* = 28.5). On average, Washburn students who were assessed scored better on the TTCT Verbal than did 52.5% of the students tested nation-wide in the same grade level and 49.2% better than those in the same age group.

TTCT Figural Overall Creativity Index Results

Within the TTCT Figural, there are thirteen criterion-referenced indicators that are scored and added to the average standard score to provide the Creativity Index. The Creativity Index is not norm-referenced; therefore, it could be considered the best measure of Washburn students' creative thinking in reference to the University Student Learning Outcome (USLO) Critical and Creative Thinking (CCT). The thirteen indicators are:

1. Emotional Expressiveness - ability to communicate feelings and emotions verbally/nonverbally through drawings, titles, speech of figures;
2. Storytelling Articulativeness - ability to clearly and powerfully communicate an idea/tell a story by providing details for context;
3. Movement or Action - perception of movement through titles and the speech/bodily posture of figures and drawings;
4. Expressiveness of Titles - use of titles that communicate something that the graphic cues themselves do not express without the title;
5. Synthesis of Incomplete Figures - combination of two or more figures for which thinking departs from the commonplace and established, and relationships among rather diverse and unrelated elements;

6. Synthesis of Lines - same as Synthesis of Incomplete Figures except combination of sets of parallel lines or combinations of circles;
7. Unusual Visualization - return repeatedly to a commonplace object or situation and perceive it in different ways;
8. Internal Visualization - ability to visualize beyond exteriors and pay attention to the internal dynamic workings of things;
9. Extending or Breaking Boundaries - ability to remain open long enough to permit mental leaps away from the obvious/commonplace and open up or extend the boundaries or limits imposed upon the stimulus figure;
10. Humor - perceives and depicts conceptual and perpetual incongruity, unusual combinations, and surprise;
11. Richness of Imagery - ability to create strong, sharp, distinct pictures;
12. Colorfulness of Imagery - ability to excite and appeal to the sense;
13. Fantasy - use of fantasy imagery in responding to the test tasks.

The Washburn student Creativity Index average standard scores ranged from 69 to 141 with a mean of 103.1 ($sd = 14.5$). The most scores were located in the 100-109 range ($n = 29$, 25.9%).

Table 3. Grade Based Standard Score Summary for Figural TTCT® Creativity Index 2017-18

Score Intervals	Group Summary Statistics for Score Intervals	
	Creativity Index	
150 +	0	(0.0%)
140-149	1	(0.9%)
130-139	3	(2.7%)
120-129	14	(12.5%)
110-119	19	(17.0%)
100-109	25	(22.3%)
90-99	29	(25.9%)
80-89	14	(12.5%)
70-79	6	(5.4%)
60-69	1	(0.9%)
50-59	0	(0.0%)
< 50	0	(0.0%)
<i>m</i>	103.1	
<i>sd</i>	14.5	

The national percentile for the grade based Creativity Index yielded a mean of 32.2 ($sd = 26.0$). On average, Washburn students who were assessed on the Creativity Index scored better than did 32.2% of the students tested nation-wide. For the age-based Creativity Index, Washburn students scored better than 30.3% of students tested nation-wide of the same age.

In addition to the standard scores and national percentiles, demographic group differences were examined in relation to the grade-based (Grade 13) Creativity Index to determine if there were differences between groups. Independent samples t -test of statistical independence were conducted where demographic variables could be recoded into dichotomous variables when appropriate (e.g., having or not having an attribute). Gender was classified as Female or Male; Race/Ethnicity was categorized as White and Other; First Generation was categorized into First Generation and Other; Residency was categorized as Kansas resident and not Kansas resident; Student Level Classification was categorized as Senior and Other; and because the Nursing program students were more than half the population, Program was categorized as Nursing and Other. See Table 4

Table 4. Creativity Index by Demographic Groups t -test Results

		<i>n</i>	mean	<i>sd</i>	<i>t</i> statistic	significance
Gender	Female	82	103.6	15.3	0.63	0.53
	Male	30	101.7	12.3		
Race/Ethnicity	White	72	102.0	15.1	-1.04	0.30
	Other	40	105.0	13.3		
First Generation	First Gen	26	110.8	12.1	3.22	0.002
	Other	86	100.8	14.5		
Residency	Kansas	102	103.0	14.9	-.161	.872
	Not Kansas	10	103.8	9.9		
Student Level Classification	Senior	98	103.9	14.7	1.59	.115
	Other	14	97.4	12.0		
Program	Nursing	60	96.5	12.4	-5.84	.000
	Other	52	110.7	13.1		

When examining the Creativity Index, using independent samples t -tests of statistical independence, it was found that Gender, Race/Ethnicity, Residency, and Student Level Classification were not statistically significant in differences at the $p = .05$ level. Conversely, First Generation and Program were found to be statistically significant in these groups' scores on the Creativity Index. First Generation students scored higher on the Creativity Index ($\bar{x} = 110.8$) than non-first generation students ($\bar{x} = 100.8$), $t(110) = 3.22$, $p = .002$, whereas Nursing students scored lower ($\bar{x} = 96.5$) than students in other programs on the Creativity Index ($\bar{x} = 110.7$), $t(110) = -5.84$, $p = .000$.

Student age and GPA are continuous variables (i.e., possible values are on a continuum) as is the Creativity Index, and therefore need a different type of analysis to explore possible relationships. Simple linear regression was performed to determine if there were statistically significant differences between age and the Creativity Index, and GPA and the Creativity Index. Both analyses yielded non-statistically significant results, see Table 5. Age and GPA should not be used to predict scores on the Creativity Index.

Table 5. Creativity Index by Demographic Groups Simple Linear Regression Results

	Unstandardized B	Coefficients Standard Error	Standardized Coefficients Beta	t statistic	significance
Age	.336	.215	.148	1.57	.120
GPA	-1.348	3.756	-.034	-.359	.720

Comparison to Washburn Students from AY 2015 Administration

The TTCT Figural and Verbal assessments were also administered three years prior during AY 2015 to 165 Washburn students. Seven measures from the assessments were chosen for comparison purposes for the AY 2015 and AY 2018 administrations. These seven measures were:

1. Figural Local Percentile (Grade Based)
2. Figural Standard Score (Age Based)
3. Figural National Percentile (Age Based)
4. Figural Index (Age Based) – Creativity Index
5. Figural National Percentile (Age Based) – Creativity Index
6. Verbal Standard Score (Age Based)
7. Verbal National Percentile (Age Based)

Independent samples *t*-tests of statistical independence were used to assess the group level differences between the Washburn students' scores on these seven measures in AY 2015 and AY 2018. Table 6 displays the results from these analyses.

Table 6. TTCT Figural and Verbal Measures Comparison by Academic Year *t*-test Results

		n	mean	sd	t statistic	significance
Figural Local Percentile (Grade Based)	AY 2015	110	50.7	28.9	0.17	0.87
	AY 2018	112	50.1	28.9		
Figural Standard Score (Age Based)	AY 2015	110	105.2	11.6	7.10	.000
	AY 2018	111	93.3	13.4		
Figural National Percentile (Age Based)	AY 2015	110	62.9	25.5	7.43	.000
	AY 2018	102	35.9	27.5		
Figural Index (Age Based) – Creativity Index	AY 2015	117	116.8	13.3	7.45	.000
	AY 2018	111	102.8	15.0		
Figural National Percentile (Age Based) – Creativity Index	AY 2015	135	63.9	23.8	10.49	.000
	AY 2018	111	30.3	26.3		
Verbal Standard Score (Age Based)	AY 2015	165	104.9	16.2	2.46	.014
	AY 2018	113	99.8	18.5		
Verbal National Percentile (Age Based)	AY 2015	165	57.8	24.4	2.59	.010
	AY 2018	108	49.1	28.7		

Results were statistically significant at $p = .05$ level for six of the seven measures; the exception was the Figural Local Percentile (Grade Based). The local percentile is a measure of individuals in the same grade (Grade 13) at the same local school who have taken the TTCT Figural assessment. In both years, the Washburn students exceeded approximately 50% of the local scoring.

For the six measures that yielded statistically significant results, the AY 2015 scoring was higher. It should be noted that there were more students assessed in AY 2015, and these differences in numbers were wider for the TTCT Verbal whose students' standard scores and national percentiles were assessed ($n_s = 165$ vs. $n = 113$ and $n = 108$, respectively).

For the Figural Standard Score (Age Based), Washburn students in AY 2015 scored a mean that was 11.9 higher than the AY 2018 students, ($\bar{x} = 105.2$), $t(110) = 7.10$, $p = .000$. The AY 2015 students scored 62.9% higher than nation-wide students, while the AY 2018 national percentile was 35.9% higher than nation-wide on the same measure. This difference was also statistically significant, ($\bar{x} = 62.9$), $t(110) = 7.44$, $p = .000$.

For the Figural Index and National Percentile (Age Based) scores for the Creativity Index, the AY 2015 scores were again higher than the AY 2018 scores. AY 2015 scored 14.0 higher than AY 2018, ($\bar{x} = 116.8$), $t(117) = 7.45$, $p = .000$. In addition, AY 2015 students scored 63.9% higher than nation-wide students, while AY 2018 scored 30.3% higher and this difference was statistically significant, ($\bar{x} = 63.9$), $t(135) = 10.49$, $p = .000$.

The AY 2015 Washburn students scored higher on the Verbal Standard Score (Age Based), over the AY 2018 student scores with a mean difference of 5.1, ($\bar{x} = 104.9$), $t(165) = 2.46$, $p = .014$. Additionally, the AY 2015 students scored 57.8% higher than nation-wide students, while the AY 2018 national percentile was 49.1% higher than nation-wide students on the same measure, ($\bar{x} = 57.8$), $t(165) = 2.59$, $p = .010$.

Overall Results

In summary, the Washburn students' scores for the grade based (Grade 13) average standard scores and mean national percentile ranks associated with the Figural Average, Verbal Average, and Creativity Index Average yielded means above 0. See Table 7, below. This indicated that the 112 Washburn students who participated in the TTCT Figural and the 113 who participated in the TTCT Verbal during 2017-18 had higher standard scores than would statistically be expected and performed better compared to other students tested nation-wide.

Table 7. TTCT 2017-18 Descriptive Statistics

	Minimum	Maximum	mean	sd
Figural Average	60	128	93.6	12.9
Figural National Percentile	1	98	36.4	26.6
Verbal Average	68	143	102.7	18.0
Verbal National Percentile	5	98	52.5	27.1
Creativity Index Average	69	141	103.1	14.5
Creativity Index National Percentile	1	97	32.2	26.0

Students scored lower, on average, to the TTCT Figural than the Verbal (\bar{x} s = 93.6 and 102.7, respectively). Likewise, Washburn students scored comparatively higher than nation-wide samples of

test taker on the TTCT Verbal. However, the Creativity Index average scores were highest ($\bar{x} = 103.1$) compared to the TTCT Figural and Verbal, yet the national sample comparison was the lowest of the three assessments.

When further examining the Creativity Index, using independent samples *t*-tests of statistical independence and simple linear regression, it was found that Gender, Race/Ethnicity, Residency, Student Level Classification, Age, and GPA were not statistically significant in differences of scores of the Creativity Index at the $p = .05$ level. Conversely, First Generation and Program were found to be statistically significant in these groups' scores on the Creativity Index in that First Generation students scored higher than non-first generation students, and Nursing students scored lower than students in other programs on the Creativity Index.

In comparing AY 2015 vs AY 2018 Washburn students on seven measures selected from the TTCT Figural and Verbal, six of the seven measures presented statistically significant differences. The measure for which there was no statistically significant difference was TTCT Figural Local Percentile (Grade Based). In the six analyses that were statistically significant in differences between the scores from AY 2015 and AY 2018, the AY 2015 Washburn students scored higher.

Limitations and Areas for Further Analysis

Regarding comparing AY 2015 vs. AY 2018 Washburn students on the seven measures selected from the TTCT Figural and Verbal, it should be noted that students who took the assessments each year had the potential to differ in some important way. For example, in AY 2015 there were Nursing (56.4%), Education (39.4%), and other educational program (4.2%) students. In AY 2018, the percent of students who were in the Nursing program was similar (53.6%) to the AY 2015 group; however, the next largest percentage was from the Social Work program (10.7%), and the remaining students were small numbers from various programs.

Another possible limitation of the comparative analyses of AY 2015 vs. AY 2018 Washburn students' scores is the measures themselves. The TTCT interpretive manual suggest the use of the grade-based national percentile as scores that are more frequently used to compare scores nationally although the age-based percentiles can be useful as a supplement. In using Grade 13 for the comparison, all post-high school students are grouped together. Age-based national percentile comparison may not be as useful of a measure due to the wider age range of the Washburn students. In the AY 2015 vs. AY 2018 comparative analysis, age-based measures were primarily used.

The TTCT Figural is scored, and 64 different variables are produced from these scores, which includes raw scores, standard scores, national percentiles, and average scores; and raw scores by activity, where applicable. In addition, the TTCT Figural contains the creative strengths checklists and bonus scores for the Creativity Index. The TTCT Verbal contains 41 different variables which includes raw scores, standard scores, national percentiles, and averages scores; and raw scores by activity, where applicable. More in-depth analysis could be done to assess additional variables of interest.