



# SCHOLASTIC TESTING SERVICE, INC.

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## **Lake City, Minnesota Future Problem Solving Program Followup Study**

Results from Torrance Tests of Creative Thinking

Figural Edition Fall and Spring 2008-2009, and Spring 2011

June 2011

The Minnesota Future Problem Solving Program (FPSP) Affiliate Director Cheryl Whitesitt, in conjunction with Scholastic Testing Service, Inc.(STS), conducted a study known as “Torrance Testing for Creativity and the Future Problem Solving Program” at Lake City High School in Lake City, Minnesota. The study was to determine the creative developmental effects of the FPSP process embedded into curriculum. During 2008-2009, the Torrance Tests of Creative Thinking, Figural Edition (TTCT-F), Forms ‘A’ and ‘B’ were administered in October and May, respectively, to 61 students from three seventh grade Life Science sections. Mr. Rob Nutt, the seventh grade Life Science instructor, was himself previously involved in the Future Problem Solving Program, and worked diligently to embed the FPSP process into his Life Science curriculum during the academic year. Five of the 61 students were participants in the Future Problem Solving Program. During May 2011, the ninth grade students were again tested with the TTCT-F, Form A.

The TTCT-F consists of three different ten minute subtests requiring students to construct pictures and title them, and assesses five major areas of creativity—fluency, originality, abstractness of titles, elaboration, and resistance to premature closure. The test also yields up to thirteen creative strengths. There are two major total scores, the average Standard Score (SS) and a Creativity Index (CI) comprised of the SS and the creative strengths.

### **SCORE DESCRIPTIONS:**

- A. Fluency—the total number of relevant responses/pictures and titles for them
- B. Originality—how different the pictures and titles are from others; usually occurring less than 2% of the time, uniqueness of the figures
- C. Abstractness of Titles—whether the title is a very concrete one word label for the picture or so abstract that one must see both the picture and title for complete understanding, e.g., newspaper editorial cartoons or a title such as “vacation” could be many scenes
- D. Elaboration—the amount of details in the picture additional to what the title describes, e. g., a picture of a dog titled “dog” with trees, dog house, street, cars and more - all except for the dog is elaboration
- E. Resistance to Premature Closure—the creative attribute of remaining open to new and different ideas in contrast to having a closed mind or making quick conclusions



There are thirteen creative strengths with scores of (0), (1), or (2). These scores are added to the SS to develop the “Creativity Index.” The descriptions are below:

### **CREATIVE STRENGTHS DESCRIPTIONS:**

1. Emotional Expressiveness—the degree to which our feelings are affected by the drawings; e.g., happy, sad, meditative, or others
2. Storytelling Articulativeness—how the picture(s) and title(s) tell stories
3. Movement or Action—the ways in which there is movement and action shown, e.g., wind, clouds, or rainfall in weather
4. Expressiveness of Titles—an opportunity to award the very abstract titles
5. Synthesis of Incomplete Figures—making combinations of pictures and titles into stories, combining two or more incomplete figures into a story or one picture of two or more incomplete shapes
6. Synthesis of Lines (Form A) or Circles, Form B)—same as 5 above, except combining sets of parallel lines or circles.
7. Unusual Visualization—looking at objects from different angles, above, below, and other than simply facing the object as in a photo
8. Internal Visualization—viewing the inside as though there is transparency of an object
9. Extending or Breaking Boundaries—going “outside the box” with drawings
10. Humor—surprise and joy in viewing what is seen and described with a title
11. Richness of Imagery—strong, sharp, distinct pictures that enable the viewer to smell, touch, or otherwise involve senses from the drawing and title
12. Colorfulness of Imagery—earthy exciting images and titles that place the viewer close to or in some pictures
13. Fantasy—drawings of fantasy figures, aliens, robots, cartoon characters

The tables and narrative analyses which follow, present a review of averages for three different groupings:

**FPSP STUDENTS** – consisting of the five students currently involved in FPSP.

**NON-FPS STUDENTS** – consisting of the 48 students not involved in FPSP, for 2008-09, 56 total.

**GROUP** – consisting of the entire 53 students (5 FPSP and 48 NON-FPSP Students), 2008-09, 61 total.



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	COMPARING FPSP and				NON-FPSP			
	N=5				N=48			
	Fall	Spring		2009-11	Fall	Spring		2009-11
	2008	2009	2011	Change	2008	2009	2011	Change
Fluency	102	124	111	-13	104	111	118	+7
Originality	101	114	121	+7	99	103	99	-4
Elaboration	106	103	135	+32	96	98	115	+17
Abstractness of Titles	96	119	126	+7	93	96	109	+13
Resistance to Closure	101	102	111	+9	101	100	111	+11
Average Standard Score (national average =100) (range from 60 to 140)	101	113	121	+8	99	102	113	+11
Creativity Index (Seventh grade Average=112)	113	127	138	+11	110	113	115	+2
Change from Average SS to CI	+12	+14	+17	+3	+11	+11	+2	-9

## OBSERVATIONS ON DIFFERENCES

### Major Scores

As can be seen above, the averages for both groups of students increased from spring of grade 7 to spring of grade 9, except for the FPSP students whose fluency scores decreased by 13 SS, and the non-FPSP students' scores decreased by 4 SS in originality. There is an increase in TTCT scores from fall of 2008 through spring of 2011, perhaps an indication that the instructional practice in grade 7 was the basis for continued creative development.

Note especially the substantial increases for the FPSP students in Elaboration (many more details in their pictures), with somewhat less increases in Originality (many more unique pictures), Abstractness of Titles (many more higher level abstract titles for their pictures), and Resistance to Closure (the concept of remaining open to new ideas).

It is also important to note that the Non-FPSP students evidenced creative growth in all areas except Originality.

### Creative Strengths

The review of the creative strengths helps to identify their existence for each group of students. The difference between the SS and the CI shows how many of those strengths the students show in their pictures.



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The maximum difference between the SS and the CI is 26, thirteen constructs which could add 2 points each.

The FPSP students' CI increased not only by 11 from 2009 to 2011, but as well achieved a difference of +14 for 2009 and +17 for 2011.

The Non-FPSP students gained two points in creative strengths from 2009 to 2011, and remained at the same 11 point difference between the SS and the CI for 2009, and gained two points in 2011.

AVERAGES FOR TOTAL GROUP	N=53			
	Fall 2008	Spring		Change
		2009	2011	
Fluency	102	114	117	+3
Originality	97	106	98	-8
Elaboration	97	100	112	+12
Abstractness of Titles	94	99	112	+13
Resistance to Closure	100	102	111	+9
Average Standard Score (national average =100) (range from 60 to 140)	98	104	111	+7
Creativity Index (Seventh grade Average=112)	109	116	128	+12
Change from Average SS to CI	+11	+12	+17	+5

It is very important to note that the averages for the total group and for each group increased across these two years, not only from Fall to Spring, but as well from Spring to Spring, except as noted above. It is especially helpful to note the increase in Elaboration and Abstractness of Titles for the total group as we believe this shows increased attention to detail and creativity in developing descriptions for the pictures they complete. These indicators may show increased higher order critical thinking skills.

Respectfully Submitted:

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