Creativity Research: The Legacy of Ellis Paul Torrance

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Ellis Paul Torrance (October 8, 1915 - July 12, 2003) was an American psychologist from Milledgeville, Georgia.

After completing his undergraduate degree at Mercer University, he went on to complete a Master's degree at the University of Minnesota, and then a doctorate from the University of Michigan. His teaching career spanned from 1957 to 1984, first at the University of Minnesota and then later the University of Georgia, where he became professor of Educational Psychology in 1966.

In 1984, the University of Georgia established the Torrance Center for Creativity and Talent Development.

Torrance is best known for his research in creativity. His major accomplishments include 1,871 publications:88 books; 256 parts of books or cooperative volumes; 408 journal articles; 538 reports, manuals, tests, etc.; 162 articles in popular journals or magazines; 355 conference papers; and 64 forewords or prefaces. He also created the Future Problem Solving Program International, the Incubation Curriculum Model, and the Torrance Tests of Creative Thinking.

Torrance Tests of Creative Thinking (TTCT)

Building on J.P. Guilford's work, the Torrance Tests of Creative Thinking (TTCT) originally involved simple tests of divergent thinking and other problem-solving skills, which were scored on four scales:

Fluency. The total number of interpretable, meaningful, and relevant ideas generated in response to the stimulus.
Flexibility. The number of different categories of relevant responses.
Originality. The statistical rarity of the responses.
Elaboration. The amount of detail in the responses.

The third edition of the TTCT in 1984 eliminated the Flexibility scale from the figural test, but added Resistance to Premature Closure (based on Gestâlt Psychology) and Abstractness of Titles as two new criterion referenced scores on the figural. Torrance called the new scoring procedure Streamlined Scoring. With the five norm-referenced measures that he now had (fluency, originality, abstractness of titles, elaboration and resistance to premature closure), he added 13 criterion referenced measures which include: emotional expressiveness, story-telling articulateness, movement or actions, expressiveness of titles, syntheses of incomplete figures, synthesis of lines, of circles, unusual visualization, extending or breaking boundaries, humor, richness of imagery, colourfulness of imagery, and fantasy.

According to Arasteh and Arasteh (1976) the most systematic assessment of creativity in

elementary school children has been conducted by Torrance and his associates (1960a,1960b, 1960c, 1961,1962,1962a,1963a 1964), who have developed and administered the Minnesota Tests of Creative Thinking (MTCT) to several thousands of school children. Although they have used many of Guilfords concepts in their test construction, the Minnesota group, in contrast to Guilford, has devised tasks which can be scored for several factors, involving both verbal and non-verbal aspects and relying on senses other than vision. These tests represent a fairly sharp departure from the factor type tests developed by Guilford and his associates (Guilford, Merrifield and Cox, 1961; Merrifield, Guilford and Gershan,1963), and they also differ from the battery developed by Wallach and Kogan (1965) , which contains measures representing creative tendencies that are similar in nature (Torrance, 1968).

To date, several longitudinal studies have been conducted to follow up the elementary school-aged students who were first administered the Torrance Tests in 1958 in Minnesota. There was a 22-year follow-up, a 40-year follow-up , and a 50 year follow-up

Torrance (1962) grouped the different subtests of the Minnesota Tests of Creative Thinking (MTCT) into three categories.

Verbal tasks using verbal stimuli
Verbal tasks using non-verbal stimuli
Non-verbal tasks

A brief description of the tasks used by Torrance is given below:

Unusual Uses

The unusual uses tasks using verbal stimuli are direct modifications of Guilford's Brick uses test. After preliminary tryouts, Torrance (1962) decided to substitute tin cans and books for bricks. It was believed the children would be able to handle tin cans and books more easily since both are more available to children than bricks.

Impossibilities task

It was used originally by Guilford and his associates (1951) as a measure of fluency involving complex restrictions and large potential. In a course in personality development and mental hygiene, Torrance has experimented with a number of modifications of the basic task, making the restrictions more specific. In this task the subjects are asked to list as many impossibilities as they can.

Consequences task

The consequences task was also used originally by Guilford and his associates (1951). Torrance

has made several modifications in adapting it. He chose three improbable situations and the children were required to list out their consequences.

Just suppose task

It is an adaptation of the consequences type of test designed to elicit a higher degree of spontaneity and to be more effective with children. As in the consequence task, the subject is confronted with an improbable situation and asked to predict the possible outcomes from the introduction of a new or unknown variable.

Situations task

The situation task was modeled after Guilford's (1951) test designed to assess the ability to see what needs to be done. Subjects were given three common problems and asked to think of as many solutions to these problems as they can. For example, if all schools were abolished, what would you do to try to become educated?

Common problems task

This task is an adoption of Guilford's (1951) Test designed to assess the ability to see defects, needs and deficiencies and found to be one of the test of the factors termed sensitivity to problems. Subjects are instructed that they will be given common situations and that they will be asked to think of as many problems as they can that may arise in connection with these situations. For example, doing homework while going to school in the morning.

Improvement task

This test was adopted from Guilford's (1952) apparatus test which was designed to assess ability to see defects and all aspects of sensitivity to problems. In this task the subjects are given a list of common objects and are asked to suggest as many ways as they can to improve each object. They are asked not to bother about whether or not it is possible to implement the change thought of.

Mother- Hubbard problem

This task was conceived as an adoption of the situations task for oral administration in the primary grades and also useful for older groups. This test has stimulated a number of ideas concerning factors which inhibit the development of ideas.

Imaginative stories task

In this task the child is told to write the most interesting and exciting story he can think of. Topics are suggested (e.g., the dog that did not bark); or the child may use his own ideas.

Cow jumping problems

The Cow jumping problem is a companion task for the Mother- Hubbard problem and has been administered to the same groups under the same conditions and scored according to the similar procedures. The task is to think of all possible things which might have happened when the cow jumped over the moon.

Verbal tasks using nonverbal stimuli

Ask and guess task

The ask and guess task requires the individual first to ask questions about a picture - questions which cannot be answered by just looking at the picture. Next he is asked to make guesses or formulate hypotheses about the possible causes of the event depicted, and then their consequences both immediate and remote.

Product improvement task

In this task common toys are used and children are asked to think of as many improvements as they can which would make the toy 'more fun to play with'. Subjects are then asked to think of unusual uses of these toys other than 'something to play with'.

Unusual uses task

In this task, along with the product improvement task another task (unusual uses) is used. The child is asked to think of the cleverest, most interesting and most unusual uses of the given toy, other than as a plaything. These uses could be for the toy as it is, or for the toy as changed.

Non-verbal tasks

Incomplete figures task

It is an adaptation of the 'Drawing completion test' developed by Kate Franck and used by Barron (1958). On an ordinary white paper an area of fifty four square inches is divided into six squares each containing a different stimulus figure. The subjects are asked to sketch some novel objects or design by adding as many lines as they can to the six figures.

Picture construction task or shapes task

In this task the children are given shape of a triangle or a jelly bean and a sheet of white paper. The children are asked to think of a picture in which the given shape is an integral part. They should paste it wherever they want on the white sheet and add lines with pencil to make any novel

picture. They have to think of a name for the picture and write it at the bottom.

Circles and squares task

It was originally designed as a nonverbal test of ideational fluency and flexibility, then modified in a such a way as to stress originality and elaboration. Two printed forms are used in the test. In one form, the subject is confronted with a page of forty two circles and asked to sketch objects or pictures which have circles as a major part. In the alternate form, squares are used instead of circles.

Creative design task

Hendrickson has designed it which seems to be promising, but scoring procedures are being tested but have not been perfected yet. The materials consist of circles and strips of various sizes and colours, a four page booklet, scissors and glue. Subjects are instructed to construct pictures or designs, making use of all of the coloured circles and strips with a thirty minute time limit. Subjects may use one, two, three, or four pages; alter the circles and strips or use them as they are; add other symbols with pencil or crayon.

Threshold Hypothesis

There has been debate in the psychological literature about whether intelligence and creativity are part of the same process (the conjoint hypothesis) or represent distinct mental processes (the disjoint hypothesis).

Evidence from attempts to look at correlations between intelligence and creativity from the 1950s onwards, by authors such as Barron, Guilford or Wallach and Kogan, regularly suggested that correlations between these concepts were low enough to justify treating them as distinct concepts. Some researchers believe that creativity is the outcome of the same cognitive processes as intelligence, and is only judged as creativity in terms of its consequences, i.e., when the outcome of cognitive processes happens to produce something novel, a view which Perkins has termed the "nothing special" hypothesis.

Threshold hypothesis

A very popular model is what has come to be known as "the threshold hypothesis", proposed by Torrance, which holds that, in a general sample, there will be a positive correlation between low creativity and intelligence scores, but a correlation will not be found with higher scores. Research into the threshold hypothesis, however, has produced mixed results ranging from enthusiastic support to refutation and rejection.