

## **Creativity and its intrapsychic bounds**

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### **Summary**

The study deals with some theoretic issues as a result of investigations on talent and creativity development in Slovakia. In the second part some examples of two factor-analytical studies concerning intra-psychic bounds of creativity (differentiated into several factors) with sense of humor, prosocial behavior and coping with stress are presented.

**Key words:** Creativity, talent, factor analysis, sense of humor, prosocial behavior, coping with stress, school achievement, soccer performance

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### **Creativity and its intra-psychic bounds**

Creativity, as a matter of fact, is the only capability that distinguishes a man from other beings. There do exist the following three axioms (according to our long-term studies):

1. Creativity is the ability of every human being.
2. We can find it in every human activity.
3. It can be developed not only by special programs (what a luck for many of our colleagues) but also throughout education or the family and last but not least it is influenced by the way and of course the quality of life.

As known, creativity goes hand in hand with talent (or giftedness – we do not distinguish these two terms and use them as synonyms, as according to the literature, there are not very plausible differences in theoretical explanations). Maybe the highest one could be the so-called “creative talent”. The results of our investigations on talent development (Dočkal & T. Kováč, 1993) can be summarized in the following thesis:

1. A gift (talent) is formed on the basis of genetic dispositions throughout life. The conditions of the environment and the very activity of an individual are significant factors acting in its creation.
2. Not every gifted child becomes an exceptional adult, but most adult talents behaved as talented individuals in their childhood.
3. A gift regulates the activity of a human being. As a characteristic of a personality, a gift is in possession of every human being. It has a continual character in relationship to effectiveness. It may be quantified by this criterion.
4. The qualitative aspect of a gift is based on its structure which conditions the so-called type of talent (it is differentiated in accordance to the classification of human activity)
5. A gift is a multi-dimensional phenomenon. Its structure consists of a) a preconditioning constituent (somatic characteristics, abilities, skills, acquirements and competencies); b) an activating constituent (non-specific motivation, will attributes, personality orientation)
6. Creativity is a significant part of both constituents of talent (creative abilities, creative motivation). Insofar as creativity plays a significant and dominant role in the structure of talent, we may speak about creative talent. As mentioned, we understand creativity also as a quality of every human being. A noncreative human being rarely exists (it may be in the most serious cases of oligophreny). Our results also show, that the preschool age is the gate to the world of creativity.
7. The particular components of either constituents of talent possess a hierarchic orderliness that is also related to the type of talent. The most general components of talent – which are involved in every kind of activity – are the intellectual abilities, creative abilities, as well as achievement motivation (a need for self-assertion). On inferior degrees of this hierarchy, there are attributes which specify the respective type of talent. Nevertheless, some attributes may play a general role in the relation to one activity (a type of talent) a special role in relation to another activity (a type of talent).
8. The differentiation of talents begins in a course of the development when the focus of talent is being gradually shifted from its general characteristics onto the special ones. Some common traits, however, remain persevered.

9. In making talent identification and development, it is necessary to intercept all levels of hierarchy that participate in a respective activity. If a young sport talent is to be perspective for example, he/she has to be endowed with the average level of intellectual abilities, not only with the attributes that are specific to the respective type of sports. A good musician may be the one who, in addition to the instrument technique, is able to develop, e. g. certain general artistic abilities.
10. A significant part of whatever talent during childhood is the wide spectrum of the child's interests and activities. The precocious specialization in most cases inhibits talent development.
11. Preconditioning constituent and activating constituent of talent influence each other. Children with higher level of motivation in concrete activity develop their abilities quicker. On the other hand, adequate motivation can develop easier in children with higher abilities.
12. There are certain sensitive periods for development of particular types of talent, but the development of talent is as a matter-of-fact strictly individual.

Since its beginnings, researches on talent and creativity have focused on the recognition of their structures. Even the classic researchers of creativity, J. P. Guilford (1971) and E. P. Torrance (1964) or R. B. Cattell (1971), had followed this direction. From past but also present archives of available statistical approaches, mostly the factor analysis appeared to have been applied here. In spite of the fact that the very discovery of the creative personality structure of a talent is considered to be crucial in the developmental stage (e. g. D. Kováč, 1985; Dočkal, 1995), the current research in Slovakia is not following this direction.

Some years ago, a Private Sports Secondary Grammar School has been established focusing on soccer. Boys placed in the first grade were mostly selected according to soccer standards with regard to talent examinations. Their fulfillment was assigned by soccer experts – instructors. Two years have passed since and at this secondary school there were at that time 60 boys aged 14 to 17 years and every grade represented (three classes) one independent soccer team.

The curriculum includes regular subjects and soccer activities as well as some approaches to psychological development of creativity. Since soccer, as a collective game, besides certain standard skills, is also based upon creativity, we decided to mostly focus on creativity preconditions in the way they are measured by relevant tests. We tried to find out, by use of few performances and self-report methods, how this complex system of functioning works in the development of soccer talent.

Several methods of assessing creativity were used: 1. *Urban's Creativity Test* – figural version (Urban & Jellen, 1993) – a German test based upon principles of unfinished pictures. Unlike the regular performance creativity tests (divergent thinking), it focuses on some personality-cognitive dimensions (e. g. willingness to undergo risk, complexity of view). Eleven items are evaluated and they are all included in the resulting scores (maximum of 72 points). 2. Second subtest of figural version of *Torrance's Tests for Creative Thinking* (Jurčová, 1984). Fluency, flexibility and originality were evaluated. 3. *Pictographs* (Leontiev & Gippenrejtter, 1972) – assessment of the so-called creative memory. A list of 15 abstract nouns is read to the subjects in five-second intervals. Their task is to register every word by a single graphic sign – a pictograph. However, letters or numbers cannot be used. After engaging in another activity (lasting cc 10 minutes) they should assign the corresponding words to their signs. The number of correct assignments creates the entire score.

Besides this, we also administered the *School Stressors Inventory for Adolescents* (SSIA) by J. P. Fanshav and P. C. Burneth in the Slovak adaptation by I. Sarmány Schuller. It focuses on coping with various qualities of stressors that occur in a school setting.

Other variables were the age of the subjects, their average school achievement, and evaluation by their soccer instructors. The instructors divided the boys in three performance categories and mark 1 represented the best performance.

59 boys altogether participated in the research from 1<sup>st</sup>, 2<sup>nd</sup> and 3<sup>rd</sup> grades of the school aged 14 to 17 years.

The data obtained underwent a statistical analysis by the method of Rotating Factor Analysis – Varimax (Koschim et al., 1992). The number of factors that should be extracted by rotation was addressed by the so-called Ludwig's Criterion (Jahn & Vahle, 1970).

The factor analysis in the Statgraphics Program titrated two factors. Together with saturating the particular variables, they are presented in Table 1. As we can see, the first factor is most saturated by creativity variables. Therefore, it is logical, that we called it – the *Factor of creativity*. In the negative relation with creativity we can see a putative position of the variables of school achievement and soccer efficiency. However, the negative sign is based upon the fact that school achievement as well as soccer efficiency were evaluated on the scale where number 1 represented the best performance. From this it is clear that better school marks and performances on the playground went hand in hand with growing creativity. The above-mentioned finding is nontraditional to a certain extent because the data from literature tend to contradict (T. Kováč, 1980; Zelina & Zelinová, 1990). This means that combining school education with active sports activity enables creative individuals to develop their talent more effectively and vice versa. This also underlines the fact that coping with stress is in negative relationship with creativity (here applies: the higher scores, the worse coping with stress). The second factor is mostly saturated by variables of creative memory, coping with stress, performances in soccer, and age. Since all above-listed variables are in a positive relationship, this factor can presumably be called a *barrier memory*. The better the memory of the subjects, the worse their coping with stressors as well as soccer efficiency. We can assume that when subjects remember failures, this negatively influences their perception of school stress and functioning of a player on the field – it shakes his self-confidence. Since older boys did “experience” more in both areas, the coherence with age is easier to understand. The weak saturation by creativity variables and achievement prove that stronger negative experiences influence soccer talent more significantly. This findings can be a warning for all those who work with talents of this kind to apply a method of praises in a wider extent.

In conclusion we can assume that:

1. Creativity is a distinct feature of soccer talent
2. Creativity makes it easier to cope with stress
3. Negative experiences in the given area inhibit the development of a soccer talent

The results of this research are considered to be preliminary. To have a wider platform, a control group would be necessary, and, of course, the expansion of the set of research methods (personality, cognitive styles). Nevertheless, we think that we pointed in the direction where the development of talents could go. Teaching at our secondary schools is too saturated with high intensity and the absence of developing creative thinking. In such a condition, many talents evade, i. e. resign. The goal of all interested parties should be to interlude this elusion.

Table 1:

<b>FACTORS</b>	
<b>Factor 1</b>	
Originality (TTCT)	,896
Fluency (TTCT)	,890
Flexibility (TTCT)	,886
Creativity (Urban)	,883
School Achievement	- 0,758
Soccer Performance	- 0,424
Creative Memory (pictographs)	,381
Coping with Stress (SSIA)	- 0,251
Age	,212
<b>Factor 2</b>	
Creative Memory (pictographs)	,648
Coping with Stress (SSIA)	,627
Age	,527
Soccer Performance	,510
Creativity (Urban)	,199

The classics of psychology of creativity see the sense of humor as being among the most basic attributes, although the mainstream of the research activities did not follow this direction too much (Koestler, 1964; Torrance, 1979; Isaksen, 1987; Treffinger, 1987). Empiricism shows that in the „historical top of ten“, there were many creative people who were known for their wittiness and sense of humor. In my previous study (T. Kováč, 1998) with younger subjects the studied phenomena seem to be connected with each other. The investigation of the relationships between creative abilities and sense of humor is therefore adequate and, considering the present imperfections in the methodology, it is also justifiable.

73 high school students aged 15 to 18 years took part in this modest investigation. The following variables were assessed:

1. Creativity as measured by Urban`s Creativity Test (Urban & Jellen, 1993)
2. Creative (respectively divergent) thinking as assessed by the second subtest of the TTCT (Jurč. ová, 1984) – fluency, flexibility and originality were taken into account.
3. Verbal divergence – The Test of Unusual Use (Guilford, 1971) of a football (fluency, flexibility and originality)
4. Creative coping (by a modification of Guilford`s Consequences Test, 1971). The stimulus was the question: „How can you explain to your teacher that you are not prepared for the lesson?“ – again fluency, flexibility and originality were assessed.
5. Sense of humor as measured by Sense of Humor Scale (Thorson & Powell, 1993), with it`s four factors: 1. achievement of social aims by humor, 2. coping with humor, 3. attitudes towards people producing humor, and 4. appreciation of humor. The whole scale score can also be used.

6. Sociability or tendencies towards prosocial behavior, in other words, by a figural projective method SOCAG (Doč8. kal, 1998).
7. School results – actual average marks in Slovak, English, German and Maths.

The obtained data underwent statistics of rotated factor analysis by the Varimax method (Koschim et al., 1992). The number of factors extracted by the rotation was determined by the so-called Ludwig's criterion (Jahn & Vahle, 1970).

The factor analysis titrated two factors to which all of the variables have contributed. Table 2 documents these results.

We could give the first factor the most suitable name: *The Factor of Witty Coping with Social Situations*. It is saturated by variables of creative coping, sense of humor and creativity (as measured by Urban's Creativity Test). The school mark is in contradiction, which means that creative and witty students cope with the school situation relatively well as mirrored by their marks. One can say that creativity and humor are one of the ways to cope with school stress. The second factor was named *The Factor of Prosocial Creativity* as it is most saturated by variables of divergence (or verbal or nonverbal creativity) and tendencies towards prosocial behavior by means of humor, too. It can be said, therefore, that the second factor improved the connection between creativity and sense of humor, too. In addition, it was shown, that both phenomena studied correspond also to the tendencies towards prosocial behavior. This fact could be a notice for some teachers, who, up to this time, have not been using (even restricted) humor in their educational work. In this way they prohibit the creative development of their pupils.

The factor analysis confirmed, that creativity and sense of humor go hand in hand, so to speak. Individuals with higher creativity level and sense of humor showed clearer tendencies towards prosocial behaviour. Verbal and figural factors of divergent thinking are a bit different (as referred to intelligence). That is why they did not participate in an equal way in both titrated factors. Especially the verbal factors of divergent creative coping with school situation showed this difference. Creativity with humor form intrapsychological bonds (D. Kováč, 1996), which in view of the interfunctional approach are worthwhile to study in more depth.

Table 2:

<b>FACTORS</b>	
Factor 1	
Creative Coping Fluency	,833
Creative Coping Flexibility	,862
Creative Coping Originality	,840
Mean of School Results	- 0,772
Sense of Humor (whole scale score)	,742
Urban's Creativity Test	,718
Factor 2	
Divergent Figural Flexibility	,892
Divergent Figural Fluency	,875
Tendencies towards Prosocial Behavior	,626
Divergent Figural Originality	,611
Archivement of Social Aims by Humor	,603

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