РОЗДІЛ І
ПЕДАГОГІЧНІ ПРОБЛЕМИ ОБДАРОВАНОЇ ОСОБИСТОСТІ

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ФАКТОРИ, ЯКІ ПОЗНАЧАЮТЬСЯ НА ТВОРЧОМУ ПОТЕНЦІАЛІ І ТВОРЧОСТІ

Формування творчого потенціалу та протікання творчого процесу відбуваються за певних умов, а також відчувають вплив певних факторів. Багато із сприятливих умов відомі в даний час, є інформація про характер впливу основних факторів. Залишається відкритим питання взаємодії зазначених умовах та факторів.

Ключові слова: *умови, фактори, творчий потенціал, творчий процес, взаємодія*

Формирование творческого потенциала и протекание творческого процесса осуществляются при определенных условиях, а также испытывают воздействие определенных факторов. Многие из благоприятных условий известны в настоящее время, имеется информация о характере влияния основных факторов. Остается открытым вопрос взаимодействия указанных условий и факторов.

Ключевые слова: *условия, факторы, творческий потенциал, творческий процесс, взаимодействие.*

Creative thoughts and actions are shaped by the context of large-scale effects, such as the nature of academic disciplines and values. The analysis shows that different subjects may have different effects on the creative potential of a person. In addition, according to a study, the creativity of persons is affected by the transitions from modern-materialist to postmodern-postmaterialist values.

D. Carson and M. Runko [1] studied the relationship between the ability to generate (PG) and solve (PS) problems, stress and daily trouble, as well as skills of association. As noted by these authors, the estimates for PG and PS are predicted by assessment of the relevant skills for the association. In particular, PG- and PS-ability are negatively related to the confrontation, distancing, avoidance of tendencies and excessive responsibility and positively associated with general adaptive qualities. Moreover, according to the authors' study, PG- and PS-ability are important components of the overall human capacity needed to cope with the stresses of life.

The arsenal of strategic approaches to problem solving is leading position in the structure of the creative potential of a person. The study turns out the connection between the approaches to the problems of synthesis and originality of the creative product. The study participants were requested to provide life on other planets. During the study, they were involved in training for the formulation of specific (inventing animals) or abstract problems (inventing common necessities of life). It was found that training leads to more original creative products. The results of the study also note that the exercises in the formulation of abstract problems have a positive impact on developing strategies for creative synthesis.

Life experience and skills developed in solving previous problems affect on the level of creative potential. The results of the investigation of M. Raina [2], who studies the professional life, global impact, research orientation, professional performance of P. Torrance, his motives for creativity, outlook and career guidance evidence these.

The study examines the independent and joint effects of the nature of the previous problem, the amount of time devoted to the task, and the amount of information about the next task on the results of its creative solution. The results show that persons who worked on a preliminary complex task for a short period of time or preliminary easy task for a long period of time show the higher achievement in the following task than those who worked in the other temporary conditions and the complexity of the problem. It turns out the duration of study affects on personality creative potential as well as its content, especially for the artistic skills and abilities [3].

P. Ansburg and R. Dominowski find out whether you can teach solving of insight problems. In particular, these authors test whether you can form skills to solve certain verbal problems. In this study, training in five experiments consisted of various combinations of teaching methods: the use of strategic instruction, a variation of the practice, practice of different types of feedback and comparison problems. The results of all five experiments show that learning can contribute to the solution of verbal insight problems. Promoting effect varies between 14% – 24% relative to the total growth of solutions in the experimental group relative to the control group. In connection with the above results one could ask the question: how effective is preparation for solving creative problems. It is considered that it needs about 10 years of training to achieve the status of an expert. Whatever it is, however, how much time does it take one to reach a level of creative greatness? According to the analysis of 215 modern works of science fiction writers it is found that the time between the first and the best publication is on average 10.6 years. However, the analysis shows a high degree of variability for this parameter. It can roughly assume that the second phase after the first ten years may be crucial for modern science fiction writers to achieve recognition.

The American and Chinese students were tested to find out if targeted training "be creative" is different on the influence in different cultures and types of problems [4]. Half of the participants were tested under standard conditions, the other half – in a targeted training. The results show that the effect of explicit instruction varies depending on the creative task (more for the artistic and mathematical creativity than verbal creativity), but not for cultural and ethnic lines. Targeted training has little "harmful" effect on the clarity and grammar of narrative works, but not on any other aspects of the technical quality of the creative product.

The study tests the assumption that creative self-realization is linked to the preference of style. The results indicate that the benefit of style, which has a tendency to innovate, is positively associated with creative confidence.

The study finds out the source of interest to the textile art for the group of women aged 29 to 72 years who live with long-term health problems. Most of them have discovered the art in adulthood. Several factors contributed to this. Vitality, as well as extensive support may encourage showing relationship to reality and the appropriate approach to solving the problems of life of persons with the disease. Such are the emotional state of crisis associated with the disease, and discontent with life productivity, growing out of the need to reach their full potential, and contributes to finding meaningful work. Early role plays, introduction to art at school, finding that the personal and professional interests can be expressed in terms of creativity, and random events contribute to the opening of the art as a meaningful activity. In particular, such an event as the disease can have a positive impact on the development or implementation of interest to a particular kind of art.

Scholars identify individual and contextual variables that affect the creative achievements of a person. However, psychological mechanisms by which these factors affect the creative achievements are not systematically studied yet. The results, based on several sources and longitude data, show that major psychological processes (creative self-efficacy and creative intent) fully mediate the effect of individual (motivation, personality, ability) and context (social influence from leaders and peers) factors on the creative achievements of a person.

E. Hoff [5] explores the question: is there a relationship between the presence of imaginary companions and the creativity of a person, whether children of a negative self-evaluation have imaginary companions, is there any gender difference for children with imaginary companions, what aspects of imaginary companions, and what characteristics of those who comes up with them are associated with creativity. Of the total number of participants (students of grade 4) 52 % reported having imaginary companions. The children with imaginary companions were creative in two of the three evaluations of creativity and were characterized by low rates of self-image. The results of the study also indicate that girls have more usually imaginary companions.

Over the past 50 years through the implementation of a number of theoretical and empirical researches, the influence of early family environment for further achievements of children with high abilities is found. The results of the analysis indicate that the families who have made a significant contribution to contemporary culture, the optimal catalyst for individual experience are the relationship of integration and differentiation.

Children inventing of imaginary worlds can prepare for creativity in adulthood. To test the hypothesis of worldplay-childhood disease and its relationship with the mature creative work MacArthur fellows and students at Michigan State University (MSU), selected according to the results of indicators of creativity, were interviewed. The study found this game was quite common among students of MSU (3% − 12%), was approximately two times higher among MacArthur fellows (5% − 26%), as well as was dominant among scientists and artists. Most scholars with identified in childhood worldplay-signs suggest a connection between the early game and mature creativity.

The study found out the impact of intervention of simulation game for students of the first and second grades. The results of the study found that persons in the experimental group compared with the control one have significantly increased the performance on various aspects of the game and the index of the frequency of positive affective expression.

J. Richards provides "edge-of-chaos" theory of creativity, suggesting that the circumstances, which are widely disparate views and ideas that are not perfectly aligned with each other, can stimulate creative thinking, especially among bipolar emotional tilt. J. Barnes has developed procedures of play therapy well attached in accordance with the criteria set for above named theory. To clarify the effect of play therapy on the creativity of a person, one group of college students was involved in the play therapy, the other group of students at the time read and interpreted children's stories from different cultures [6]. Half of the students in each group showed a tendency to bipolar mood disorder, as measured by Millon Clinical Multiaxial Inventory. The results of the study found that those with a penchant for bipolar disorder who were impacted by play therapy have showed a more creative performance than others.

Effect of aerobic exercises on creativity was examined immediately after their execution, and after a 2-hour delay. The results of the study support the hypothesis that creativity will be greater at the end of aerobic exercises than when exercises are not performed (direct impact), creativity will be more after a 2-hour delay after exercises than when exercises are not performed (residual influence), creativity is not significantly different immediately after the exercises from creativity after a 2-hour delay after training (strong residual effect).

Not only the above factors (game, play therapy, physical exercises etc.), but also the cultural background of the educational and professional activity affect on creativity of a person. Creativity is a complex interaction of personality traits, work areas and the cultural environment. Given this approach, we thus actualize look at the effect on the creative potential of Eastern and Western culture. Persons differ in their creative abilities in part because they are in interaction with the macrocosm where you can find creative expression. Evidence of this is the work that examines Confucianism principles in the context of creative activity that lets you decide how Asian culture affects the creativity of a person.

Note that mood disorder, especially its bipolarity, causally associated with the work, has a long history in psychology. However, many of the obvious are the correlation and subject to alternative interpretation that mood disorder is not reflected directly on the creativity of a person. Analyzing the work of E. Dickinson, McDermott concludes that mood disorder which is a specific season is inherent for the specified poet. *In t*he study [7] E. Dickinson`s creative productivity is analyzed to test the hypothesis whether mood disorder effects on creative thinking. Analysis of E. Dickinson`s creative productivity and seasonal variations in its performance confirm the changes proposed by McDermott. Examples of the creativity against the seasonal mood disorders confirm the hypothesis that negative emotional experience supplies material for creativity. However, these results only provide dubious confirmation of the hypothesis that bipolarity impacts positively on the creative process. The regression results reflect the fact that the increased motivation, associated with hypomania, is also associated with an increased quality of the creative product. Moreover,

the residual relationship between affective state and quality of poetry (creative thinking) does not necessitate the conclusion that hypomania facilitates the creative process, because the goal can drive the symptoms of mania in people with bipolar disorder.

The study [8] evaluates the effect of marijuana use on creativity, presented in terms of divergent thinking. In addition, the author of the study aims to see how the creative potential of people who regularly use marijuana is different from creativity starters: those who uses marijuana, who takes medication for sedation and who does not use anything. The results show that marijuana use does not affect positively on divergent thinking (creativity) of beginners and reduces it for regular users.

Information content of the structural components of the creative potential is the subject of the time factor experience. In the study graphic artists worked with the questionnaire devoted to elucidate the effect of age on creative activities. Certain issues are related to changes in the creativity in terms of quality and quantity of work, sources of new ideas and approaches to artistic problems. *Persons* involved in the study commented on the impact of physical and sensory loss caused by their work and their differences from the young artists. Content analysis of written records of the artists, as well as ratings of their work show a high positive effect of age on the art. Amount of work increases with age, the quality increases, ideas of artists and their approaches to artistic problems have positive changes. Perceived short comings of aging are largely irrelevant or those which can be overcome. W. Crozier shows that the length of the literary activity can predict its performance. According to the analysis it was revealed that students solved real problems better, but were inferior to pupils in solving the problems with geometrical figures. In decision of verbal problems these groups do not differ. The above results are interpreted in terms of the interaction of the structure of the problem and the knowledge base. Knowledge increases productivity for creative tasks while functional tightness may occur in problems, not overloaded knowledge.

The study [9] aims to test assumptions about the relationship of creativity and the nature of society (individualistic or collectivistic). To this end, U.S. and Chinese doctoral students were asked about their creativity and sense of individualism or collectivism. It turned out that the Americans had a higher creative potential than the Chinese. As expected, the Americans have shown greater individualism, while the Chinese were collectivists. At the same time they share a high knowledge and skills in the field of mathematics.

Biographical information about the authors of the most popular songs from 1960 to 1990 shows that the band musically creative women are characterized by the following attributes: the first or second child; musical precocity; accommodation near or in the cultural Mecca; belonging to the layer below the middle class; early loss of parents; less income than bachelor's degree; leaving home till 19 years; problems in relationships with men after being achieved financial success; cooperation in musical projects; the presence of less than the average number of children; problems with record companies and managers; participation in charitable activities; the presence of mental disorders; lack of feminist identity; the ability to successfully recover after periods of interruption [10].

The fact, that among the factors in the development of the creative potential of a person there are many such which are subject to teacher`s impact, encourages employers to state that among the changes needed in the educational training to meet the growing demands of the workplace, the leading position is the creation of conditions for the development of creative thinking. However, many definitions of creativity complicate consistent educational response to the query of practice. The study analyzes the reasons for the failure to achieve recognized definition and formulate proposals for the joint determination of this kind.

Many countries are increasing the number of schools designed to promote creative thinking. Such actions are considered as a way to increase productivity and improve mental health. But the effort to replace the usual educational practice often meets resistance, loss of harmony and challenges that are unpredictable. R. Strom and P. Strom describe the actions that can be used to support creative behavior, and come to the conclusion that the rules that accompany the learning process at the all levels need to be reviewed. Creative thinking and creative problem solving are aspects of human cognition and behavior, which can be accessed through a large number of strategies. Recommended changes include teacher training, learning assessment methods, the use of technological tools, the expectations of students, adults desire to take into account the views of students on how to improve schools.

Development of creativity is not confined to the secondary, but in the professional schools. A number of scientific studies are accordingly made. Creative organizational and individual resources of universities were specifically studied. The study proves that the climate of higher education has an impact on the creative result. However, some institutional settings with a positive impact on the climate depress creativity, while the parameters of the negative impact on the climate support creativity.

In a study of factors affecting the creative process a variety of methods, including relying on the opinion of its direct participants, guide of organizations and their managers, and executive staff are used. However, this approach is not always scientifically justified. In the results of a survey of managers, their leaders and employees about the causes of innovation are presented. Analysis shows that the leaders compared with the managers pointed to several different factors that lead to success. Similarly, the perception of managers does not always coincide with the perception of their subordinates. The results should be interpreted in a dependence plane from participants` hierarchical level or form of their participation in the study.

Organizations recognize the importance of creative workers and explore ways to improve creative behavior of their employees. In studies of creativity considerable effort are aimed at understanding how the work environment promotes creativity. However, these studies pay little attention to the importance of the specific characteristics of the working conditions and organizational identification in improving the creative behavior of the staff. The study explores the impact of the production calls for the creative behavior of workers and argues that organizational identity plays a mediating role in the relationship.

It is proposed a number of methods that contribute to finding creative solutions of the problem. The authors study the effectiveness of the presentation of problem goals and investigate whether the method is effective in terms of individual differences in cognitive needs.

It is found that when two conflicting goals are more decisions and more effective solutions are consistently obtained than when the same two objectives are simultaneously submitted or are not submitted at all. In addition, the presentation of target is particularly effective as an aid in finding solutions for persons with low cognitive need.

Y.-C.Yeh [11] proposes a model for creativity development (Ecological Systems Model of Creativity Development), which emphasizes the dynamic relationship between 4 systems, which are personal characteristics, experience of family and school, organizational conditions and social environment.

Although existing researches suggest that giving individuals a choice approach to the problem would increase the creative achievements, the authors believe that this point of view has some limitations. They find that only a person with a rich past experience for solving problems of this area, who has been involved in purposeful learning, generates more creative results when he gets more choices.

Tips of graphic or verbal nature often help to find a new idea. However, there is no single answer as to their relative effectiveness. According to the study it is concluded that there is no significant difference in the rate of solving the problems associated with key-images compared with key-sentences. The key-sentences that have similarities to the problems are automatically used and involve problem-solvers in their initial presentation, which makes the problem solvable. More subjective the key-pictures are more functional in a deadlock for problem-solvers who know about the relationship between the images and concerns, helping the task so that it is solved.

It is not found out yet what heuristics are suited better to solving ill-structured problems. The study considers three heuristics (brainstorming, hierarchical technique, as well as the change in angle of view) to determine which ones generate the greatest number of solutions, the best solution, the most creative solutions. The results show that the hierarchical method promotes more decisions, and the highest percentage of participants who offered the best solutions: special training is associated with this method. Those who attended brainstorming probably got the most creative solutions after training. It is also found that the change in angle of view is relatively less relevant in terms of the best and most creative solutions.

There is empirical evidence that creative process is reflected in the affective state of a person. In it is examined how affective states, because of the nature of the perceived information, shape divergent thinking. For this purpose, a sample of participants was divided in four groups. In the first two groups the participants perceived the elevated and depressed approval. In the third group of participants neutral statements were offered, the fourth group was a control one. The study concluded that the affective impact on persons in the process of solving creative problems had a positive effect on their divergent thinking.

The study verifies the hypothesis that positive and negative moods may be different effects on creative problem solving as a result of pressure on the solution space of the problem. The results show a significant interaction between the variables *mood - time production ideas*. Specifically, positive mood leads to more points in the early production of ideas, while a negative mood leads to relatively greater achievements in the late production of ideas.

In the study the thesis that positive mood increases creativity independently from conditions is described as a hasty generalization of the particular case. As a consequence, it is concluded that creativity is a construct with many parameters and different moods increase creativity in different ways due to the different components of creative process.

The previous work has shown that positive mood can help to solve creative problems. However, there is evidence that positive mood can negatively affect creative thinking in conditions favorable to optimize the strategy solutions. In particular, it is argued that the opposite effect is observed under conditions that promote free choice and information processing strategies of satisfactory solution. The results show that positive mood improves achievements for completing tasks, negative mood inhibits these achievements. Moreover, people in high spirits may prefer satisfactory strategy that would lead to more of the proposed solutions. Persons in negative mood may choose the best strategy and be more concerned with the quality of their ideas, which adversely effects the performance of task solution.

The external evaluation of expectation of the production process of creative idea and the final product of creative process are considered in [12]. The results show that the expectation of evaluation has different effects on the variation and selective retention. Persons waiting for an external evaluation during the variation offered fewer ideas, but at the stage of the selective preservation showed the best results in their improvement. In this case, persons awaiting assessment only at the stage of selective preservation offered the most creative ideas. L. Millward and H. Freeman test the hypothesis: can role expectations limit or encourage innovation. In Study 1 they examine the expectations of differential roles for male and female managers. In Study 2 they determine limitation roles of male and female managers on the type and nature of the decision. The results show that innovative solutions more often inherent to men than women managers, while adaptive solutions more often inherent to women than men managers. The risks identified as potential barriers to innovation among women leaders include the risks associated with the consequences of a failure or error, criticism and denial of credit for ideas. However, the expectation of the differential role does not effect the production of the actual solutions.

The conditions of the creative process effect on its results. The authors try to identify problems that are particularly concerned by professional artists. The results of thematic analysis show large individual differences, but the next most frequently mentions: the loneliness; isolation; toxic paints, dyes and solvents; back pain; lack of recognition from the media and other artists; depression. Suggested remedies include the presence of contact with other artists, greater access to information related to the risk to health and the strategies to overcome depression.

Peak experiences, as described by Maslow and others, can be caused by a variety of actions. The study interviewed college staff, 93 % of which pointed to one or more of the preceding peak experiences triggered by music. Significant positive correlations were obtained between the exponents of participation in music and messages on incentives for play a musical instrument ($R = 0.2462$, $p = 0.013$) or listening music ($R = 0.2880$, $p = 0.003$). In addition, participants who receive high scores on participation in music tend to choose items from a list of 41 possible reaction to music, which combines a strong emotion and cognitive assessment.

In this study, the demographic variables of age, gender and level of education are not shown as having a significant relationship with the musical participation.

It is known that music major over minor is associated with happy feelings, which could enhance the achievements in the implementation of tasks. The study participants were working with tests for verbal and spatial awareness at a time when a piece of music by Handel (F Major) sounded and when the same passage treated in a minor order sounded. The results show that the music in a major structure is emotionally evaluated more positively compared with the estimate of its minor version of both genders ($p \leq 0.001$). The results of the study also find that women's achievements on verbal tasks are significantly elevated in sounding of major music compared to the results for the minor sound of music ($p = 0.018$). In addition, only for major music it is recorded a positive trend to get higher performance on verbal tasks for women than for men, and for men to receive higher scores on spatial tasks than women.

W. Niu examines the impact of personal and environmental factors on the creativity of students, as measured by different methods, including two product-oriented tools (end of the story and prepare a collage), two thinking toolkits (problem with the circle and complete the picture) and a tool for self-report regarding the ability of divergent thinking. The results confirm the hypothesis that personality (intelligence, personality, motivation, thinking style and knowledge) and environmental (school and family environment) factors play a crucial role in the creativity of students.

It is believed that creativity is a product of the personal qualities of the individual and the characteristics of the situation. In studies of creativity situational influences are generally measured in terms of the characteristics of creative atmosphere. The study performs an analysis of 42 works in order to assess the relationship between the characteristics of creative climate, such as support and autonomy, as well as different measures of creative productivity. As a result these characteristics of creative climate are found to be effective predictors of creative productivity. In this study it is found, moreover, that these options are particularly effective predictors for creative performance in turbulent high-pressure and competition.

According to the study it is showed that transformational leadership in the nominal group is superior in speed and flexibility of thinking than transactional leadership in the real group.

K. James and J. Eisenberg [13] report on the impact of personal and group identity for advances in algorithmic and original problems solving. Overall, these results indicate dispositional differences in how specific situational impact on the personality affect the propensity to use algorithmic compared with original approaches to problem solving.

The effectiveness of the creative process is affected by the character of the incubation period. In this incubation effects are not caused solely tips of environment [14].

The degree of expression of creative potential of a person (or group) is dependent on the conditions in which a person (or group) is working. S. Hemlin, C. Allwood and B. Martin studied the effect of the medium of creative knowledge in person and group creativity. By the analysis of the scientific literature through the medium of creative scope of knowledge, they determine the main factors contributing to the development of creativity at different levels of the organization.

Parts of interior design affect the flow of the creative process. The study with a set of images defined interior conditions, the greatest and least conducive to creativity. The analysis identified five characteristics that provided the greatest achievements in the creativity: the complexity of visual detail, view protection, using of natural materials, using less cool colors, using less industrial or composite materials. After this a test was used in the actual creative execution in two different interior environments. Creative achievements of the participants in the second study were larger in the conditions about creativity estimated by the first study participants.

Recent conceptualization of creativity suggests that the physical environment plays a key role in promoting the creative process, but previous research has paid little attention to the empirical demonstration of the links between the physical and social characteristics of the workplace and the subjective experience of creativity. In the authors consider the physical and social predictors of supporting creativity in the workplace and its impact on personal and group results. In particular they study the perception by employees of supporting for creativity as a possible mediator between objective indicators of distracting stimuli and the subjective evaluation of the social climate on the one hand, and self-esteem levels of job satisfaction and personal stress, on the other. The results show that environment distraction and characteristics of the social climate are closely associated with the perception by employees of supporting for creativity. Assessment of supporting for creativity mediates the relationship between the perception of the social climate and self-assessment of job satisfaction, social climate and stress, as well as between the environment distractions and job satisfaction.

K. Sheldon [14] evaluates the relationship of conflict target variables in the work of teachers. The results of the study reveal that the number of conflicts between personal attempts and the amount of ambivalence regarding attempts do not predict ratings in creativity. However, the extent to which subjects feel that they could manage the conflict correlates with creativity. The results support the assumption that tolerance in a conflict situation is the root characteristic of personality.

In the study the results of which are given in it turns out if the artists who face strong external compulsion in work differ with creative ideas from artists who are free to choose themes, materials, hours etc. Psychology students participated as a control group in this study. Artists from different domains in the arts gave definitions of creativity and sequenced the personal characteristics according to the proposed definitions. Content analysis of the definitions shows systematic difference between the free artists (painters or sculptors), artists with great professional pressure (architects and designers) and psychology students. The only aspect in which all groups agree, is the fact that creative persons tend to the large number of ideas.

The study focuses on the inhibitory factors of creativity in higher education. The obtained results using the Obstacles to Personal Creativity Inventory point to a number of common obstacles to creativity of students. In this case, the lack of time and opportunities most often mention. At the same time, significant differences were observed between Brazilian and Mexican students in a cluster of obstacles, which is known as a *lack of motivation*, as well as between students-men and students-women in clusters *control* and *shyness*.

A necessary condition of creativity is the existence of creative potential about someone who is drawn to it. It is known that the motivation to innovate is partly produced by subjective position regarding the feasibility of the differences in the behavioral act [15].

The ability to think creatively is associated with schizotypy, but the impact of the specificity of the cognitive benefits has not been finally clarified. A few scientific facts are only accumulated. In particular, in the study a high-schizotypal group demonstrated an advantage over a low-schizotypal group to overcome the constraints when generating the original responses.

Researchers have generally concluded that intuitive sense of how the final product will look like once persons are taken for the implementation of creative assignments appears in them. E.Policastro points to the validity of the construct of creative intuition and results confirm the source of this phenomenon: the autobiographical evidence, historical evidence, psychometric evaluation, experimental study. But one can not agree with the author that these sources are evidence that the allegations of creative intuition are clear, well-founded and empirically verified. Although some questions remain open, creative intuition can be described operationally and investigated systematically.

Creative activity is characterized by a high level of emotional components. The dominant emotion is pleasure of innovation. The estimates of the personal characteristics indicate that some personality traits can not explain the high level of professional happiness.

There is a reason to conclude that individual differences in the creativity are defined, but little research has focused on the development of creativity of persons, including children (particularly in early adolescence). The project considers individual differences in children's early adolescence creativity on the two measures of it, as well as the predictability of adolescent creativity across the dominant play behavior in preschool. The behavior in a realistic role play of children aged 5 years is evaluated in this study. When they were 10 – 15 years, they had two problems to be solved by creative thinking (TCT-DP and Alternative Uses Measure). The study found that a realistic role-playing game at the age of 5 years predicted the results of children in their early teens (with Alternative Uses Measure, but not TCT-DP). Gender differences were also found for the amount of time devoted to a realistic role-playing games at the age of 5 years, and for the achievement of TCT-DP; especially women are more involved in role-playing games at the age of 5 years and get higher on the TCT-DP in early adolescence than boys. It is not seen sex differences for Alternative Uses Measure. The above results suggest that the pre-school role-playing game is early creativity and identifies aspects of its development, which appear in early adolescence.

According to the study the attributes responsible for creative productivity, which in the end allowed to check the structural and content model of the creative potential of a person are identified and analyzed. The made analysis is based on the results of studies of problems of internal motivation, gain experience, cognitive style and individual creativity. The results showed that the innovative style and intrinsic motivation were associated with the creativity, if to use the self-assessment data. The accumulation of attributes, each of which has a positive

effect on creativity, has also a greater effect on creativity than separately considering the components.

The study [16] draws attention to the positive effects of random events in the career of successful women in the traditionally male domain of orchestral conducting.

Overall, the analysis shows that universities target the people who can think for adequate solutions of world problems. Integrating creative thinking in university education is an important need for the formation of future orientation and mainstreaming reforms in the political, economic and cultural fields. In this case, it must be noted that for many developing countries the creativity is rejected, while in developed countries the educational objectives are assigned to the increase of creativity and self-actualization of students. Turkish education system, for example, which is highly centralized and oriented, is looking for creative and innovative teachers who are able to reinforce the strategy of creative thinking and respect the creative ideas of students. G. Oral [17] checks whether the creativity index (speed, flexibility, originality and elaboration of thought) are considered in the selection of future teachers at their university. Students of the Faculty of Education of the University were a sample in this study. Regression analysis shows that although the creative figures have not been included in the system of selection in previous years, they are considered at a moderate, but significant level in recent years. These changes in the selection of future teachers are a sign of educational innovations, but they are not sufficient to reform it.

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