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Typological Characteristics of Innovatively Active Student Youth

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Abstract

This paper focuses on the results of the research on the psychological features determining the degree of success of the involvement of students into innovative activity as well as the efficiency of its implementation within a four-year project at the Department of Psychology (Tomsk State University) and the Russian Foundation for Assistance to Small Innovation Enterprises in the scientific-technical field (Moscow) – “Elaboration and Implementation of the Psychological-Educational Support of Getting the Young Involved into Innovative Activity”. Total sample of the research included 958 participants of the various youth innovation contests carried out by the governmental non-commercial organizations in three Federal Administrative Districts of Russia (City of Moscow, Southern Federal District and Siberian Federal District). Obtained research data on possibilities of developing a classification of the psychological profiles of the innovation-oriented student youth is discussed.

Keywords: Innovative Activity; Socio-personality Competences; Psychological Profiles.

1. Introduction

Currently existing governmental and non-governmental programs of identifying and supporting “innovators” among the students are still not backed up by the humanitarian procedures of evaluating the innovative potential and preparedness for innovative activity [1]. These programs only ascertain the manifested (demonstrated) level of innovative initiative of an individual, but they do not uncover deep psychological (motivational, personality, communicative, etc.) underpinnings of innovativeness and can not be regarded as an adequate basis for predicting behavior and activity of a person even in the middle-term timeframe. Thus, it is obvious that vast research in the field of psychology of innovative activity is required to solve this problem.

The principles of system anthropological psychology are posed as the system foundation of this research project which in addition to the potential of the epistemological, transsspective and tendency-based analysis as
well as the historical-evolutionary approach allowed us to reason the possibility of solving the scientific problem under consideration within the framework of the post-non-classical paradigm through the offered means and broaden the perspective of new understanding of the phenomenon of a person first of all from the point of view of their innovative (transforming) potential both in the relation to the surrounding reality as well as to themselves [2], [3].

1.1. Method

The set of questionnaires and diagnostic tools was administered to each participant of the target group independently of their involvement into innovative activity to gather the primary diagnostic data according to the developed by us research program. The following diagnostic tools were used in the empirical research:
- Self-assessment tool Career Anchors (CA) (E. Schein).
- Questionnaire Self-organization of Activity (SoA) (E.Y. Mandrikov).
- Scale Tolerance for Ambiguity (MSTAT-I D.L. McLain, adapted by E.G. Lukovitskaya);
- Diagnostic tool Specific Features of Communication (SFeC) (V.N. Nedashkovskiy).
- Diagnostic tool Life Satisfaction.

The psycho-diagnostic study of the socio-personality competences and motivational preparedness for innovative activity in the target group (focus group) represented by the participants of various youth innovative contests organized by governmental non-commercial organizations was carried out in the process of project implementation. The target group includes: participants of the All-Russian Youth Scientific Innovation Contest (in Russian it is abbreviated as UMNIK which can be translated in English as “the smart one”); participants of the Youth Contest of Business Innovation Technologies (“BIT-Siberia”); participants of the contest of the entrepreneurial projects “The First Step”; participants of the modern youth business project “Time is for Business!”. Total sample of the research is 958 respondents (195 people from the Central Federal District; 136 people – Southern Federal District; 625 people – Siberian Federal District). The age distribution of the participants is between 19 and 35 years.

1.2. Procedure

The results of the psycho-diagnostic study were collected in the data base and statistically processed by means of descriptive statistics, statistical analysis of mean values, correlation, variance, factor and cluster analysis. The empirical data was processed by means of the computer version of the “Statistical Package for the Social Sciences”13.0.

Mean values, standard deviation, the upper and the lower quartiles were calculated for each of the administered questionnaires and tests. This procedure was used to identify normative values for the sample of the participants of the youth innovation contests.

Statistical analysis of mean values with the Student’s t-distribution was applied to reveal the differences in the degree of expression of the features under consideration among the participants of the youth contests of different orientation.

Pearson correlation was applied to identify linear correlations (direct as well as indirect ones) between the features under consideration. In particular, the influence of age and gender of the respondents on various features of motivational preparedness for innovative activity was studied by means of this method.

One-Way ANOVA with the Least Significant Difference criterion was used to compare the features under consideration in the groups of the respondents identified during the research process.

Factor analysis was applied to identify the latent factors hidden from the direct observation but at the same time determining and regulating motivational preparedness for innovative activity. New factor structures and
Integrative variables were identified in the result of factorization of the individual psycho-diagnostic values of the basic characteristics influencing on the specific features of formation and development of the motivational preparedness for innovative activity. Each of these factors was interpreted by us independently of the other factors what provided an opportunity to discover the action of the existing regularities.

Hierarchical cluster analysis with the Complete Linkage method was applied to accomplish the task of developing a classification to divide the initial total sample of the respondents into groups (clusters, classes) integrated by the similar features. The method of measuring the distance based on the Pearson correlation was used for the procedure of the cluster analysis as a way of measuring the distance between the objects (clusters). Validation of clusters was carried out by means of stability of groups (robustness) on the repeated identical sample of objects.

Calculated normative values for the diagnostic instruments can be used to gain an informed insight into the level of expression of certain values of an individual through the correlation of individual psycho-diagnostic data with the values of arithmetic mean (simple average), the upper and the lower quartiles, etc, and left justified, with second and subsequent lines indented. You may need to insert a page break to keep a heading with its text. Avoid hyphenation at the end of a line.

1.2. Results

24 variables measured with the six diagnostic tools and included into the diagnostic set were analyzed. Three groups differentiated by the distinctive features of a psychological profile were identified. The representatives of the group 1 have a prominent orientation towards stability of the workplace and place of living. At the same time they are characterized by the lowest out of tree groups level of the regularity, self-organization and orientation at the present. Thus, it is significant to note that for the representatives of this group the high level of orientation towards stability and the low level of preparedness for self-organization can be considered as the deficits (deficiencies) hindering the process of getting involved into innovative activity. Prominent hardiness, aspiration for developing their professional competence and orientation towards acceptance of the entrepreneurial disposition can be regarded as personality resources.

The representatives of the group 2 are characterized by the high values of fixation, orientation towards stability of the workplace, stability of the place of living and aspiration for developing professional competence. Moreover they are characterized by the low level of hardiness, persistence, tolerance for ambiguity and life satisfaction. As deficits, impeding the process of getting involved into innovative activity, the following should be mentioned: the low level of hardiness and the low level of tolerance for ambiguity as well as the high level of orientation towards stability. At the same time, preparedness for self-organization and autonomy, as well as orientation towards acceptance of the entrepreneurial disposition and aspiration for developing their professional competence are viewed as personality resources.

The representatives of the group 3 are distinguished from the other groups by the high level of hardiness and tolerance for ambiguity, orientation towards challenge, management and entrepreneurship, the low level of stability of the workplace and place of living. At the same time, the low need for developing professional competence can be positioned as a personality deficit which may become the factor, hampering the process of self-actualization of a personality under conditions of innovative development of the modern society. Furthermore, participants of the contests in the scientific-technical field are differentiated between each other by the use of various strategies of getting involved into innovative activity as more or less universal ways of choosing the line of realization of the innovative potential. 26.1 % of the young people demonstrated the use of the strategy “idea generator” (which is characterized by the outstanding creativity, generation of unique ideas along with the latent persistence in their further development into a final product); 18 % demonstrated the strategy “researcher” (such position is characteristic of people who are accomplishing a particular scientific task; it is important for them to research a phenomenon, a process and they are not interested in how the product will be sold and what is required for that); 20.9 % demonstrated the strategy “manager” (orientation towards the idea
implementation, managing people and the process of innovation, risk-taking and regaining their composure under conditions of ambiguity); 35% demonstrated the strategy “performer” (precise and logical following the instructions along with the minimization of the personal active position). The comparative analysis of the psychological profiles of students participants of the contests of the innovative projects in the scientific-technical field and participants of the contests of the entrepreneurial business-projects revealed several interesting differences. The participants of the contests of the innovative projects in the scientific-technical field as compared with the participants of the contests of the entrepreneurial business projects are characterized by lower values of hardiness, self-organization, fixation; less prominent orientation towards management, challenge and entrepreneurship and less developed communicative abilities. At the same time, they are characterized by higher values of professional competence and orientation towards stability of the workplace. The most significant difference between two groups of the respondents is observed in the level of expression of the orientation towards management and entrepreneurship and also in the values of communicative competence. Higher level of these features is observed among the participants of the entrepreneurial business projects. The analysis of the target group work regularly carried out with the participants of the contests allowed us to reveal the psychological-educational context of the problems which at the final stage become obstacles of moving of the major part of “the smart ones” on to the organization of the entrepreneurial projects:

- identity of “the smart ones” has not yet been completely established. It is being rather in the process of establishing, emerging, identifying and self-determining. Thus, innovative activity often fulfills “simple” function of the orientation in the wide scope of opportunities and directions of development for the young innovators not being the central function in itself;
- over “fluid” identity leads to an inevitable blurring of any kind of the borders of innovative activity: one can give up on a project ready for implementation or already being implemented if it has become boring or switch onto another project; completely terminate the development process and get involved into the scientific research;
- entrepreneurial culture, its values and meanings are rejected by many of “the smart ones” or get denied as a promising field of the activity; or it is not assimilated enough. It also happens because of the fact that most of them have only generalized understanding of who a true entrepreneur “from the inside” is and how does their life - look “from the outside”. It leads to making premature life decisions what in the end “breaks down” the professional strategy;
- issues related to team-work in innovative activity, which as it is known make this activity more efficient, “suffer” on the part of the participants of the contests of the innovative projects in the scientific-technical field, as well as on the part of the participants of the entrepreneurial business projects. Often team-work gets rejected, neglected; its functions are not understood or in its process occurs role shifting, broadening or narrowing down psychological borders, etc. In the end, a “genuine” team is rather a rarity, than a well-established and common practice. It is a problem of team-building from the point of view of world psychological practice;
- young innovators lack the communicative competence and skills of presentation. It is the most obvious problem for them. It is usually connected with the problems of “being lost in translation”: in the narrow domain of the technical field for the purpose of project development a language is used which is comprehensible only to professionals in the technical field which is efficient “there”, but the language which has to be substituted for communicative purposes in the “other places”. Moreover, the innovators not only have to learn how to speak the same language with the investors and experts, but also learn how to psychologically competently make a self-presentation and an idea-presentation. The absence of the integral system of interaction between the scientific and commercial spheres at the present moment is a significant obstacle well reflected upon by the young people;
- extreme time pressure on the participants of the innovative projects in the scientific-technical field attempting to combine studying at university, scientific and innovative activity brings up the issue of the adequate time-management. Quite often at this life stage occur psychological and physical overloads resulting from the underestimation of rest, absence of private life and inability to switch from one task to another.

1.4. Discussion
The participants of the youth contests in the scientific-technical field are distinguished by the following distinctive features: clearly prominent orientation towards the creative approach to professional activity, the content of the professional activity which becomes for them an end in itself, providing satisfaction from the process and the result that, undoubtedly, promotes expressions of creativity, originality, independence of thoughts and actions. They act much less as to avoid troubles, are more oriented in their activity towards attaining a positive result, setting achievable goals, demonstrating persistence, purposefulness and responsibility. Such psychological features characteristic of these students should be particularly emphasized as “openness to changes”, need for freedom, autonomy, along with the less prominent orientation towards being cautious, the need to be protected from the outside, a tendency to observe traditions and customs in comparison with other students. It is clear that the young people oriented towards stability and security will avoid any innovations or changes which always bring along risks and ambiguity. Youth demonstrating innovative and scientific-research initiative are distinguished from the rest by their satisfaction with the previous experience and results of their activity which is reflected through their conviction in being empowered to control their life. It might be related to the fact that these students in contrast to the ordinary students have the experience of achieving goals, winning the contests and getting awards for their initiatives and activities. Winning success in professional self-realization gives the comprehension of the meaning, productivity of implemented activity and confidence in the opportunities to personally create one’s own life. The main value-meaning orientations, as a rule, are connected among this category of students with the success motivation in professional activity. Success motivation is determined by the individual attitudes – aspiration for autonomy, attaining high social status and enjoying life. Understanding the meaning of their activity and thorough consideration of the life perspectives allow them to bear the responsibility for the results of their activity, provide grounds for striving and relying on success. At that, the presence of goals, plans, confidence in one’s own power for their implementation significantly decrease the share of external negative motivation in the overall motivational sphere.

References